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FOREWORD

The 12th edition of the Accounting and Management Information Systems conference took place on June 7-8 2017 in Bucharest, Romania, at the Bucharest University of Economic Studies. We invite the scholars interested in accounting research to read the papers included in the conference proceedings.

We are very glad that our conference continues to be a preferred meeting place for worldwide renowned academics and emerging scholars, and we try to continue the tradition. The conference hosted 145 participants from 14 countries. Moreover, we are honored to have continued this year the close collaboration with our partners, including the International Association for Accounting Education and Research, ACCA, KPMG in Romania, and the Chamber of Financial Auditors of Romania. I thank you very much for the continuous support of our conference. Moreover, I would also like to thank the other conference sponsors: Deloitte, PricewaterhouseCoopers, Alitrans, TUV Austria Romania and Vulpoi & Toader Management.

A special thank you goes to the conference reviewers, chairs and presenters, who all make a great job in making this conference work. We appreciate your involvement very much. I would also like to thank our organizing committee for their work and time devoted to this conference. Cătălin Albu, Nadia Albu, Adrian Anica Popa, Dana Boldeanu, Daniela Calu, Liliana Feleagă, Raluca Guşe, Dragoş Mangiuc and Andrei Stanciu, continue to give up voluntarily their time to organize another edition of our conference.

I hope that we put up a good conference program, reflected in the conference proceedings, with interesting and relevant papers for accounting academics.

Prof. dr. Pavel NASTASE
Chair of the Conference

PS1 SUSTAINABLE DEVELOPMENT

Chairperson: Cagnur Kaytmaz Balsari, Dokuz Eylül University, Turkey

Financial performance improvement through sustainable development

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Financial performance improvement through sustainable development

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Abstract: *Sustainable development has become a global necessity. However, economic entities face difficulties in adopting sustainable principles, given the fact that they lead to conflicts between the needs of shareholders and stakeholders, between the costs incurred and the enterprise objective: the maximization of the business value. On the assumption that an economic entity will accede to the principles of sustainable development only if it will generate future economic benefits, this paper analyses the advantages generated by the integration of sustainability in the strategies of an organization, and also the impact of sustainable development on financial performance. In order to test the link between sustainable development and financial performance we selected the top 79 companies listed on the London Stock Exchange, from the Oil and Gas industry, which report information on sustainable development. The analysis was based on an econometric model. The variable financial performance was measured by the result before taxes, and sustainable development was quantified based on predetermined criteria according to a rating scale proposed by the authors. The results reveal the existence of a positive influence of sustainable reporting on financial result, although the impact is statistically insignificant. The paper contributes to the international literature by highlighting the existence of a positive relationship between sustainability and performance and to the sustainable development implementation in economic entities by accentuating its advantages.*

Keywords: *sustainable development; social responsibility; environment; society; performance*

1. Introduction

Sustainable development represents a concept and an ideology that has gained great momentum in the past years, evolving from a new concept to a well-recognized term. The concept of sustainable development emerged in the context of problems like energy consumption, wastes, greenhouse gases emissions (Chong *et al.*, 2016), pollution, overexploitation and scarcity of natural resources, deforestation, disease, and starvation. Its development lies on the stakeholders' pressure regarding the adoption of a more sustainable conduct and of sustainability reporting practices (Lungu *et al.*, 2016).

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In general, sustainable development aims to improve the negative effects of environmental pollution, taking into account the necessity to meet the needs of present generation while ensuring the maintenance of the environmental factors for future ones (Dogaru, 2013). In other words, sustainable development is considered that optimal level of development that allows satisfying the present needs without compromising the needs of future generations (Gaspar *et al*., 2017). It also can be defined as a way of satisfying humans' socio-economic needs in harmony with nature, following the principle of interdependence between humans and nature (Bolis *et al.*, 2017).

Thus, in order to preserve nature and ensure the future, the concern for sustainable development become an important point on the agenda of many world countries. However, meeting the needs of both present and future generation at the same time while protecting the nature is not an easy task. A perfect equilibrium is impossible, but a responsible thinking and behaviour are not. People, authorities and companies have to work together and anticipate the benefits of being sustainable, not only for themselves, but for every part of the world.

One way in which sustainable development can be ensured, refers to the integration of environmental issues into the European Community policies and national policies (Dogaru, 2013). In Romania, the forces that support the institutionalization of Corporate Social Responsibility are the government, the European institutions and stakeholders such as economic entities, Big Four companies and the academic environment (Gușe *et al.*, 2016). Some countries have gone even further than that. Ecuador, for example, became the first country to include in their Constitution the rights of nature (Kauffman and Martin, 2017).

However, rules and regulations are not a sure way to ensure the sustainable development of a country. In order to become a reality, sustainable development requires the adoption of sustainability principles by the whole society, involving the community or society as a whole, meaning individual people, but also economic entities. This requires the integration of sustainable development values in the decisions making process, particularly through education for the promotion of sustainability of the decisional factors, through ethics, cooperation and respect for the environment (Bolis *et al*., 2017).

Beside sustainable development, the international literature also brings up for debate the concept of Corporate Social Responsibility (CSR) which refers to the company's activities related to the responsible social management of business and the investment leading to sustainable development (Popa, 2015). Corporate social responsibility can be defined as the commitment of the organization to behave ethically and contribute to economic development while improving the quality of life for employees, community and society (Popa, 2015) or as a concept of business management in accordance with which the company is not only oriented towards making profit but also towards social and environmental interests (Kadłubek, 2015). In general, it is considered that CSR is a tool that supports the sustainable development (Paredes-Gazquez *et al*., 2016).

The biggest problem however is represented by the means we can use in order to motivate economic entities to voluntarily comply with the principles of sustainable development. In general, economic entities have as a primary objective to maximize the shareholder value. Nevertheless, in the current circumstances, they are forced to integrate in the company's strategies the requirements of the stakeholders, namely the adoption and implementation of the sustainable development principles, which will imply an increase in costs. Thus, the interest of shareholders and stakeholders can sometimes be divergent. Considering these conflicting objectives, we wonder way and if economic entities should focus on sustainable development and if such an approach could be beneficial for the company.

In this context, the first objective of the paper aims to examine the reasons why economic entities should eighth for the integration of sustainable development in their activities, in order to motivate, at a theoretical level, this strategic decision. This objective in achieved through the analysis of the international literature and the highlighting of the advantages that sustainable development adoption generates for economic entities.

The second objective of the paper is to analyse the impact of the sustainable development implementation on entities' financial performances. We start from a theoretical point of view, arguing that economic entities will voluntary adopt the sustainable development principles without being constraint by stakeholders if such an approach will generate economic benefits in accordance with the requirements of shareholders and the objective of the company. Then we test the link between financial performance and sustainable development through an econometric model. The analysis was based on 79 companies listed on the London Stock Exchange, from the Oil and Gas industry, which report information on sustainable development. To measure financial performance, we used the result before taxes and for sustainable development we used a rating scale developed based on the information offered by the literature review regarding the most important criteria for sustainable development. This analysis has a double objective: to verify if sustainability contributes to the creation of value or if, on the contrary, it only represents an outflow of resources without generating economic benefits for the company and to support the adoption of sustainable development principles in economic entities.

The rest of the paper is structured as follows: the next section discusses the implementation of sustainable development in economic entities, the second section presents the research methodology, followed by the analysis of the impact of sustainable development on the financial performances of entities listed on the London Stock Exchange and conclusions.

2. The sustainable development and economic entities

Although economics proves to be found in every aspect of human activity (Williams, 2012), the preoccupation for a better quality of life have been always an important pillar of human development. The benefits offered by the sustainable development have impact on people, on the environment and society. Thus, sustainable development, which involves an economic, social and environmental development that allows satisfying present needs without affecting the needs of future generations, is a responsibility of all society members, so economic entities also have a fundamental role (Baumgartner and Rauter, 2017).

However, regarding economic entities, a gap appears between any business objective and the implementation of sustainable development policies within the organizations. Thus, any entity has as an objective the maximization of the business value. This means the maximization of owners' property or net assets, increasing the income. However, the adoption and implementation of sustainable development entails higher costs for economic entities such as costs related to environmental rehabilitation, costs of diminishing or eliminating pollution, waste control, safety at the work place, the involvement in social development, etc. This leads to lower financial results. The international literature mentions that corporate social responsibility reduces capital by the expenditure or investment of resources that could be allocated to the company's development, facilitates managers' opportunity to pursue their own interests, can lead to positive investments for stakeholders at the expense of shareholders' interests, can put the manager in a position to choose between the needs and demands of shareholders and stakeholders that can sometimes be contradictory or, if the entity does not have sufficient resources, in a position to choose between making profitable investments or implementing the sustainable development initiatives (Bhandari and Javakhadze, 2017). The progress towards a sustainable development has become a permanent challenge for all the businesses that affirm to be socially responsible (Melissen *et al*., 2016) and companies seek for profits while trying to fit in a comprehensive social responsible society.

In this context, a fundamental question arises: why should economic entities implement sustainable development policies? Even though, sustainability has been on the world's most important leaders' agenda, its true nature is arguable. The motivation of social responsibility is not clear. It might be an ethic dimension or a necessity of aligning companies to a new market trend. In general, economic entities establish social and environment objectives either: because they are forced by owners, by stakeholders, or legislation; because of the pressures from the business environment; on their own initiative, based on ethical reasons; or in order to obtain economic benefits (Baumgartner and Rauter, 2017). We can say that the adoption of sustainable development principles within the strategy of an entity is based either on a market or a stakeholder orientation (Heikkurinen and Bonnedahl, 2013). In the market orientation, the organization focuses on meeting the needs and expectations of potential customers, as measured by the degree of customer satisfaction, while stakeholder orientation focuses on the interests of a large group, which leads to the inclusion of the concerns regarding social and environmental issues in the entity's strategy (Heikkurinen and Bonnedahl, 2013). The literature mentions four theories that may explain the perception of CSR by economic entities namely: the instrumental theory in which is considered that the entity's primary role is to create wealth, wealth that is good for society; the political theory which is based on a reciprocal relationship between the entity and society, and according to which the company has certain responsibilities towards the local community; the integrative theory according to which society affects the business and therefore its objective should be broadened beyond wealth creation in order to consider the requirements of the society; and ethical theory, according to which the decisional process is based on ethical principles (Paredes-Gazquez *et al*., 2016). But in order for the sustainable development to be truly embraced by a company, it should not be just a consequence of customer or shareholder orientation, it should not have to come from negotiating with others or from the hope of future benefits, but must come from the company's desire, its own initiative, because it values sustainability itself (Heikkurinen and Bonnedahl, 2013).

But why would companies voluntarily comply with the principles of sustainable development? What entity would employ additional costs without gaining a benefit in return? If we base our judgement on the principle that any activity is judged by a cost-benefit analysis, we must identify the benefits that sustainable development implementation provides for economic entities.

A first advantage of the application of the sustainable development principles is based on a rational consumption, which means a more efficient allocation of existing resources within the society. This can lead to lower costs of consumed resources, and therefore it can increase the outcome and financial performance. Among the benefits of adopting sustainable development principles we can include the following: it reduces costs and risks, it improves the entity's competitiveness on the market, its reputation and legitimacy, it creates value, it increases the productivity and process efficiency, it contributes to sustainable products and services and reduces the risks associated with environmental and social impact. It also increases profits, reduces costs, increases stock prices, improves employee satisfaction and the degree of innovation, and increases productivity (Baumgartner and Rauter, 2017). The adoption of sustainable development can also lead to the improvement of financial performance as a result of better relations with the stakeholders, to the increase of sales, and it can also improve employee morale and it can increase productivity (Bhandari and Javakhadze, 2017). Moreover, social responsibility may improve firm performance, its reputation, may improve customer loyalty (Mehralian *et al.*, 2016), improves stakeholders` satisfaction, has a positive impact on the company's reputation, may promote a more efficient use of resources and may have a negative influence on earnings management (Gras-Gil *et al.*, 2016). CSR can reduce costs and risks, improves the company's reputation, its competitive advantage, the relationship with stakeholders and allows attracting competent employees (Wang *et al.*, 2016).

Nevertheless, we ask ourselves the question to what extent sustainable reporting truly influences the financial results? Regarding the impact of the adoption by economic entities of the principles of sustainable development or CSR on performance, the international literature shows a positive or a negative impact, or the absence of any significant links (Bhandari and Javakhadze, 2017; Xie *et al.*, 2017; Mehralian *et al.*, 2016; Rodriguez-Fernandez, 2016; Reverte *et al.*, 2016; Youn *et al.*, 2015; Karaye *et al.*, 2014; Saeidi *et al.*, 2015; Nollet *et al.*, 2016; Wang *et al.*, 2014). For example, some studies reveal a positive influence of Corporate Social Responsibility on performance in the banking sector (Cornett *et al.*, 2016). Others consider that the relationship between sustainable development and financial performance is mediated by several factors. Thus, some authors outline that the relationship between sustainable development and financial performance is mediated by customer satisfaction, and that the impact of the sustainable measures on customer satisfaction is emphasized by the institutional environment (Xie *et al.*, 2017). Other authors consider that between CSR and financial performance is a bidirectional link (Rodriguez-Fernandez, 2016). In other cases, total quality management (TQM) is the variable that mediates the relationship between social responsibility and organizational performance as measured by balanced score card in the pharmaceutical sector (Mehralian *et al.*, 2016). Another mediating factor between CSR and corporate financial performance can be the stakeholder influence capacity (Karaye *et al.*, 2014). The link between CSR and firm performance can be explained by the positive impact of CSR on reputation and competitive advantage (Saeidi *et al*., 2015). Other studies report a direct effect of CSR on innovation and organizational performance, innovation being in some cases a mediating factor (Reverte *et al*., 2016). Some studies indicate that in certain circumstances the costs incurred by the entity for CSR lead to the creation of value for shareholders up to a certain limit of the spending (Fatemi *et al*., 2015).

3. The premises and research methodology

Starting from the premise that an economic entity will take an action only if it will generate future economic benefits, the present research aims to analyse the impact of sustainable development policies implementation on the organization's performance. If sustainable development has a positive influence on performance, then its adoption by the economic entity is justified. Under these circumstances, the main objective of this research is the analysis of the impact of the adoption and implementation of sustainable development on the outcome of an economic entity. The analysed hypothesis addresses a significant positive impact of sustainable development reporting on the financial results of a company.

Hypothesis 0: *Sustainable development reporting has a significant positive impact on the financial performance of an economic entity.*

The proposed econometric model can be constructed, starting from the hypothesis stated, as follows:

$\boldsymbol{RI = b_0 + b_1 \times SDI + E,}$
where: *RI= Result Index, SDI= Sustainable Development Index, E= Error*

To test this hypothesis through the proposed econometric model, we selected the top 100 companies, according to market capitalization, that are listed on the London Stock Exchange, in the Oil and Gas industry. The selection of the companies from the Oil and Gas industry is based on two fundamental reasons, namely: the selection of a field with significant impact on the environment and society and the need for comparability between the companies that are analysed.

We have analysed the online disclosures and observed that the most important secured protocols used by organizations to publish reports on the web are SSL/TLS, SSH, HTTPS, IPsec. These protocols ensure the protection of information based on three aspects: confidentiality, integrity and availability. The confidentiality of the reports ensures the accessibility of information only by authorized persons. The integrity assumes that information does not reach to unauthorized persons and availability is about ensuring access to information when it is required. We also noticed that the technologies used to build the sites, platforms and web applications have an essential role accessing information in real time. Using the latest technologies, the web architecture ensures optimized and scalable application, high performance, fast and dynamic sites, and responsive design platforms. There are different formats of the electronic reports published by the organizations and used by end-users: HTML, XML, PDF, DOC, EXCEL. All information from the reports are mapped with the internet architecture and secured using internet security protocols based on cryptographic algorithms.

In order to measure the financial performance, we have chosen the profit or loss before taxation from the 2015 consolidated financial statement (given the availability of data at the moment when the research was conducted), and convert the information in million £ at the exchange rate from December 31, 2015. This measure was undertaken for the sole purpose of information comparability. The motivation for choosing the entity's result is simple. We believe that the result, which includes both revenues obtained as well as expenses incurred, reflects best the two ways in which sustainable development can influence the outcome: revenue growth (by improving the company image, customer satisfaction, etc.) and costs reduction (by efficient resource allocation and production, etc.). Moreover, this indicator includes any potential expenses undertaken to implement sustainable development policies. The result before taxes is chosen in order to eliminate fiscal considerations. For the unity of the analysis we constructed o scale of points for the quantification of the results, as presented in Table 1. For a negative result, we granted 0 points; for a result between 0 and 100 million £, 1 point, for a performance between 100 and 1.000 million £, 2 points and for a performance exceeding 1.000 million £ we granted 3 points.

Table 1. **Result Index**

Result before taxes	**Scores**
<0	*0*
[0; 100)	1
[100; 1.000)	2
≥1.000	3

(*Source*: Authors' processing)

For sustainable development quantification we have constructed an index taking into account a number of criteria considered relevant for its evaluation that was applied to the sustainable reporting published by companies. The score assigned to each of the criterion is given on a scale of 1 to 3, as follows: 3 points for completely fulfilling the criterion, 2 points for a medium compliance and 1 point for minimal information.

The first criterion analysed in order to quantify sustainable development refers to the *manner of presentation of information regarding sustainability*. Companies show the CSR activities in their annual report or in a separate report specifically for this purpose (Akin and Yilmaz, 2016). 3 points will be granted for a detailed report, including aspects related to the economic, social and environmental sustainability dimensions, 2 points for a brief reporting and 1 point for the mere mention of an entity's commitment to sustainable development.

Another important aspect taken into account is the number of pages corresponding to the sustainability reporting. In this case, 3 points will be given for a report that exceeds 10 pages, 2 points for a number of pages between 1 and 10 and 1 point for less than one page.

The reporting framework applied by the entity regarding social and environmental issues it will also be consider. Thus, a maximum score will be awarded if the entity voluntarily publishes information in accordance with standards issued by international organizations (such as the GRI Guidelines, ISO 26000 Guidance on Social Responsibility, United Nations Global Compact, World Business Council for

Sustainable Development Guidelines and Institute of Social and Ethical Accountability Guidelines etc.), 2 points if the entity reports voluntary, according to their own criteria and 1 point if the reporting is just a consequence of legal obligation and regulations.

Also used for the evaluation of sustainable development is ***the involvement of governance structures in the reporting regarding sustainability***. An involvement at the highest level, respectively of the board of directors will be given 3 points, 2 points will be awarded for the involvement of superior management structures (Director in charge of Sustainable Development, CFO, marketing director, etc.) and 1 point for the allocation of these responsibilities to other executive structures.

In quantifying sustainable development, environmental and social aspects will also be taken into account. The social perspective of sustainable development requires the entity to act responsibly towards customers, investors, state, by motivating employees (Martinez-Conesa *et al*., 2017). The social aspects of sustainable development are based on elements such as work health and safety, accident prevention at the workplace, diversity and equality, human rights compliance, corporate governance, employee development, ethical conduct, reporting on the social impact of the business (Baumgartner and Rauter, 2017; Schöggl *et al*., 2017), opportunities for creating new jobs, environmental protection, the use of materials without risk, product innovation to improve their quality and safety (Xie *et al*., 2017), health damage of the community members and their relocation, involvement or implementation of social projects, providing financing for social projects, involvement in the community, charity events, and others. In quantifying the social dimension of sustainable development we will take into account the social impact and the description of the social measures adopted by the entity as part of sustainable development. 3 points will be granted for a detailed description, 2 points for a brief description and 1 point for a mere mention for each of the two analysed criteria.

Regarding the environmental component of sustainable development, it is based on environmental protection and improvement of environmental performance (Martinez-Conesa *et al*., 2017). The environmental impact (degree of pollution, resource consumption, etc.) will be quantify with 3 points for a detailed description, with 2 points for a brief description and with 1 point for a mere mention of the impact on the environment.

We will also award points for the description of the measures taken in order to reduce the environmental impact. Economic entities should consider for these dimensions various aspects related to work materials, the process of products/services realization which should include technology environmentally-friendly, an efficient consumption of resources leading to the achievement of products oriented towards environment, minimizing environmental impact (Baumgartner and Rauter, 2017), waste control, environmental pollution, use of renewable resources, participation and sponsorship of activities intended to protect the environment (Xie *et al*., 2017), the achievement of environmental certificates (Shi *et al*., 2017), the use of alternative resources, the reduction of resource consumption, recycling, etc. 3 points are awarded for a detailed description, 2 points for a brief description and 1 point for a mere mention of the existence of measures taken for the environmental protection.

Regarding the economic dimension, sustainability refers to general aspects that the entity must meet in order to remain on the market, aspects including technology and innovation (Martinez-Conesa *et al.*, 2017). The relevant aspects continue with knowledge management, collaboration, financial stability and profitability as a result of sustainable activities (Baumgartner and Rauter, 2017). To assess the economic dimension of sustainable development, information regarding financial investments corresponding to sustainability policies will also be included in the analysis, relevant for the study being elements such as the costs incurred or recorded and the reported results regarding sustainability. The detailing of the financial aspects will be awarded with 3 points, a brief description will receive 2 points and the mere mention of financial aspects of sustainable development will get 1 point.

One last aspect considered relevant in quantifying sustainable development is the type of information included in the *reporting of sustainability*. If the entity publishes both qualitative and quantitative information, 3 points will be awarded. If the entity publishes exclusively qualitative or quantitative information, 2 points will be allocated. And, in the case in which the entity publishes ambiguous/irrelevant information, 1 point will be awarded. The criteria and the scale of values used in quantifying sustainable development are presented below.

Table 2. **Sustainable Development Index**

No.	**Criteria**	**Scores**
1	*Manner of presentation of information regarding sustainability*	
	- detailed	3
	- brief	2
	- the mere mention of an entity's commitment to sustainable development	1
2	*Number of pages corresponding to the sustainability reporting*	
	- more than 10 pages	3
	- between 1 and 10 pages	2
	- less than 1 page	1
3	*The reporting framework applied by the entity*	
	- Voluntary reporting in accordance with standards issued by international organizations	3
	- Voluntary reporting, in accordance with their own criteria	2
	- Mandatory reporting, according to legal regulations	1
4	*The involvement of governance structures in the reporting regarding sustainability*	
	- Board of Directors	3
	- Superior management structure	2
	- Other executive structures	1
5	*Description of the impact on employees and society*	
	- detailed	3
	- brief	2
	- The mere mention of the existence of social measures adopted	1
6	*Description of the social measures taken by the entity as part of the sustainable development - for the protection and development of employee and society*	
	- detailed	3
	- brief	2

	- The mere mention of the existence of social measures adopted	1
7	*Description of environmental impact*	
	- detailed	3
	- brief	2
	- The mere mention of the impact on the environment	1
8	*Description of the measures taken to reduce the environmental impact*	
	- detailed	3
	- brief	2
	- The mere mention of the existence of measures taken for the environmental protection	1
9	*The economic dimension of sustainable development -Information regarding financial investments according to sustainability policies*	
	- detailed description	3
	- brief description	2
	- The mere mention of financial aspects of sustainable development	1
10	*Types of information included in the reporting of sustainability*	
	- The entity publish both qualitative and quantitative information	3
	- The entity publish qualitative or quantitative information	2
	- The entity publish ambiguous/irrelevant information	1

(*Source*: Authors' processing)

4. Research results

From the top 100 companies of the Oil and Gas Industry listed on the London Stock Exchange, selected for our study in accordance to the Index of capitalization, only 79 report information on sustainable development, and where thus included in our analysis.

For the 79 companies we retained the profit or loss before taxation from the 2015 consolidated financial statement, and convert the information in million £ at the exchange rate from December 31, 2015. For the obtained values, we applied the indexing scoring developed by the authors and presented in Table 1. This measures were undertaken for the sole purpose of information comparability.

For the construction of the Sustainable Development Index we analysed the information reported on sustainability and corporate social responsibility and published in the consolidated financial statement, the company's web sites or in a separate report on sustainability. We graded the information obtained based on the criteria and the scale of values constructed by the authors and presented in Table 2.

We observed that although the listed companies publish information regarding sustainability in a large proportion (79% from the analysed entities), with the involvement of superior management structures, in general the data that they offer are briefly presented, in reports that include between 1 and 10 page and that the reporting initiative is in fact a consequence of legal or mandatory obligation for compliance for most companies. Moreover, at a general level, we notice that the publication regarding information such as the impact on employees, society and environment, the measures taken in order to mitigate the impact and also the economic dimension of sustainable development are mere to very briefly presented, in qualitative information predominantly. The average value of the Sustainable Development Index criteria is presented in table 3.

Table 3. **Average values of the Sustainable Development Index Criteria**

No.	**Criteria**	**Average value**
1	*Manner of presentation of information regarding sustainability*	*1.52*
2	*Number of pages corresponding to the sustainability reporting*	*1.9*
3	*The reporting framework applied by the entity*	*1.28*
4	*The involvement of governance structures in the reporting regarding sustainability*	*2.2*
5	*Description of the impact on employees and society*	*1.3*
6	*Description of the social measures taken by the entity as part of the sustainable development - for the protection and development of employee and society*	*1.5*
7	*Description of environmental impact*	*1.4*
8	*Description of the measures taken to reduce the environmental impact*	*1.47*
9	*The economic dimension of sustainable development -Information regarding financial investments according to sustainability policies*	*1*
10	*Types of information included in the reporting of sustainability*	*2.3*

(*Source*: Authors' processing)

The two indexes, namely the Result Index and the Sustainable Development Index obtained through the analysis of the published information were used for the development of the econometric model that reflects the way in which sustainable development influences the economic entities result before taxes.

The regression model presents as follows: $\boldsymbol{RI= -0.65_0 + 0.06x\ SDI+ E}$. The low variation of the lower and upper limits of the intervals where the coefficients can be found proves that their estimation is very close to the reality. The coefficients themselves show that the results obtained by the company in the case of which sustainable development would not be applied will be of -0.65 point, indicating a loss. At the increase with 1 point of the sustainable reporting index, the result will increase with 0.06 points. Over all, this indicate that the reporting regarding the sustainable development positively influences the results that can be obtained by companies. This aspect is also sustained by the t test (t statistic = 4.54 > t critic = 1.99), the p-value test (p-value = 0.0000203572< α = 0.05) and the F test (F statistic =20.62 > F critic = 3.97) showing that sustainable development has an influence on performance.

Table 4. **Variation of Coefficients and Regression Coefficients**

	Lower 95.0%	*Upper 95.0%*	*Coefficients*
	-	-	-
Intercept	1.1223681320	0.1706051150	0.6464866235
SDI	0.0359860931	0.0921916828	0.0640888880

(*Source*: Authors' processing)

The value of Multiple R of 0.46 also indicates the existence of a connection between sustainably reporting and a company's results, although not a very strong one. This finding is supported by the value of R Square that shows the fact that only 21.12% of the result before taxes variation in explained by the variation in the sustainability reporting. The insignificance of the connection is also revealed by the analysis of the performance variation. Thus, from a total variation of 46.61, only 9.86 is explained by the regression model.

Table 5. **Regression Statistics**

Regression Statistics	
Multiple R	0.459607662
R Square	0.211239203

(*Source*: Authors' processing)

Table 6. **Variation**

	SS
Regression	9.845351192
Residual	36.76224374
Total	46.60759494

(*Source*: Authors' processing)

In conclusion, ***Hypothesis 0:*** *Sustainable development reporting has a significant positive impact on the financial performance of an economic entity* is not supported, due to the fact that although sustainable development reporting has a positive impact on the financial performance of an economic entity, it is not statistically significant.

Despite the fact that the connection between sustainability reporting and performance is not of great impact, the important fact is that it still exists. If economic entities can obtain increased profits, regardless of how small, then the sustainable development principle implementation deserves to be taken into account, especially when it's a must for the environment and society.

5. Conclusions

Sustainability reporting is a double way process. First, it describes the social and environmental actions within an uncertain context of social responsibility. Then, it is driven by economic gains, corporate image and stakeholders` requirements (Patari *et al*., 2016). This situation leads to a questionable motivation for sustainability, as it seems to be a more economic than moral driven evolution. It is still unclear if disclosures on social responsibility became part of business strategies in order to protect the society and the environment or they became tools that improve visibility on the market and attract stakeholders' attention. Sustainability is not always the same for different stakeholders, as their perceptions are influenced by multiple factors. In order to achieve their goals, companies act as social actors that seem to understand people`s actual concerns. Building strong relationships with stakeholders is a tool that ensures good reputation and visibility, but, in essence, it should be a moral concern (Villiers *et al*., 2016).

The literature review allowed us to emphases the advantages that de adoption and implementation of sustainable development principles can offer to economic entities such as: rational consumption, lower costs of consumed resources, an increase in outcome and financial performance, it improves the entity's competitiveness on the market, its reputation and legitimacy, reduces the risks associated with environmental and social impact, improves the relations with the stakeholders, improves the company's reputation, improves customer loyalty, improves stakeholders' satisfaction, etc. All of this advantages support at a theoretical level the sustainable development implementation by the economic entities.

Although, in speaking about sustainability we may expect for a company to be socially responsible, at a closer look, the truth is that being sustainable depends on being financially profitable (Patari *et al*., 2016). Investments in social and environmental projects need substantial economic efforts. The creating value process, sustainable jobs and business ethics (Siew, 2015) are long term processes that require not only time, but also financial resources. Because of resource limitation, this also created a tension between social responsibility and profits. Thinking of money and sustainability, it might seem unlikely to achieve both economic and social advantages at the same time.

Starting from the hypothesis that economic entities will voluntary adopt the sustainable development principles if it will generate economic benefits, we tested the link between financial performance and sustainable development through an econometric model. In our analysis to see if sustainability is a way to increase or to decrease economic wealth, we selected 79 companies from the Oil and Gas Industry, that are listed to the London Stock Exchange Market and that publish a report on sustainable development or Corporate Social Responsibility. We measured financial performance by using the result before taxes. We selected this indicator based on the fact that it includes elements related to sustainable development such as costs and revenues, without taking into consideration fiscal elements. We quantified the sustainable development of economic entities by analysing their sustainability data and reports based on a set of criteria previously defined and measured by a scale from 1, for summary or brief information to 3, for detailed information. The analysis of the econometric model, based on the hypothesis that sustainable development contributes to the improvement of financial performances, revealed that sustainability reporting positively influences the result before taxes of economic entities, although not in a significant manner. The findings are thus in accordance with the international literature which report a positive influence of sustainability on performance and with the mixt results reported due to the fact that the link is not statistically significant. The analysis shows however, that sustainability contributes to the creation of value for the company, supporting thus the adoption of sustainable development principles in economic entities.

We believe that the importance of sustainable development transcends the simple focus on the positive impact that it can bring to the financial results or reputation of an economic entity. The general purpose of sustainable development is the improvement of the economic, social and environmental systems. That way, we consider that economic entities, as part of the problem and of the solution to the sustainability problems, should include in their strategy the general objective of sustainable development, and not for personal benefits, but because this is the right thing to do. The adoption and implementation of such measures meant to promote sustainable development in the economic entities may be enhanced by the development of integrated financial statements and are consistent with the principles of sustainable development, instead of drafting a separate report on sustainable practices (Sudana, 2015).

The development of integrated financial statements will allow companies to declare the involvement in sustainable development and will promote responsibility for its implementation, by reporting the entity's economic, social and environmental responsibility (Sudana, 2015). Moreover, it may be necessary to abandon market or stakeholders` orientation in the entity strategy development and to adopt a sustainable development orientation (Heikkurinen and Bonnedahl, 2013). Another particularly important aspect is the influence of cultural values on how an entity perceives CSR: culture influences ethical values, which in turn have an impact on how CSR is seen in economic entities (Paredes-Gazquez *et al*., 2016). In other words, organizational culture and managerial conscience are among primary characteristics that drive towards social responsibility.

The limits of our paper refer to elements such as: the limitation of our study to a small number of companies and to just one industry; the limitation of the criteria's taken into account in the evaluation of the sustainable development; and the analysis of a direct simple connection between sustainable development and performance without taken into account mediating factors.

Based on these considerations, our future research will focus on methods that can be developed and used in order to incorporate sustainable development as an integrated part of an economic entity, and transform sustainability from a "must" into a "normal" objective/strategy.

References

Akin, A. & Yilmaz, İ. (2016) "Drivers of Corporate Social Responsibility Disclosures: Evidence from Turkish Banking Sector", *Procedia Economics and Finance*, vol. 38:2-7

Baumgartner, R.J. & Rauter, R. (2017) "Strategic perspectives of corporate sustainability management to develop a sustainable organization", *Journal of Cleaner Production*, vol. 140, Part 1:81-92

Bhandari, A. & Javakhadze D. (2017) "Corporate social responsibility and capital allocation efficiency", *Journal of Corporate Finance*, vol. 43: 354-377

Bolis I., Morioka, S.N. & Sznelwar, L.I. (2017) "Are we making decisions in a sustainable way? A comprehensive literature review about rationalities for sustainable development", Review Article, *Journal of Cleaner Production*, vol. 145: 310-322

Chong, Y.T., Teo, K.M. & Tang, L.C. (2016) "A lifecycle-based sustainability indicator framework for waste-to-energy systems and a proposed metric of sustainability", *Renewable and Sustainable Energy Reviews*, vol. 56: 797-809

Cornett, M.M., Erhemjamts, O. & Tehranian, H. (2016) "Greed or good deeds: An examination of the relation between corporate social responsibility and the financial performance of U.S. commercial banks around the financial crisis", *Journal of Banking & Finance*, vol. 70: 137-159

Dogaru, L. (2013) "The Importance of Environmental Protection and Sustainable Development", *Procedia - Social and Behavioral Sciences*, Vol. 93: 1344-1348

Fatemi, A., Fooladi, I. & Tehranian, H. (2015) "Valuation effects of corporate social responsibility", *Journal of Banking & Finance,* vol. 59: 182-192

Gaspar, J.S., Marques, A.C. & Fuinhas, J.A. (2017) "The traditional energy-growth nexus: A comparison between sustainable development and economic growth approaches", *Ecological Indicators*, vol. 75: 286-296

Gras-Gil E., Manzano, M.P. & Fernández, J.H. (2016) “Investigating the relationship between corporate social responsibility and earnings management: Evidence from Spain”, *BRQ Business Research Quarterly*, vol. 19, Issue 4: 289-299

Gușe, R.G., Almășan, A., Circa, C. & Dumitru, M. (2016) “The role of the stakeholders in the institutionalization of the CSR reporting in Romania”, *Journal of Accounting and Management Information Systems*, vol. 15, Nr. 2/2016: 304-340

Heikkurinen, P. & Bonnedahl, K.J. (2013) “Corporate responsibility for sustainable development: a review and conceptual comparison of market- and stakeholder-oriented strategies”, *Journal of Cleaner Production*, vol. 43: 191-198

Kadłubek, M. (2015) “The Essence of Corporate Social Responsibility and the Performance of Selected Company”, *Procedia - Social and Behavioral Sciences*, vol. 213: 509-515

Karaye, Y.I., Ishak, Z. & Che-Adam, N. (2014) “The Mediating Effect of Stakeholder Influence Capacity on the Relationship between Corporate Social Responsibility and Corporate Financial Performance”, *Procedia - Social and Behavioral Sciences*, vol. 164: 528-534

Kauffman, C.M. & Martin, P.L. (2017) “Can Rights of Nature Make Development More Sustainable? Why Some Ecuadorian Lawsuits Succeed and Others Fail”, *World Development*, vol. 92: 130-142

Lungu, C.I, Caraiani, C., Dascălu, C., Turcu, D. & Turturea, M. (2016) “Archival analysis of Corporate Social Responsibility research: The Romanian perspective”, *Journal of Accounting and Management Information Systems*, vol. 15, No. 2/2016: 341-371

Martinez-Conesa I., Soto-Acosta P. & Palacios-Manzano M. (2017) “Corporate social responsibility and its effect on innovation and firm performance: An empirical research in SMEs”, *Journal of Cleaner Production*, vol. 142, Part 4: 2374-2383

Mehralian, G., Nazari, J.A., Zarei, L. & Rasekh, H.R. (2016) “The effects of corporate social responsibility on organizational performance in the Iranian pharmaceutical industry: The mediating role of TQM”, *Journal of Cleaner Production*, vol. 135: 689-698

Melissen, F., Ginneken, R. & Wood, R.C. (2016) “Sustainability challenges and opportunities arising from the owner-operator split in hotels”, *International Journal of Hospitality Management*, vol. 54: 35-42

Nollet, J., Filis, G. & Mitrokostas, E. (2016) “Corporate social responsibility and financial performance: A non-linear and disaggregated approach”, *Economic Modelling*, vol. 52, Part B: 400-407

Paredes-Gazquez, J.D., Rodriguez-Fernandez, J.M. & de la Cuesta-Gonzalez, M. (2016) “Measuring corporate social responsibility using composite indices: Mission impossible? The case of the electricity utility industry”, *Revista de Contabilidad*, vol. 19, Issue 1: 142-153

Patari, S., Tuppura, A., Toppinen, A. & Korhonen, J. (2016) “Global sustainability megaforces in shaping the future of the European pulp and paper industry towards a bioeconomy”, *Forest Policy and Economics*, vol. 66: 38-46

Popa, R.A. (2015) “The Corporate Social Responsibility Practices in The Context of Sustainable Development. The Case of Romania”, *Procedia Economics and Finance*, vol. 23: 1279-1285

Reverte C., Gómez-Melero E. & Cegarra-Navarro J.G. (2016) “The influence of corporate social responsibility practices on organizational performance: evidence from Eco-Responsible Spanish firms”, *Journal of Cleaner Production*, vol. 112, Part 4: 2870-2884

Rodriguez-Fernandez, M. (2016) “Social responsibility and financial performance: The role of good corporate governance”, *BRQ Business Research Quarterly*, vol. 19, Issue 2: 137-151

Saeidi, S.P., Sofian, S., Saeidi, P., Saeidi, S.P. & Saaeidi, S.A. (2015) “How does corporate social responsibility contribute to firm financial performance? The mediating role of competitive advantage, reputation, and customer satisfaction”, *Journal of Business Research*, vol. 68, Issue 2: 341-350

Schöggl, J.P., Baumgartner, R.J. & Hofer, D. (2017) “Improving sustainability performance in early phases of product design: A checklist for sustainable product development tested in the automotive industry”, *Journal of Cleaner Production*, vol. 140, Part 3: 1602-1617

Shi, L., Wu, K.J. & Tseng, M.L. (2017) “Improving corporate sustainable development by using an interdependent closed-loop hierarchical structure”, *Resources, Conservation and Recycling*, vol. 119: 24-35

Siew, R.Y.J. (2015) “A review of corporate sustainability reporting tools (SRTs)”, *Journal of Environmental Management*, vol. 164: 180-195

Sudana, I.P. (2015), “Sustainable Development and Reconceptualization of Financial Statements”, *Procedia - Social and Behavioral Sciences*, vol. 211: 157-162

Villiers, C., Rouse, P. & Kerr, J. (2016) “A new conceptual model of influences driving sustainability based on case evidence of the integration of corporate sustainability management control and reporting”, *Journal of Cleaner Production*, vol. 136A: 78-85

Wang, H., Lu, W., Ye, M., Chau, K.W. & Zhang, X. (2016) “The curvilinear relationship between corporate social performance and corporate financial performance: Evidence from the international construction industry”, *Journal of Cleaner Production*, vol. 137: 1313-1322

Wang, W.K., Lu, W.M., Kweh, Q.L. & Lai, H.W. (2014) “Does corporate social responsibility influence the corporate performance of the U.S. telecommunications industry?”, *Telecommunications Policy*, vol. 38, Issue 7: 580-591

Williams, B. (2012) The Economics of Cloud Computing, Indianapolis: Cisco Press

Xie, X., Jia, Y., Meng, X. & Li, C. (2017) “Corporate social responsibility, customer satisfaction, and financial performance: The moderating effect of the institutional environment in two transition economies”, *Journal of Cleaner Production*, vol. 150: 26-39

Youn, H., Hua, N. & Lee, S. (2015) “Does size matter? Corporate social responsibility and firm performance in the restaurant industry”, *International Journal of Hospitality Management*, vol. 51: 127-134

The corporate fiscal pressure and its factors of influence

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Abstract: *The issue of fiscal pressure exercised over companies has always been studied extensively in the literature with the ultimate goal of finding an optimal level of it compared to the statutory rate of taxation of the country in whose territory carries out activities of these companies. Fiscal pressure is most commonly measured in previous studies by the actual rate of taxation on corporate income tax, the taxation of the entire level of a company's economic activities, as will be seen in the literature review of this study. This work paper seeks to capture, as a case study, the factors of influence for the tax burden by using two multiple regression models with cross-sectional data, with an initial database of 51 British companies within the FTSE100 stock index, based on the financial statements of these companies in the years 2010 and 2015.*

Keywords: *Effective tax rate, statutory tax rate, income tax, fiscal optimization, fiscal management*

1. Introduction

Fiscal pressure constitutes a fundamental problem for most countries of the world, and first and foremost it is a dilemma for the individual taxpayer as well, which has suffered most from the effects of taxes and the government from which the taxpayer originates. Secondly I chose this theme because I think that there is plenty of data to make a thorough econometric research on economic problems caused by this topic, this being in the form of a case study presented in the continuation of this work paper.

Fiscal pressure is one of the instruments of fiscal policy and an indicator of measuring thereof, present in any state of the European Union and outside it. It acts as a lever with the regulatory role in economic imbalances of world countries. In the framework of European Union countries, this indicator, with macroeconomic and microeconomic importance, is used for the comparison of tax systems of all members, but also in comparing fiscal performance between companies.

Fiscal pressure is defined as the intensity of compulsory sampling of income from individuals and legal persons through the tax process. It is also found as the degree of taxation, or tax burden.

Effective tax pressure, as the value of the taxes rate or the degree of taxation, shall be calculated as the total sum of all compulsory levies tax for over a year from a company divided by the value of the company's gross profit. This can be more difficult on a quarterly basis. Therefore, fiscal pressure is an indicator that highlights the impact of taxation on the corporate earnings.

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Taking after its structure, the effective tax burden has 2 senses: strict, which includes only income taxes, and broadened, that includes all direct and indirect taxes, and social contributions.

Fiscal pressure can be calculated through several ways. It can be calculated as the fiscal pressure on a general level, namely to be expressed as a share of all the taxes and fees paid to the government in the total gross earnings of a company or as a fiscal pressure, calculated as fiscal of corporation tax. Other ways of expression would be fiscal burden, particularly for a certain category of tax and fiscal pressure of a corporation, in which you calculate the total tax payment obligations of the companies as share of total revenue from sales.

Elements that influence indirectly tax burden are the size of companies, the level of indebtedness, assets structure, performance rates and the amount of transactions with foreign countries. It acts as a lever with the regulatory role in economic imbalances of some countries. In the framework of European Union countries this macroeconomic indicator is used for the comparison of tax systems of European states and ultimately to achieve the EU objectives of convergence.

The element of novelty introduced in this paper is the context, namely the econometric analysis of a United Kingdom tax reform. Econometric analysis aimed at determining the effects of a series of micro economic factors on the effective tax pressure.

The chosen moments of time are the year 2010 and 2015 with a number of annual observations of 51 at the level of the value of all variables. All the data originates from Thomson Reuters Eikon database and the annual reports of the companies involved. The dependent variable, the effective tax burden level is calculated on a yearly basis, according to the methodology and textbooks in the field, as the ratio between the total annual expenditure with income taxes and gross profit.

In the continuation of this paper, along the second chapter I will make a summary of the literature in the field of effective fiscal burdens, mentioning the most important international articles based on the subject, together with the names of authors in the field. In Chapter 3 I present a case study with the factors influencing the effective tax burdens of 51 companies listed from British FTSE 100 indicator. After the case study follows the results and the findings determined following the results. The last elements of my work are the bibliographic references and annexes.

2. Literature review

The literature focused on the subject of corporate fiscal pressure, and hence the effective tax is, in short, a history of positive and negative correlations, or the lack of any correlation, between the dependent variable, represented by actual tax rate, and certain specific features of firms in the form of independent variables, such as size, structure of financing , structure of assets, company performance and foreign economic activity, and possibly some more related elements of the methodology applied in case studies. I would like to organize the whole of knowledge gained from previous empirical studies according to each factor of influence in part. I will highlight the various issues or conflicting concepts, with which researchers in the field of finance regarding this topic have experienced in the past.

Of all of the factors of influence on corporate fiscal pressure, the most important factor is the size of the company. It is moreover and most often used as an explanatory variable for the actual level of taxation of the company. Although it is one of the best known throughout the literature, it has an ambiguous relationship with the effective tax rate on companies. In this regard, there are two basic theories for explaining the correlation between the size of the firms and their actual share of taxation on income: the political power theory and the theory of political cost.

Often the effective tax rate has a negative correlation to the size of the firm, because of the political power of big companies. In general, large sizes have small ETRs (Effective Tax Rate), because through their dealings with the government and their settlement through their image in business, they acquired political power and are able to demonstrate a strong corporate governance and to achieve a good fiscal optimization, the purpose of sound fiscal optimizations being none other than reduction of tax burdens on companies by measures by managers. The empirical results of various studies on the subject of effective tax rates are most often supportive of the theory of the political power of big firms through the negative correlation with ETR. Of the authors who have found that the relationship between a firm's size and the effective tax burden is negative we mention Porcano (1986), Nicodeme (2001), Richardson and Lanis (2007), Hsieh (2012).

The other theory, according to which big companies suffer from a political cost, proven in the study of Zimmerman (1983) entitled “Tax and firm size”, where you get a strong positive correlation between the actual tax burden and the size of a company. The explanation behind this political cost is a simple one, namely that a large firm with influence generates a higher return than others of smaller size, and thus they will become primary targets of governments that wish to increase the statutory tax rates for corporate income, hoping to raise sufficient revenues for state budgets.

The financing structure is another powerful determinant of tax pressure exerted on the company. According to the Modigliani and Miller (1963), the two major forms of financing at that call for a company are, in general, are the company’s equity and borrowed capital, or rather said owned funds or from indebtedness. Relevant to the theme of effective tax quotas are only the borrowed funds obtained through indebtedness. Why is it preferable to borrow, generally speaking, as a form of financing, and not use our own funds? It is always preferable to borrow, according to the two authors, in the context of taxation, because this form of financing is not taxed in the same way as with our own funds, it allow interest deductibility as long as the indebtedness of companies does not become excessively large. If the debt level is below a certain limit, then the interest deductibility is allowed and thus lowers the effective rate of taxation on profits in the final result, and if the firm has accumulated debts in excess, then the interest deductibility is cancelled, followed by the increase of the effective tax rate.

In a complex regression model, Richardson and Lanis (2007) have also discovered that there is a reverse trend of indebtedness in relation to the effective tax rate on incomes in the period leading up to the promulgation of an Australian tax reform.

After 1999, the dependency relationship reverses whereas the aim of the reform was to increase the effective tax pressure on firms.

Asset structure or asset mix, a phrase often used in the literature, is based mainly on the construction of two structural rates. The first structural rate represents the share of fixed assets in the total assets of a company, and the second rate represents the share of inventory assets within the total assets. There is a well thought out logic behind these two variables. The share of fixed assets represents the degree of involvement of the company in the achievement of long-term investment, through acquisition of lands, buildings, machinery, equipment, etc. The cost of depreciation and amortization of such fixed assets may be deducted in most of the cases, depending of course on the type of fixed asset and preferential tax treatment or non-preferential of their country of origin. The share of these assets can be named also the capital intensity or the intensity of fixed assets, and the share of inventory assets in the total assets may be called and the inventory intensity.

From the point of view of asset structure, Gupta and Newberry innovates through their article, in 1997, with the introduction in their econometric models of three variables representing the structure of assets: capital intensity, inventory intensity and intensity of research and development spending, also known as R&D spending. In accordance with the assumptions developed based on previously acquired knowledge, they have determined a negative correlation between the capital intensity and the dependent variable ETR, a positive correlation with the inventory intensity and a negative correlation with the intensity of research and development expenses. Their results were in accordance with the working assumptions. The negative linkage with the intensity of fixed assets means that many of them are tangible assets that depreciate and provides tax benefits through depreciation deductibility. Positive links appear because of the lack of any tax deductibility on the part of inventory assets.

Company performance is measured by different indicators, which are called performance rates or rates of return. The most relevant performance rate for fiscal pressure is the rate of return on assets, which basically measures the level of income achieved, plus the amount of interest, per asset unit.

General opinion about correlation with effective ROA quotas (Return on Assets) is that taxation should be positive, as have proven it Gupta and Newberry (1997) have proven it in their econometric models with fixed effects. The explanation that can provide such a result is that companies with a growth in the performance rate of assets generate big incomes, which are to be taxed more by the government. This explanation would go along with the theory of the political cost, which can be encountered in the case of large and successful firms, and with large tax burdens. If a business becomes much too profitable, then it is duty of the government of a country to benefit from such incomes generated on the national territory, through taxes on income. So companies with high ROA will lure automatically tax reforms designed to increase the effective tax burden on them.

A defining paper for the relevance of foreign operations in relation to the level of effective tax burden is that of Bauman and Schadewald (2001), performed on American firms listed. This study describes how operations from abroad can have a positive impact on the effective tax rates, through international statutory tax rates on corporate income, statutory tax rates and US accounting principles. The determination of the value of foreign operations is done by determining the foreign turnover or external cash flow or total external gross profit.

In this collection of scientific articles, I extracted 6 variables of influence, which I will use in my empirical research, as can be seen below.

3. Case study: United Kingdom

3.1. Methodology of research

The model which I will address in this survey is based on scientific articles that have analysed from the point of view of econometric issues regarding fiscal pressure at corporate levels through effective taxation quotas, including those of Gupta and Newberry (1997), Richardson and Lannis (2007), (1968) and Svg (2014a, 2016b) etc. Of these empirical researches and more, I have selected the best known variable of influence to shape a workable model econometrically, although it might not be the most efficient. The reason why I make such an assertion is based on the existence of a multitude of models built year after year for determination of factors of influence for tax burden and become relevant in the specialized literature by setting trends and directions of research and clear objectives. Empirical studies contribute in time by errors and successes, at improving econometric models from any direction.

In my study, I created 2 models with cross-sectional data, in order to estimate multiple equation regressions. The multiple regression models with which I have highlighted the determinants of fiscal pressure in terms of corporate tax optimization is below:

$$ETR1\_2010 = \alpha + \beta_1 \times SIZE\_2010 + \beta_2 \times DAT\_2010 + \beta_3 \times CAPINT\_2010 + \beta_4 \times INVINT\_2010 + \beta_5 \times ROA\_2010 + \beta_6 \times EXTERN\_TN\_2010$$

$$ETR1\_2015 = \alpha + \beta_1 \times SIZE\_2015 + \beta_2 \times DAT\_2015 + \beta_3 \times CAPINT\_2015 + \beta_4 \times INVINT\_2015 + \beta_5 \times ROA\_2015 + \beta_6 \times EXTERN\_TN\_2015$$

In table 1 are highlighted and explained the variables used in the regression model in this empirical research:

Table 1. **Description of variables**

	Variables	Description variable	Explanation
Dependent variable	ETR1	Income tax expense / Gross profit	The indicator for measuring the tax pressure of companies
Independent variables	SIZE	Ln(Total Assets)	The indicator for measuring the size and success for companies
	DAT	Total Debt/ Total Assets	The indicator represents the indebtedness of firms
	CAPINT	Fixed Assets/ Total Assets	Indicates the structure of assets

			according to fixed assets
	INVINT	Inventory / Total Assets	Represents the structure of the assets according to inventory
	ROA	EBIT(1-τ)/ Total Assets	An indicator representing the rate of asset performance
	EXTERN_TN	External TN / Total TN	Represents external turnover; percentage of operations abroad

(*Source*: Author's processing)

The data used in the development of these two models are financial, namely extracted from the financial statements of British companies listed. The provenance is divided into two data sources. The dependent variable ETR and all independent variables, apart from external turnover have been calculated or derived directly from Thomson Reuters Eikon database. However, the last independent variable, external turnover, its provenance is the amount of all the annual reports of the companies analysed during the period of analysis. The data on external turnover is situated in the external segmentation of the market, where financial indicators are divided according to the categories of goods or depending on the geographical area where they are carried out.

Regarding the dependent variable ETR1, the income tax expenses taken into account represent the total expenditure with income tax, namely both the current expenditure, as well as deferred expenses, from other years. The variable is called ETR1, because I tried to build more regressions with representative indicators for effective tax pressure, but due to lack of information or due to incompatibility with the factors of influence I decided not to use them anymore.

Variable SIZE defines the size and dimension of a firm's success. With how a firm has a growing amount of assets, the more it can be assumed that those assets can generate large changes in future income. This variable was chosen because it is assumed to have major implications in achieving fiscal optimization process.

DAT is the degree indebtedness of companies, DAT, without the confusion with financial leverage as it does in most articles. Debt was taken into account, since the financing structure determines the presence or absence of certain influences such as tax deductibility of interest expenditure.

CAPINT is capital intensity, or better said, of the tangible fixed assets that can be depreciated over time. Depreciation expenses are, in general, also deductible and thus have an impact on taxable incomes, just like in the case of deductible interest expenses.

INVINT is the intensity of inventory and does not provide any opportunity for any reduction of effective fiscal pressure, therefore it is assumed that most of the times the relationship between this variable with the actual tax rate is positive.

ROA is of course the rate for asset performance and a key factor for a company. Good performance could lead to generating huge profits and higher taxes, and they are both components of the actual rate of taxation.

The variable EXTERN_TN is the representation of the international operational activities, the external turnover. Of all the variables, it may have a direct increase or decrease in the level of income taxation of a company. The multitude of external operations, carried out in various tax regimes with different merged rates of taxation generates a combined effective rate of taxation that could be higher or lower than the statutory rate and even different from the domestic effective rate of taxation. Most often, it turns out to be higher than the statutory rate and the domestic effective rate.

To these descriptions of independent variables, I add the set of working hypotheses, in which I subsequently compare the relationships resulting from econometric models.

Working hypotheses regarding the independent variables:

H1: there is a negative correlation between size and ETR

H2: there is a negative correlation between GRAD_ÎNDATORARE and ETR

H3: there is a negative correlation between ACTIVE_IMOBILIZATE and ETR

H4: there is a positive correlation between INTENSITATE_STOCURI and ETR

H5: there is a positive correlation between ROA and ETR

H6. There is a positive correlation between EXTERN_TN and ETR

The set of assumptions was determined based on knowledge gained from economic literature, and in comparing them with actual correlations obtained, I capture the differences between my current research and previous research undertaken by specialists.

3.2 Results

In this section I have analysed, by performing several econometric tests, and estimated multiple regression models using cross-sectional data and the statistical programme EViews7. The two econometric models are representative for two different time points, the 2010 and 2015 and their main purpose is to determine the most relevant factors of influence for fiscal pressure. The first step in analysing the links between variables in econometric models is making descriptive statistics for each of the individual variables involved.

Table 2. **Descriptive statistics for model 2010**

	EXTERN_	CAPINT_	DAT_	ETR1_	INVINT_	ROA_	SIZE_

	TN_2010	2010	2010	2010	2010	2010	2010
Mean	0.530590	0.270502	0.260365	0.238735	0.120781	0.094448	22.77984
Median	0.720310	0.187136	0.232465	0.264786	0.064671	0.074219	22.50278
Maximum	0.993079	0.875342	0.522186	1.000000	0.794460	0.493456	26.33003
Minimum	0.000000	0.000675	0.000000	0.000000	0.000000	-0.000504	20.38667
Std. Dev.	0.393684	0.254837	0.138159	0.181386	0.190470	0.082750	1.389467
Skewness	-0.291185	0.758781	0.111568	1.399354	2.616651	2.593605	0.580171
Kurtosis	1.318965	2.426642	2.095244	7.839565	8.993923	12.06271	2.732388
Jarque-Bera	6.725697	5.592429	1.845293	66.41509	134.5434	231.7097	3.013276
Probability	0.034636	0.061041	0.397466	0.000000	0.000000	0.000000	0.221654
Sum	27.06009	13.79560	13.27863	12.17551	6.159821	4.816868	1161.772
Sum Sq. Dev.	7.749351	3.247096	0.954391	1.645041	1.813938	0.342376	96.53098
Observations	51	51	51	51	51	51	51

(*Source*: Author's processing using EViews 7)

Table 3. **Descriptive statistics for model 2015**

	EXTERN_ TN_ 2015	CAPINT _2015	DAT _2015	ETR1 _2015	INVINT _2015	ROA _2015	SIZE _2015
Mean	0.557467	0.255354	0.262257	0.219576	0.130034	0.090808	23.12245
Median	0.759267	0.177262	0.250201	0.199063	0.060289	0.085230	22.91596
Maximum	0.994847	0.878033	1.602961	1.000000	0.858776	0.281225	26.29097
Minimum	0.000000	0.000493	0.000000	0.000000	0.000000	0.014894	21.29633
Std. Dev.	0.387852	0.252649	0.236584	0.199799	0.200290	0.051156	1.200881
Skewness	-0.342539	0.904219	3.560753	1.785715	2.505334	1.004200	0.650564
Kurtosis	1.399814	2.534998	21.32954	7.077043	8.556915	5.262818	2.703733
Jarque-Bera	6.438595	7.409189	821.7121	62.42695	118.9705	19.45228	3.784006
Probability	0.039983	0.024610	0.000000	0.000000	0.000000	0.000060	0.150770
Sum	28.43082	13.02303	13.37513	11.19836	6.631757	4.631202	1179.245
Sum Sq. Dev.	7.521476	3.191575	2.798607	1.995991	2.005805	0.130845	72.10571
Observations	51	51	51	51	51	51	51

(*Source*: Author's processing using EViews 7)

As shown in tables 1 and 2, we have two variables responsible for fiscal pressure at 2 different times, the effective rate of taxation on income for the year 2010 and for 2015. The average value for 2010 (23,87%) is higher than the average for the year 2015 (21,95%), which means that the average tax burden applied to firms is reduced over time. This is the measure initiated in the fiscal year 2010 to reduce the tax on corporate incomes. Another thing you can notice is that each variable in part does not have a normal distribution, whereas the skewness and kurtosis values are all different from the hypothetical values 0 and 3.

Table 4. **The outputs of the econometric models**

VARIABLE	MODEL 2010	MODEL 2015
SIZE	-0.039837	0.025199
	(0.019371)	(0.027943)
	[-2.056568]**	[0.901787]

DAT	0.086756 (0.179489) [0.483349]	-0.332053 (0.120369) [-2.758627]***
CAPINT	0.225628 (0.095723) [2.357101]**	0.152893 (0.107371) [1.423970]
INVINT	0.302166 (0.141522) [2.135120]**	0.041255 (0.145107) [0.284308]
ROA	0.202758 (0.300650) [0.674399]	0.866925 (0.590057) [1.469223]
EXTERN_TN	0.273562 (0.069409) [3.941298]***	0.200935 (0.076241) [2.635527]**
R-squared	0.314308	0.301053
Adjusted R-squared	0.220805	0.205742
S.E of regression	0.160113	0.178064
Prob(F-statistic)	0.008169	0.011557
Durbin-Watson	1.953485	1.997808
* statisticly significant For a significance threshold of 90% ** statisticly significant for a significance threshold of 95% **statistic significant for a significance threshold of 99%	The order in the column for the values is: 1. Coefficient 2. Std. Error 3. t-Statistic	

(*Source*: Author's processing using EViews 7)

R^2 indicator shows the extent to which the values of the independent variables explain the value of the dependent variable. For 2010 we have R^2 value of 31.43% and for the model 2015 we have an R^2 with the value of 30.10%, which means that both models lie in the region of uncertainty.

The F statistic calculated in regression models show us if the elaborated model is valid. Test null hypothesis of the F test implies that a model containing only the intercept explains the best the dependent variable or equally well in the model. The alternative hypothesis, that interests us, argues that the model created explains the best with the help of well-chosen independent variables. Probability of F is less than 1% in the case of model 2010 and less than 5% in the case of model 2015, which means that we will reject the null hypothesis and accept the alternative hypothesis that the model developed is better than a model containing only a free explanatory term, the intercept.

Both regression models seem to have very close statistics Durbin Watson. For model 2010 statistics have a value of DW = 1.953485, and in 2015 we have DW = 1.997808. The next step is to compare these calculated values with critical DW table values, d_L and d_U. According to the tables, at a threshold of significance of 5% with seven variables influence, including, of course, the intercept, for a number of 51 observations, the critical values are d_L = 1.29995 d_U = 1.82007. Both statistics lie in the range (d_U, 4- d_U), which means that there is no autocorrelation of the errors in the regression model, which is a positive thing for the proper functioning of the model.

Representative for firm size, variable SIZE, is in a negative correlation, statistically significant for a threshold of 5%, with values of the effective income tax rate from 2010, but the relationship is changing in 2015, becoming positive. The tax reform that reduces the statutory rate of taxation on income could cause a collapse of the political power of the large companies listed. This way, they can no longer perform the good tax planning and effective fiscal pressure increases. However, the variable from the year 2015 is not significant statistically, so we cannot be sure.

DAT has a positive evolution statistically insignificant in 2010 in relation to the dependent variable and becomes negatively significant for a threshold of 1% in 2015. Before the advent of the effects of tax reform measures, the indebted companies had large issues with the managing of tax liabilities. It seems that the 2010 reform has helped the smaller indebted firms to resolve their tax optimization related problems.

CAPINT is positively correlated with the effective tax rate in both years, but it is statistically significant only for 2010.A large share of fixed assets in total assets for the companies listed in 2010 attracts local taxes on property due to the fact that there are no likely tax facilities for lands, the buildings, vehicles and equipment owned by the company. For the year 2015 I cannot be sure because the connection between variables is not strong.

INVINT is positively correlated with the effective tax rate in both years, but it is statistically significant only for 2010. A large share of inventory assets in total assets for the companies listed in 2010 attracts taxes on production and they are not in any way exempt. In 2015, situation could be the same, but we cannot be sure.

ROA is positively correlated in both years with the effective tax enforcement, but not significant statistically. A high performance from British firms generates huge profits, and in turn those big profits will generate global taxes higher than the earnings themselves.

EXTERN_TN is positively correlated in both years with the level of taxation of applied to the earnings of British multinational firms. The relationship is statistically significant from the point of view of a threshold of 1% in 2010 and at a threshold of 5% in 2015. The foreign transactions of British multinational firms attract foreign taxes attract larger than the level of earnings worldwide in both time points.

This is a table in which I highlighted in a simpler manner the statistically significant correlations between independent variables and the dependent variable.

Table 5. **Results of correlations**

	ETR1_2010	ETR_2015
SIZE	-	?
DAT	?	-
CAPINT	+	?

INVINT	+	?
ROA	?	?
EXTERN_TN	+	+

(*Source*: Author's processing)

4. Conclusions

In this paper I tried a new approach in the research area of fiscal pressure, that of the analysis of the effective tax pressure of companies through the econometric modelling of effective income tax rates and its factors of influence.

For the sake of seeking some variables relevant to influence the dependent variable, I made a summary of the literature on effective levels of taxation quotas, tax optimization and their direct link with corporate tax pressure of companies listed on the stock exchange. Authors like Gupta and Newberry (1997), Buijink (1997) and Janssen (2000), Richardson and Lannis (2007), have directed my attention to 6 variables: the size of the company's, the degree of indebtedness, the intensity of fixed assets, the intensity of inventory, the rate of performance of assets ROA, and foreign turnover share in the total turnover of the firms.

As a result of running two econometric regression models for 2010 and 2015 data, before and after tax a tax reform meant to reduce the statutory tax rate on profits of 51 British companies listed on the stock exchange, there were a number of significant and non-significant statistical relationships for the variables of influence. A significant mention is the size of the company, that has a negative impact on the fiscal pressures of companies in 2010 and 2015 reduce the debt burden of companies, the assets structure determined in 2010 had an increase in local property taxes, the performance rate does not seem to have any significant implication, and foreign turnover increases in both moments the effective tax pressure level due to the influence of foreign businesses in countries with very expensive tax regime.

As new directions in research, I would like to continue on this direction of research, with the same methodology, but with panel data and whether I will be able, with the introduction of new variables of corporate governance influence, with particularly large impacts for companies, fiscal optimization variables such as the level of remuneration for executive managers, wages and bonuses, the percentage of shares held by the shareholding structure, CEO.

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References

Bauman, C. & Schadewald, M. (2001). Impact of Foreign Operations on Reported Effective Tax Rates: Interplay of Foreign Taxes, U.S Taxes and U.S GAAP. Journal of International Accounting, Auditing & Taxation, no .10, pp.177-196.

Buijink, W. & Janssen, B. (2000). Determinants of the Variability of Corporate Effective Tax Rates (ETRs): Evidence for the Netherlands. MARC Working Paper, 2000, MARC-WP/3/2000-08.

Gupta, S. & Newberry, K. (1997). Determinants of the Variability in Corporate Effective Tax Rates: Evidence from Longitudinal Data. Journal of International Accounting and Public Policy, 16, 1997, pp. 1-34.

Hsieh, Y.C. (2012). New evidence on determinants of corporate effective tax rates. African Journal of Bussiness Management, Vol. 6(3), pp. 1170 – 1180.

Modigliani, F. & Miller, H.M. (1963). Corporation Income Taxes and the Cost of Capital: A Correction. American Economic Review, vol. 53.

Nicodème, G. (2001). Computing effective corporate tax rates: comparisons and results. Munich Personal RePEc Archive, MPRA Paper No. 3808.

Plesko, G. A. (2003). An evaluation of alternative measures of corporate tax rates. Journal of Accounting and Economics, 35 (2), pp.201–226.

Porcano, T. (1986). Corporate tax rates: progressive, proportional, or regressive. The Journal of the American Tax Association 7 (2), pp.17–31.

Richardson, G. & Lanis, R. (2007). Determinants of the variability in corporate effective tax rates and tax reform: Evidence from Australia. Journal of Accounting and Public Policy, 26, pp. 689-704.

Zimmerman, J. (1983). Taxes and firm size. Journal of Accounting and Economics, 5 (2), 119–149.

PS2 ACCOUNTING DISCLOSURES IN THE BANKING INDUSTRY

Chairperson: Luc Paugam, HEC Paris, France

Corporate social responsibility disclosures and financial performance: Evidence from Polish banks

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Corporate social responsibility disclosures and financial performance: Evidence from Polish banks

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Abstract: *This study examines the impact of corporate social responsibility (CSR) disclosures in Polish commercial banks on their financial performance (ROA, ROE, NIM). Sample consists of 18 banks. Hand collected data from annual reports for the period of 8 years (2008 – 2015). A content analysis is used to measure the level of CSR disclosures and a panel data analysis is employed to examine the CSR-FP relationship. Software: GRETL. Two key findings: (1) There is a positive relationship between banks' CSR disclosures and their profitability measured by ROA and ROE. However, the relationship between banks' CSR disclosures and NIM is negative. Statistical analysis reports significant effect of CSR activities on NIM whereas the effect on ROA and ROE is insignificant. (2) Banks' CSR activities are not dominant predictor of their profitability as compared with control variables. To our best knowledge this research is the first quantitative analysis regarding banking sector in Poland. Further, this study was conducted in emerging market with different socio-economic context and regulations compared to developed market. The findings contribute to and increase the understanding of the relationship between CSR disclosures and FP. Finally, this study has important implications for policy makers, managers, investors, and others.*

Key words: *Corporate social responsibility, financial performance, Polish banks.*

1. Introduction

The beginning of the 21st century brought several financial scandals due to managerial opportunism and large scale of accounting fraud, reducing stakeholders' confidence in business enterprises. The accounting scandal at Enron, the Wall Street's crisis occurred in 2008 and the Madoff scandal raised comments referred as "a decay in business morality" (Chih *et al.*, 2010). To a large extent, the social consequences of these crisis created reputational issue for organizations, limiting their competitiveness and profitability.

Above mentioned criticism could possibly explain why business representatives, general public leaders, governments, investors and other stakeholders become proponents of the postulate according to which the company cannot pursue a strategy to maximize the financial result at the expense of fulfilling its obligations towards its employees, the environment and society as a whole. In response to this claim, companies begin implementing social responsibility activities and other strategies that allow them to improve their reputation and restore stakeholders' confidence (Servaes and Tamayo, 2013).

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In the light of the above corporate social responsibility (CSR) has gained recognition and acceptance among stakeholders of the company and company itself. CSR is the subject of standardization within the guidelines of various kinds (*e.g.* GRI, ISO, Integrated reporting) both in voluntary or mandatory variant. Moreover, in many countries CSR indices are developed, emerging companies operating in sustainable and responsible manner, such as Dow Jones Sustainability Index (DJSI), the Financial Times Stock Exchange's FTSE4Good, the Fortune 500, Johannesburg Securities Exchange (JSE) index and Warsaw Stock Exchange's RESPECT index. These indices assess companies based on various criteria such as human rights, protection of environment, working conditions, labour standards, supply chain management.

A corporation is generally encouraged to adopt CSR because of its perceived benefits. In long-term perspective CSR should improve companies' competitiveness and reputation and positively affect relationship between CSR activities of a company and its financial performance (FP). Although vast research has been undertaken in CSR area, the related studies have focused on the existence of the relationship between CSR and financial performance (FP) (Taskin, 2015; Soana, 2011; Ambec and Lanoie, 2008; Dixon-Fowler *et al.*, 2013; Orlitzky *et al.*, 2003; Sharma and Starik, 2002). However, researchers analysing relationship between CSR and FP formulate mixed results. Much of research and literature on CSR has been focused on developed markets, where organizations and institutions are more efficient and effective while research in emerging markets on the subject is limited (Arli and Lasmono, 2010). Therefore, there is a need for critical CSR research agenda focusing on emerging economies.

Taking into account that Poland is perceived as very important emerging economy, it should be also stated that is under-researched country comparing with other European countries. Majority of studies on CSR in Poland are descriptive and focus mainly on range of CSR disclosures leaving other important aspects completely unexplored. For example, to our best knowledge no existing study has explored empirically the impact of CSR practices on companies' financial performance (measured by return on assets [ROA] and return on equity [ROE] and net interest margin [NIM]). In authors opinion, this is an important issue worth investigating, taking into account the general argument that CSR benefits not only stakeholders but also the companies themselves.

This research was done in banking sector. Banks were selected for the study because of at least three reasons. First, banking industry is orientated on profit and managers have responsibility to maximize it. Second, the role of banks in social and economic development of a country is significant. Researchers suggest that under some conditions, private banks should be treated as public utilities (Molyneux *et al.*, 2014). Third, in many prior studies on the link between CSR and FP, banks were excluded from research sample as they have little direct environmental impact (Siregar and Bachtiar, 2010). The contribution of this study is to extend the previous research of CSR reporting on banking sector.

This study examines the impact of corporate social responsibility (CSR) disclosures in Polish commercial banks on their financial performance (ROA, ROE, NIM).

The remainder of this paper is organized as follows. The next section reviews the existing literature and briefly discusses the theoretical background of the study. Section 3 presents the research methodology. Section 4 presents the empirical results and interpretation. Finally, section 5 presents discussion on theoretical and practical implications of the study. The article concludes with a recommendation regarding future research agendas.

2. Literature review and hypotheses development

The link between CSR disclosures and FP has been examined and interpreted in the light of several theoretical perspectives. In our research, we based on two of them namely: stakeholder theory and legitimacy theory.

In the light of stakeholder theory, stakeholders have important impact on enterprise sustainability and success. Therefore, enterprise should meet the needs and expectations of diverse stakeholder groups - including environmental, employee, and societal groups (Freeman and Evan, 1990) - to be successful. Stakeholders expect that an enterprise takes CSR activity especially as to effective use of natural resources, limitation of waste of resources, prevention of pollution, providing workforce diversity, etc. (Adebayo, 2000). From this perspective, the reason why enterprise makes environmental and social disclosures is that it wants to satisfy stakeholders needs and expectations (Gray *et al.*, 1995a).

According to Suchman (1995) legitimacy is "a generalized perception or assumption that the actions of an entity are desirable, proper or appropriate within some socially constructed system of norms, values, beliefs and definitions". It is a process by which an organisation seeks approval of the society (Kaplan and Ruland, 1991) through ensuring alignment between the social values and norms and organization activities undertaken in the larger social system in which they are a part. In so far as these two value systems are congruent we can speak of organizational legitimacy" (Matthews, 1993).

The stakeholder theory and the legitimacy theory have a lot in common. The theories suggest that companies use social and environmental disclosure to enhance their status, provide information to stakeholders regarding their activities and fulfil the social contract between companies and social and environmental organizations (Deegan and Blomquist, 2006). However, when the legitimacy theory refers to society understood as a whole and to general social expectations (Deegan, 2002), the stakeholder theory explicitly assumes existence of various groups with different expectations and different power or capacity to put pressure on the companies to communicate social and environmental information.

Haniffa and Cooke (2005) suggest that enterprises that operate under some system of norms, values, beliefs and definitions prevailing among their stakeholders, can reduce the legitimacy gap by communicating more social and environmental information and thus improve their profitability.

Meeting corporate social responsibilities created by stakeholders' expectations builds trust and legitimacy which improves stakeholder relationships and leads to many other benefits. As Khilf *et al.* (2015) states, CSR disclosures may affect corporate financial performance through several crucial aspects: increased employees' motivation and productivity, increased products' acceptance among customers, increased acceptance among investors who support social or environmental values. Overall, the expected benefits of CSR disclosures may largely exceed their costs resulting in higher corporate financial performance.

Although, the empirical studies which consider corporate performance as a consequence of social and environmental disclosure started over 6 decades ago, the literature presents inconclusive findings.

In fact, a number of narrative and meta-analytic reviews in the recent literature (Ambec and Lanoie, 2008; Dixon-Fowler *et al*., 2013; Orlitzky *et al.*, 2003; Sharma and Starik, 2002) suggest a positive relationship between corporate social performance and corporate financial performance.

But in many empirical studies the fundamental contextual condition of stakeholder theory is not recognized. Stakeholders' goals, objectives and aspirations tend to differ across the contexts of industrial and national boundaries (Baird *et al.*, 2012). Thus, combining the CSR ratings of different industries and different countries may lead to inconsistencies, even though such a strategy yields more of positive CSR and financial performance relation. A better approach is therefore to conduct the study in the context of each industry and each country (Baird *et al.*, 2012; Soana, 2011).

Many sectors of the economy are still under-researched. As the banking sector is concerned, the effect of corporate social responsibility on financial performance has not been examined extensively, and the few existing studies offer conflicting evidence.

For example, Chih *et al.* (2010) empirically investigate a total of 520 financial firms in 34 countries between the years 2003 and 2005, and conclude that CSR and financial performance are not related. In contrast, Wu and Shen (2013) analyse 162 banks in 22 countries over 2003-2009, and report that CSR is positively associated with financial performance in terms of return on assets, return on equity, net interest income, and noninterest income. They also find that CSR negatively associates with non-performing loans. Differences in the results could be related to measurement issues, differences in sample as well as sample period.

With respect to banking sector, several studies have investigated the relation between corporate social responsibility and financial performance in different countries (Adeyanju, 2012 in Nigeria, Ofiri *et al*., 2014 in Ghana, Soana, 2011 in Italy, Tafti *et al.*, 2012 in Iran, Taskin, 2015 in Turkey and Weshah *et al.*, 2012 in Jordan). A greater number of these studies show a positive correlation between CSR and firms' financial performance (Adeyanju, 2012; Ofiri *et al.*, 2014; Tafti *et al.*, 2012; Weshah *et al.*, 2012). Mixed relationships were found in Taskin (2015), while no relationship between CSR and financial performance was presented in Soana (2011).

The fact that none of these studies was focused specifically on the Polish banking sector indicates a gap that needs to be filled to enrich the literature.

In our analysis, we consider financial performance from the accounting perspective and following the previous studies we use three measures of bank profitability, that are generally investigated: average Return on Assets (ROA), average Return on Equity (ROE) and Net Interest Margin (NIM).

Based on the above theoretical justifications and empirical literature, the following hypotheses are tested:

H1: There is a positive relationship between Polish banks' CSR disclosure and their financial performance measured by ROA.

H2: There is a positive relationship between Polish banks' CSR disclosure and their financial performance measured by ROE.

H3: There is a positive relationship between Polish banks' CSR disclosure and their financial performance measured by NIM.

Even though in the previous studies correlation has been found, the strength of CSR disclosure contribution to banks' profitability has not been discussed widely. Thus, the next hypotheses are tested:

H4: Polish banks' CSR disclosure significantly contribute to their profitability measured by ROA.

H5: Polish banks' CSR disclosure significantly contribute to their profitability measured by ROE.

H6: Polish banks' CSR disclosure significantly contribute to their profitability measured by NIM.

3. Research methodology

3.1. Sample and research data

The study was conducted on the population of all commercial banks, which have operated in the years 2008 - 2015 in Poland and which have made available their financial statements on their websites. The study was excluded representative offices of foreign banks and credit institutions. These banks represent very small percentage in total market share and most of them have very few branches, hence they were ignored from the analysis. The final sample comprises 18 commercial banks presented in Table 1. Most of these banks are listed on the Warsaw Stock Exchange.

Table 1. **List of banks**

No.	Name	Listed on the Warsaw Stock Exchange as at 31 December 2016
1	Alior Bank SA	Yes
2	Bank BPH SA	Yes
3	Bank Gospodarki Żywnościowej SA	No
4	Bank Gospodarstwa Krajowego SA	Yes

5	Bank Handlowy w Warszawie SA	Yes
6	Bank Millennium SA	Yes
7	Bank Ochrony Środowiska SA	Yes
8	Bank Pekao SA	Yes
9	Bank Pocztowy SA	No
10	Bank Zachodni WBK SA	Yes
11	Credit Agricole Bank Polska SA	No
12	Getin Noble Bank SA	Yes
13	ING Bank Śląski SA	Yes
14	mBank SA	Yes
15	Pekao Bank Hipoteczny SA	No
16	Powszechna Kasa Oszczędności Bank Polski SA	Yes
17	Raiffeisen Bank Polska SA	No
18	SGB-Bank SA	No

(*Source:* Authors' elaboration)

The data collected for the purpose of the study involves the examination of financial statements, management commentaries and corporate social responsibility reports for the years 2008-2015 of the population of the study. Therefore, the overall sample includes 144 bank-year observations. Table 2 lists the variables used in our models, required data and sources of information.

Table 2. **Variables, required data and data sources**

Variables	Data	Source
Dependent variables		
Average Return on Assets (ROA)	Net profit Average of total assets	Financial statements
Average Return on Equity (ROE)	Net profit Average of total equity	Financial statements
Net Interest Margin (NIM)	Net profit on interests Average of total assets	Financial statements
Independent variable		
CSR disclosure index (CSR)	CSR disclosures listed in appendix A	Management commentaries CSR reports
Control variables		
Net Log of Total Assets (LogTA)	Total assets	Financial statements
Income Growth (IncGrow)	Income	Financial statements
Leverage ratio (Leverage)	Debt Total equity	Financial statements

(*Source*: Authors' elaboration)

The data are in two categories: (1) the financial data comprising the absolute values and the constructed ratios for the banks that constitute the subjects of this study, and (2) the CSR disclosure data used to calculate CSR index. The financial data were obtained from publicly available financial statements. The CSR disclosure data were hand collected from management commentaries and corporate social responsibility reports, which were available on banks' websites. The absolute values were standardized using their natural logarithms to make them appropriate for the linear regression analysis.

3.2. Dependent variables - measures of bank financial performance

To measure bank financial performance, researchers use two kinds of measurement approach which is accounting-based financial performance (Ofori *et al.*, 2014; Soana, 2011; Taskin, 2015; Weshah, 2012; Wu and Shen, 2013) and market-based financial performance (*e.g.* Tafti *et al.*, 2012).

In our analysis, we consider financial performance from the accounting perspective and following the previous studies we use three measures of bank profitability, that are generally investigated: average Return on Assets (ROA), average Return on Equity (ROE) and Net Interest Margin (NIM).

ROA is the major ratio that indicates the profitability of a bank, which is defined as net profit over average total assets (ROA = Net profit/Average of Total Assets). It measures the ability of the bank management to generate income by utilizing bank assets at their disposal. In other words, it shows how efficiently the resources of the bank are used to generate the income.

ROE is also another financial ratio that indicates the profitability of a bank, which is calculated as net profit divided by average Total Equity Capital (ROE = Net profit/Average of Total Equity Capital). It represents the rate of return earned on the funds invested in the bank by its stockholders.

NIM is a measure of the difference between the interest income generated by banks and the amount of interest paid on borrowed funds (for example, deposits), relative to the amount of their average assets. The NIM variable is defined as the net interest profit divided by average of total assets (NIM = Net profit on interest/Average of Total Assets).

3.3. Independent variable - measure of CSR

There is no generally accepted method of measuring CSR activity of banks. Researchers have measured the CSR in different ways including the use of questionnaire surveys (Tafti *et al*., 2012), spending measures like sponsorships and donations (Adeyanju, 2012; Weshah *et al*., 2012), content analysis of disclosed CSR information in CSR reports (Taskin, 2015), unidimensional, and multidimensional ratings based on some observable social responsibility indicators, such as KLD ratings (Becchetti *et al.*, 2012), EIRIS Index (Wu and Shen, 2013), AEI Index (Soana, 2011), and SGP Index (Torres *et al.*, 2012). In this study to measure CSR disclosures we used content analysis and we have developed aggregated CSR index.

In the banking sector, the most important are relations with employees, customers, investors, the environment and the local community (Krasodomska, 2012). Prior empirical studies have categorized CSR into different sub themes, for instance, Gray *et al.* (1995b) have classified the CSR disclosure as human resource, environmental, community, and customer; Kilic *et al.* (2015) as environment, energy, human resources, products and customers, and community involvement. Thus, CSR disclosure has been classified into sub four themes in this research as environment, human resources, products and customers, and community involvement (see Appendix A).

In line with earlier studies, to measure the level of CSR reporting in commercial banks, content analysis method has been applied. The study analysed the existence or absence of particular CSR disclosures in corporate reports, namely management commentary, annual report, CSR report, sustainability report, environmental report. The study used the approach of assigning a value of 1 if an item of CSR disclosures is reported and 0 if it is not. The CSR reporting index for each bank is calculated as follows:

$$CSR\ reporting\ index = \frac{\sum_{i=1}^{n} x_i}{n}$$

where:
xi – 1 if the item ***i*** is disclosed, 0 if the item ***i*** is not disclosed,
n - number of items.

The overall level of CSR reporting has been measured for the four areas, namely Environment, Human Resources, Products and Customers, Community Involvement. In order to strengthen the predictive capability of the regression models proposed in the study, the CSR reporting index was properly lagged.

3.4. Control variables

In the most of recent studies researchers incorporated different control variables in their models, such as size, banking risk, management preference, firm growth, earnings, industry and year. In our study, we include three control variables that occurred most in the empirical literature and that have been hypothesized to be correlated with banks' financial performance: the size, the risk and the growth. In terms of operationalization, the size was measured as the absolute value of the total assets but standardized by natural logarithm. In order to control for risk, we used leverage ratio defined as the debts to total equity (Leverage ratio = Debts/Total Equity). The growth was measured as the income growth.

Consistent with the current literature, we expect that banks' financial performance is positively associated with total assets (Ofori *et al.*, 2014) and income growth (Chen and Wang, 2011), while it is negatively associated with leverage ratio (Wu and Shen, 2013).

3.5. The models - effects of CSR disclosures on banks financial performance

To examine the effect of CSR disclosure on banks' financial performance, we estimate a panel data models.

Panel data typically refers to a particular type of multilevel data. Measurement at over time (T1, T2, T3…) is nested within subjects, for example firms. Each time is referred to as a "wave", so panel datasets are described in terms of the number of individual cases (N), and the number of waves (T). Panel data analysis is a useful method of research in contemporary social and economic studies. Panel data have several advantages over the one-dimensional data. First, find use in the testing of causality. Besides, based on this data it is easier to verify hypotheses, to eliminate the bias and reduce the problems associated with multicollinearity (Kopczewska *et al.*, 2009).

The proposed models are given as:

$$ROA_{it} = ß_0 + ß_1 LogTA_{it} + ß_2 IncGrow_{it} + ß_3 Leverage_{it} + ß_4 CSR_{it-1} + \varepsilon_{it}$$

$$ROE_{it} = ß_0 + ß_1 LogTA_{it} + ß_2 IncGrow_{it} + ß_3 Leverage_{it} + ß_4 CSR_{it-1} + \varepsilon_{it}$$

$$NIM_{it} = ß_0 + ß_1 LogTA_{it} + ß_2 IncGrow_{it} + ß_3 Leverage_{it} + ß_4 CSR_{it-1} + \varepsilon_{it}$$

where,
ROA_{it} – average Return on Assets of Bank ***i*** at time ***t***,
ROE_{it} – average Return on Equity of Bank ***i*** at time ***t***,
NIM_{it} – Net Interest Margin of Bank ***i*** at time ***t***,
$LogTA_{it}$ – natural logarithm of total assets of Bank ***i*** at time ***t***,
$IncGrow_{it}$ – income growth of Bank ***i*** at time ***t***,
$Leverage_{it}$ – leverage ratio of Bank ***i*** at time ***t***,
CSR_{it-1} – lagged CSR index,
$ß_0$ – an intercept,
$ß_{1\ldots4}$ – a vector of exogenous variables and observations,
ε - a random component (errors),
i = 1, 2, …, N, index of bank,
t = 1, 2, …, T, index of time.

Three basic types of models: pooled models (OLS), fixed effects models (FE) and random effects models (RE) were used to model panel data in the study. First, F-test was applied to determine which method performed best one to choose between pooled OLS and fixed-effect. In addition, in the case of the FE model with time-fixed effects, the Wald test was conducted to examine the impact of temporary variables. In the next stage of the analysis, the Breusche and Pagan Lagrange multiplier test was employed to decide whether the pooled OLS model or the random effect model was appropriate for the study. In addition, the fixed-effects model and the random-effects model were compared by using the Hausman's test. This procedure was repeated for each dependent variable ROA, ROE or NIM.

The results of the analyses are presented and discussed in section 4 and 5.

4. Results and interpretation

4.1. Descriptive statistics

Table 3 presents descriptive statistics for dependent, independent and controlled variables used in regression analysis. The mean score for ROA is 0.96% and standard deviation of 1.04%. This suggests that over the study period ROA for the banks averages about 0.96% with individual yearly figures differing around 1.04%. Variations for ROA as indicated by the standard deviation are confirmed by the minimum and maximum values of -6.43% and 6.15% respectively.

Table 3. **Descriptive statistics**

Variable	Minimum	Maximum	Mean	Median	Std. Deviation	Kurtosis	Skewness
ROA (%)	-6.43	6.15	0.96	0.915	1.04	20.37	-1.61
ROE (%)	-22.44	25.38	8.95	9.54	6.48	3.48	-0.73
NIM (%)	0,23	11.27	2.94	2.65	1.71	8.00	2.51
LogTA	0.56	5.59	3.41	3.61	1.20	-0.12	-0.64
IncGrow (%)	-0.06	593.66	104.82	95.52	46,67	82.31	8.15
Leverage (%)	0.31	20.21	9.46	8.82	4.04	0.44	0.87
CSR (%)	0.00	100.00	33,99	28.00	27.77	-0.72	0.57

(*Source*: Authors' elaboration)

ROE registers a mean of 8.95% with very high standard deviation of 6.48%. This can be confirmed by high variability of ROE on figure 2. This suggest that banks are keen to generate about 8.95% return on for shareholders' investments. The mean score for NIM (2.94%) is higher than ROA and the variability over this value is also very high, as indicated by its standard deviation of (1.71%). The average growth in the banks during the analysed period was about 104.82% as indicated by the mean. This suggest incredible development in banking sector. Further, the average level of leverage suggests that an average bank has about 9.40% of equity as total liabilities. This confirms Saunders and Cornett's (2008) suggestion that banks are generally risky companies. The aggregated CSR mean (33.99%) suggests that banks rather do not regard their CSR activities as strategically oriented. High figure of standard deviation (27.77%) indicating significant differences in CSR activities among banks in Poland. This supports the thesis that CSR activities in banking industry in Poland are on early stage.

4.2. Pearson correlation analysis

Table 4 presents correlation between variables. Correlation explores the bivariate relationships among the variables. The results of the low correlations among selected independent variables may remove the problem multicollinearity in our model.

Table 4. **Correlation matrix of variables**

	VIF	ROA	ROE	NIM	LogTA	IncGrow	Leverage	CSR
ROA (%)		1						
ROE (%)		0.799**	1					
NIM (%)		0.109	0.092	1				
LogTA	1.304	0.239**	0.340**	-0.056	1			
IncGrow (%)	1.042	-0.075	0.146	-0.094	-0.128	1		
Leverage (%)	1.040	-0.293**	-0.012	-0.200**	-0.131	0.076	1	
CSR (%)	1.354	0.079	0.047	-0.006	0.480**	-0.194**	-0.185**	1

** Correlation significant at the 0.05 level

(*Source*: Authors' elaboration)

According to the results, there is a low positive insignificant correlation between ROA, ROE and CSR (0.079, p-value>0.05; 0.047, p-value>0,05) and negative insignificant correlation between NIM and CSR (-0,006; p-value>0,05). IncGow is positively and insignificantly correlated with ROE and negatively correlated with ROA and NIM. Leverage is negatively significantly correlated with ROA and NIM. Because of constraints of bivariate analysis in next step of the research we employed panel data analysis.

4.3. Panel data analysis

Table 5 depicts estimated coefficients from panel data analysis for ROA, ROE and NIM as dependant variables. First, we estimated OLS model and employed F-test in order to determine which model (the pooled OLS model or the fixed effects model) to employ. The estimated model for ROA has the form:

$$\widehat{ROA} = b_0 + b_1 LogTA + b_2 IncGrow + b_3 Leverage + b_4 CSR$$

The results of F-test indicated that (2.470; p-value<0.01) the fixed effects model was appropriate to use rather than the pooled OLS model. Among FE models, the least square dummy variable model (LSDV) was employed to understand the fixed effects. The effect of independent variables is mediated by the differences between banks. The pure effect of independent variables was estimated by adding a dummy for each bank. Each dummy absorbs the effects peculiar to each bank. In addition, it is worth noting that in the case of the FE model with time-fixed effects, the impact of temporary variables was observed, which confirms the Wald test (15.400; p-value<0.05). In addition, the Breusch and Pagan Lagrangian multiplier test for random effects indicated which model to choose between a random effects regression and a simple OLS regression. According to the Breush-Pagan test result (0.881; p-value>0.10), the simple OLS regression was not preferable than the random effect model. In addition, we employed the Hausman's test statistics (17.395; p-value<0.01) to confirm that the fixed effects model was preferable compared with random-effects model. After running the necessary tests for choosing the right model, the fixed effect model with time-fixed effects was the most appropriate model for this research study. Therefore, the results of the fixed effect model with time-fixed effects were taken into consideration for further discussion.

Similar model selection procedure was undertaken for ROE and NIM. The estimated OLS models were as follows:

$$\widehat{ROE} = b_0 + b_1 LogTA + b_2 IncGrow + b_3 Leverage + b_4 CSR$$

$$\widehat{NIM} = b_0 + b_1 LogTA + b_2 IncGrow + b_3 Leverage + b_4 CSR$$

According to the results for ROA presented in table 5, CSR coefficient (b_4=0,0048) was positive implying that greater efforts aimed at improving CSR index might lead to some improvement in the ROA ratio. Thus, the first hypothesis (H_1) can be accepted. However, beta of CSR index did not appear to be tangible, because its p-value is not significant (p-value>0.05). Therefore, the fourth hypothesis (H_4) is rejected.

LogTA (b1=-0.692) showed negative significant relationship with ROA, IncGrow (b2=-0.002) showed negative insignificant relationship and Leverage (b3=0.0004) showed positive insignificant relationship with ROA. This insignificant impact of variables implied that their beta values might be due to chances and might not be significantly different from 0. The provided independent variables explained almost 43.2% of the variation in the ROA variable.

Table 5 depicts estimated coefficients from panel data analysis for ROE as dependant variable. After employed following tests F-test (4.148; p-value<0.01), Breush-Pagan test (17.98; p-value<0.01), Wald test (31.57; p-value<0.01), and Hausman test (13.95; p-value<0.1), the fixed effects model with time fixed effects was the most appropriate model for ROE. Therefore, the results of this model were taken into consideration for further discussion.

According to the results presented in table 5, CSR coefficient had a positive effect on ROE (b4=0,025), thus the second hypothesis (H2) can be accepted. However, there was not any statistical significance between CSR and ROE (p>0.05), therefore the fifth hypothesis (H5) is rejected. Control variables such as IncGrow (b2=0.023; p-value<0.05) had a positive and statistically insignificant effect on the dependent variable ROE. LogTA (b1=-0.985; p-value>0.05) had a negative and statistically insignificant effect on the dependent variable ROE. Leverage (b3=0.300; p-value>0.05) had a positive and statistically insignificant effect on the dependent variable ROE.

Table 5. **Estimated coefficients from the panel data analysis, years 2008 – 2015**

	Dependent variables		
Independent variables	**ROA FE model with time-fixed effects**	**ROE FE model with time-fixed effects**	**NIM Random effects model**
CSR (%)	0.0048	0.025	**-0.006****
	(0.983)	(0.943)	(-1.965)
LogTA	**-0.692****	-0.985	-0.168
	(-2.162)	(-0.575)	(-1.042)
IncGrow (%)	-0.002	**0.023****	-0.002
	(-1.267)	(2.179)	(-1.633)
Leverage (%)	0.0004	0.300	**-0.071****
	(0.09)	(1.171)	(-2.375)
Constant	**3.779*****	**10.626****	**3.500*****
	(4.521)	(2.375)	(7.595)
T_2009	**-0.959*****	**-7.610*****	
	(-3.120)	(-4.626)	
T_2010	**-0.530***	**-5.308*****	
	(-1.700)	(-3.180)	
T_2011	-0.071	-2.593	
	(-0.218)	(-1.479)	
T_2012	-0.299	**-3.898****	
	(-0.845)	(-2.058)	
T_2013	-0.222	**-4.173****	
	(-0.601)	(-2.113)	
T_2014	-0.255	**-4.012***	

	(-0.646)	(-1.896)	
T_2015	-0.582	**-7.488*****	
	(-1.411)	(-3.393)	
N	144	144	144
R^2	0.432	0.583	0.025 (overall)
Test Breusha-Pagan	0.881	17.98***	347,72***
F Test	2.253***	4.28***	25.79***
Test Hausman	17.395***	13.95***	0.93
Test Wald	15.400**	31.57***	21.83**

t statistics in parentheses; * p < 0.10, ** p < 0.05, *** p < 0.01
(*Source*: Authors' elaboration)

In addition, the results also indicate, that time had a significant impact on the ROE. The extent to which each year affected ROE show variables T_2009, T_2010, T_2011, T_2012, T_2013, T_2014, T_2015. The point of reference is the year 2008. For example, in 2009 banks on average reported lower level of ROE comparing with 2008 by -7.610% (p-value<0.01). In 2015, banks on average, reported lower level of ROE comparing with 2008 by -7.488% (p-value<0.01). These results can be confirmed visibly by the development of ROE ratio presented on figure 2. The provided independent variables explained almost 58.3% of the variation in the dependent variable.

Table 5 depicts estimated coefficients from panel data analysis for NIM as dependant variable. After employed following tests F-test (25.79; p-value<0.01), Breush-Pagan test (347.72; p-value<0.01), Wald test (21.83; p-value<0.05), and Hausman test (0.93; p-value>0.1), the random effect model was the most appropriate model for NIM. Therefore, the results of this model were taken into consideration for further discussion.

According to the results presented in table 5, CSR had a negative effect on NIM (b4=-0.006), thus the third (H3) must be rejected. However, the relation between CSR and NIM is statistically significant (p-value<0.05), therefore the sixth hypothesis (H6) is accepted. All the control variables: IncGrow (b2=-0.002), Leverage (b3=-0.071) and LogTA (b1=-0.168), showed negative relationship with NIM. Among control variables beta coefficients Leverage (p-value<0.05) was statistically significant whereas beta coefficients of IncGrow (p-value>0.1) and LogTA (p-value>0.1) were not significant. The provided independent variables explained only 7.4% of the variation in the dependent variable.

5. Conclusions

5.1. Conclusions and recommendations

This study examines the impact of corporate social responsibility (CSR) disclosures in Polish commercial banks on their financial performance (ROA, ROE, NIM).

The CSR reporting level was increasing over the years in all areas. This is a positive trend in the Polish banking sector. Despite the fact that development of ROA and NIM were stable in analysed period, the level of ROE for the banking sector was changing significantly. Taking into consideration world economic crisis in 2008, it should be stated that Polish banking system was not affected by the crisis as much as we should expect. This situation could affect the relation between CSR and profitability ratios.

Literature review conducted in section 2 revealed that previous studies reported divergent findings on the nature and the strength of the effects of the CSR activities on the financial performance of companies. The results of the prior studies include those with: strong positive effects, strong negative effects, neutral effects, and mixed effects. This study showed mixed effects of the CSR disclosures on the financial performance, depending on the particular model tested. The interpretations of the findings were also not consistent.

Consistent, with the previous literature on the relation between the CSR and financial performance and the insights from the stakeholder theory, we hypothesized that the CSR index had positive effect on the accounting returns. This study revealed a positive relationship between banks' CSR disclosures and their profitability measured by ROA and ROE. However, the relationship between banks' CSR disclosures and NIM is negative.

Moreover, we hypothesized that the CSR index had statistically significant effect on the accounting returns. This study revealed statistically significant relation between CSR disclosures and NIM (negative) whereas relationship between banks' CSR disclosures and ROA and ROE was not significant.

Employed panel analysis did not report significant effect (apart from NIM) of the banks' CSR activities on the accounting returns measured by ROA, ROE. This result was consistent with findings of Soana (2011), in which no significant effect was observed between the CSR and accounting returns. Conversely, our findings on the absence of significant relation between CSR and FP were at variance with Adeyanju, (2012, Ofiri *et al.* (2014), Tafti *et al*. (2012), and Weshah *et al*. (2012). In these studies, researchers found significant positive effects of the CSR on the accounting returns.

Moreover, the effect of the control variables on the accounting returns was observed and in several cases, was statistically significant. The regression results showed that CSR activities undertaken by banks are not dominant predictor of their profitability as compared with their control variables (LogTA, IncGrow, Leverage). Therefore, banks engaging in CSR practices should do so in conjunction with other factors which have a significant impact on financial performance.

The above-mentioned findings might have important theoretical and practical implications. This study has contributed to the existing literature in a number of ways. First, our findings of no positive significant effect of CSR disclosures on accounting returns measured by ROA, ROE and the existence of negative significant effect of CSR disclosures on NIM did not support the stakeholder theory. Stakeholder theory is the perspective that business activities aimed at satisfying the stakeholders' needs should help the business to create competitive advantage and improve the financial performance (Freeman and Evan, 1990). The results support Friedman's (1970) claim that business firms aiming at profit maximizing should not engage in social responsibility. Second, the research examines empirically the relation between CSR activities and financial performance in companies that perceive CSR activities as a tool for gaining and retaining legitimacy. Third, this study was conducted in Poland that is perceived as a very important emerging economy in Central and Eastern Europe. Thus, the findings regarding to relation between CSR and FP in Polish banks could have serious implications in other emerging economies in particular in Central and Eastern Europe region.

The findings of this study revealed also several practical implications and recommendations. First, the results of the study imply that, in order to be rewarded with legitimacy by stakeholders, managers should spend more resources and effort on their CSR activities and in longer perspective they might expect positive impact on financial performance. This therefore calls for increased shareholders' understanding of the managerial actions. The owners of shares would be better informed of actions taken by the management, if they were involved in organization's activity (OECD 2008). Therefore, the following recommendation for the management can be specified: (1) managers should ensure transparency of the managerial process, (2) the full disclosure of relevant information to all stakeholders is needed.

Second, according to Griffin and Prakash (2014), business sector (including banking sector) and government are obliged to effectively participate in CSR, if social conduct is to be sustainable. Governments and policy makers needs to encourage the companies to support the provision of public goods. Therefore, there is a need to call on the government to provide fiscal incentives and other stimulating factors to the business sector to encourage them to improve their CSR activities.

5.2. Limitations and future research

As with any empirical work, this study suffers from a number of limitations that may further constrain its generalizability and trustworthiness.

First, this study is focused on the banking sector in Poland. Hence, the findings are biased and only applicable to that sector. Any attempt to generalize the results of the study beyond its context may render such generalized conclusions invalid.

Second, the sample size of 18 banks, arising from the small population of banks in the country and used for this study was another limitation. The limited number of banks included in the analysis could reduce the validity of the findings and conclusions. Nevertheless, a few empirical studies have used small sample sizes especially in emerging markets.

Third, the CSR disclosure data used for this study constitutes another limitation. The CSR disclosure data were hand collected from management commentaries and corporate social responsibility reports according to self-constructed disclosure checklist. It has the disadvantages to be difficult to replicate because the researcher may generally use his judgement during the coding process which can also bias the overall results.

Finally, the adopted quantitative design of the study has its inherent limitations and might limit the extent to which the findings may be generalized or replicated. Drawing conclusions merely from the analysis of numerical data to explain social interaction is risky. It is necessary to take into account also human nature, psychology and irrational behaviour of stakeholders.

In this regard, further research is recommended to expand the scope of the study so that It could be possible to determine, how did the relation CSR-FP change over time, especially before and after financial crisis. Such study can compare the impact of CSR disclosures on banks' financial performance in the pre-crisis and post-crisis periods. Apart from the above proposal, other future researches might extend the study by performing in-depth qualitative research to explore the exact meanings the stakeholders attach to the bank CSR activities and disclosures based on them.

Another future research could address the empirical linkage between CSR disclosures and financial performance in the banking sector of other emerging countries. Researchers may want to replicate the study, using content analysis and aggregated CSR index to measure the CSR as was done in this study or using some other forms of methodology to measure both dependent and independent variables. Lastly, some elements of the methodology could be adapted in further research, which examine the influence of CSR disclosure on financial performance in many other sectors. Such comparative studies could be done within the oil and gas, food and manufacturing or production sectors in order to obtain more understanding about the differences amongst them.

References

Adebayo, E. (2000) *Corporate Social Responsibility Disclosure, Corporate Financial and Social Performance: An Empirical Analysis*, Nova Southeastern University: Fort Lauderdale, FL.

Adeyanju, O.D. (2012) "An assessment of the impact of corporate social responsibility on Nigerian society: The examples of banking and communication industries", *Universal Journal of Marketing and Business Research*, vol. 1, no. 1: 17-43.

Ambec, S. & Lanoie, P. (2008) "Does it pay to be green? A systematic overview", *Academy of Management Perspectives*, vol. 22, no.4: 45-62.

Baird, P., L., Geylani, P.C. & Roberts, J.A. (2012) *Corporate social and financial performance re-examined: Industry effects in linear mixed model analysis*, "Journal of Business Ethics", vol. 109: 367-388.

Becchetti, L., Ciciretti, R., Hassan, I. & Kobeissi, N. (2012) "Corporate social responsibility and share value", *Journal of Business Research*, vol. 65: 1628-1635.

Busch, T. & Hoffmann, V.H. (2011) "How hot is your bottom line? Linking carbon and financial performance", *Business and Society*, vol. 50, no. 2: 33-265.

Chen, H. & Wang, X. (2011) "Corporate social responsibility and corporate financial performance in China: An empirical research from Chinese firms", *Corporate Governance*, vol. 11, no. 4: 361-370.

Chih, H. & Chih, H., Chen, T. (2010) "On the determinants of corporate social responsibility: International evidence on the financial industry", *Journal of Business Ethics* vol. 93: 115-135.

Deegan, C.M. (2002) "Introduction. The legitimising effect of social and environmental disclosures - a theoretical foundation", *Accounting, Auditing & Accountability Journal*, vol. 15, no. 3: 282–311.

Deegan, D. & Blomquist, C. (2006) "Stakeholder influence on corporate reporting: an exploration of the interaction between WWF-Australia and the Australian minerals industry", *Accounting, Organizations and Society*, vol. 31 nos. 4/5: 343-372.

Dixon-Fowler, H.R., Slater, D.J., Johnson, J.L., Ellstrand, A.E. & Romi, A.M. (2013) "Beyond "does it pay to be green?" A meta-analysis of moderators of the CEP-CFP relationship", *Journal of Business Ethics,* vol. 112: 353-366.

Freeman, R. & Evan, W. (1990) "Corporate governance: A stakeholder interpretation", *Journal of Behavioral Economics,* vol. 19, no. 4: 337.

Griffin, J.J. & Prakash, A. (2014) "Corporate social responsibility: Initiatives and mechanism", *Business & Society,* vol. 53, no. 4: 465-482.

Haniffa, R.M. & Cooke, T.E. (2005) "The impact of culture and governance on corporate social reporting", *Journal of Accounting and Public Policy*, vol. 24: 391-430.

Gray, R., Kouhy, R. & Lavers, S. (1995a) "Corporate social and environmental reporting: A review of the literature and a longitudinal study of UK disclosure", *Accounting, Auditing & Accountability Journal*, vol. 8, no. 2: 47-77.

Gray, R., Kouhy, R. & Lavers, S. (1995b) "Methodological themes: Constructing a research database of social and environmental reporting by UK companies", *Accounting, Auditing & Accountability Journal*, vol. 8, no. 2: 78-101.

Kaplan, S.E. & Ruland, R.G. (1991) "Positive theory, rationality and accounting regulation", *Critical Perspectives on Accounting*, vol. 2, no. 4: 361_374.

Khlif, H., Guidara, A. & Souissi, M. (2015) "Corporate social and environmental disclosure and corporate performance", *Journal of Accounting in Emerging Economies*, vol. 5, issue 1: 51-69.

Kilic, M., Kuzey, C. & Uyar, A. (2015) "The impact of ownership and board structure on Corporate Social Responsibility (CSR) reporting in the Turkish banking industry", *Corporate Governance,* vol. 15, issue 3: 357 – 374.

Kopczewska, K., Kopczewski, T. & Wócik, P. (2009) *Metody ilościowe w R. Aplikacje ekonomiczne i finansowe*, [Quantitative methods in R. Economic and financial applications], CeDeWu, Warszawa.

Krasodomska, J. (2012) "Znaczenie społecznej odpowiedzialności banków dla bezpieczeństwa systemu finansowego" [Importance of social responsibility of banks for the safety of the financial system], *Zeszyty Naukowe Polskiego Towarzystwa Ekonomicznego*, Kraków: no. 12: 151-159.

Matthews, M.R. (1993) *Socially responsible accounting*, London: Chapman & Hall.

Molyneux, P., Schaeck, K. & Zhou, T. (2014) "Too systemically important to fail' in banking – Evidence from bank mergers and acquisitions", *Journal of International Money and Finance* (2014), 49: 258-282.

Organization for Economic Co-operation and Development (2008) "OECD principles of corporate governance", available on-line at http://www.oecd.org/dataoecd/32/18/31557724.pdf (2016-12-01)

Orlitzky, M., Schmidt, F.L. & Rynes, S.L. (2003) "Corporate social and financial performance: A meta-analysis", *Organization Studies*, 24(3): 403-441.

Patten, D. (1991) "Exposure, legitimacy, and social disclosure", *Journal of Accounting and Public Policy*, no. 10: 297-308.

Patten, D. (1992) Intra-industry environmental disclosures in response to the Alaskan oil spill: A note on legitimacy theory, Accounting, Organizations and Society, vol. 17, no. 5: 471-475.

Soana, M. (2011) "The relationship between corporate social performance and corporate financial performance in the banking sector", *Journal of Business Ethics*, vol. 104: 133-148.

Sharma, S. & Starik, M. (Eds.) (2002) "Research in corporate sustainability: The evolving theory and practice of organizations in the natural environment", *Canadian Journal of Administrative Sciences,* Vol. 21, Issue 3: 288–289.

Siregar, S.V. & Bachtiar, Y. (2010) "Corporate social reporting: Empirical evidence from Indonesia Stock Exchange", *International Journal of Islamic and Middle Eastern Finance and Management*, vol. 3, no. 3: 241-252.

Suchman, M.C. (1995) "Managing legitimacy: strategic and institutional approaches", *Academy of Management Review*, vol. 20, no. 3: 571–610.

Tafti, S.F., Hosseini, S.F. & Emami, S.A. (2012) "Assessment of the corporate social responsibility according to Islamic values (Case study: Sarmayeh Bank)", *Procedia – Social and Behavioral Sciences*, vol. 58: 1139-1148.

Torres, A., Bijmolt, T.H.A., Tribo, J.A. & Verhoef, P. (2012) "Generating global brand equity through corporate social responsibility to key stakeholders", *International Journal of Research in Marketing*, vol. 29: 13-24.

Weshah, S., R., Dahiyat, A.A., Awwad, M., R.A. & Hajjat, E.S. (2012) "The impact of adopting corporate social responsibility on corporate financial performance: Evidence from Jordanian banks", *Interdisciplinary Journal of Contemporary Research in Business*, vol. 4, no. 5: 34-44.

Wu, MW. & Shen, CH. (2013) "Corporate social responsibility in the banking industry: Motives and financial performance", *Journal of Banking and Finance*, vol. 37, no. 9: 3529-3547.

Appendix A

CSR disclosure items	
Environment	
EN1	Statement on environmental protection policy
EN2	Prevention of pollution (waste disposal and recycling)
EN3	Actions aiming to limit consumption of energy, materials, water (sustainable use of resources)
EN4	Sustainability (any mention of sustainable development)
EN5	Aesthetic value of the environment (designing structures in harmony with the environment, landscape)
EN6	Environmental protection, biodiversity and restoration of natural habitats
EN7	Taking account of the environment in credit policy (environmentally-friendly products, "green products", funding "low-emission" investment projects …)
EN8	Environmental training and certificates (ISO 14001 vs)
EN9	Joint projects with other companies providing environmental management services
EN10	Environmental awards
Human Resources	
HR1	Employment and labour relations
HR2	Occupational health and safety
HR3	Employee development (training…)
HR4	Employee benefits (insurance, healthcare, social assistance ...)
HR5	Relationships with trade unions
HR6	Information on employee turnover
HR7	Information on support for daytime care, maternity and paternity leave
HR8	Encouraging diversity (employment of minorities, disabled persons, women ...)
Product and customers	
PC1	Comprehensibility and transparency of products / services
PC2	Bank products addressed to marginalised groups (the disabled, aged customers, non-profit organisations ...)
PC3	Examination of customer satisfaction / service quality
PC4	Protection of customers' data and privacy
PC5	Customer service (settlement of problems, complaints, disputes, renegotiation of contract terms ...)
PC6	Consumer awards
Community Involvement	
CI1	Donations for social activities and public benefit organisations
CI2	Support for education (scholarships, conferences, seminars, student internships…)
CI3	Sponsorship of various sport, artistic and cultural events
CI4	Sponsorship of various public health initiatives, projects, campaigns
CI5	Support for local activities, industry, agriculture

PS3 LAW 1

Chairperson: Raluca Dimitriu, The Bucharest University of Economic Studies, Romania

The exchange of goods within the European Union - part of free movement of goods in the EU - in the context of recent legislative changes to the EU level
Ioana Nely Militaru

Considerations on the obligations impacted by modalities
Cristina Cojocaru

The exchange of goods within the European Union - part of free movement of goods in the EU in the context of recent legislative changes to the EU level

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Abstract: *The internal market must be seen in its evolution, from the common market established by the Treaty that established the Economic Community of Coal and Steel (ECSC from 1952) respectively Treaty that established the European Economic Community and the Treaty establishing the European Atomic Energy Community (EEC and EAEC, 1958). Each treaty, subsequent to founding treaties of the European Communities helped to eliminate trade barriers between Member States in order to increase economic prosperity and contribute to "ever closer union among the peoples of Europe". The first freedom, the objective of the EEC Treaty was "free movement of goods" within the Community, currently within the European Union.*

Keywords: *Free movement of goods, domestic market, commodity, origin of goods, charge having equivalent effect, Customs Union, customs territory*

1. Preliminary remarks. Treaty on the functioning of the European Union [1] and the internal market

The internal market is governed by the TFEU in Title I of Part III – "the Policies and internal actions of the Union", Article 26, which states that "the internal market comprises an area without internal frontiers in which the free movement of goods, persons, services and capital is ensured in accordance with the Treaties".

In order to achieve the objectives set out in Art. 26 TFEU, the Commission may propose appropriate provisions considering that for the establishment of the internal market there are differences between Member States economies in the level of their development. The Commission's provisions can take the form of derogations; however, they must be temporary and must disrupt the operation of the common market as little as possible (art. 27 par. 2 TFEU).

The components of the internal market, according to the Treaties are the **free movement of goods, services, people and capital.**

The internal market is an area without internal frontiers which ensures the free movement of goods, persons, services and capital. Currently, the issue of the internal market was re-launched by European institutions along with the "Europe 2020" communication strategy, the report of the Commission, "a new strategy for the single market – in the benefit of the economy and European society", communication entitled "Act on the single market".

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2. Free movement of goods within the EU

2.1. Regulation

Articles 26 and 28-38 of the TFEU are the legal basis for free movement of goods within the EU.

According to art. 28 para. 1 TFEU, the Union shall comprise **a customs union** which shall cover **all trade in goods** and which shall involve **the prohibition between Member States** of customs duties on **imports and exports and of all charges having equivalent effect as well as the adoption of a common customs tariff in relations with third countries.**

Gradual approximation of national tariffs has led to the common customs tariff or customs union, which allowed the promotion within the Community (initially) of a common commercial policy and its own customs legislation, represented by the Community Customs Code.

The customs union, ***i.e.*** all trade in goods in the EU (Art. 28 TFEU) and the fundamental principle, namely free movement of goods, led to the creation of the single market and the EU's economic expansion. Therefore, the conditions for increasing trade in goods between EU Member States and other third countries have been created, trade which is regulated by specific agreements and not by the TFEU [2].

Understanding Article 28 paragraph 1 TFEU requires some clarification on the concept of goods and the space where exchange of goods is performed.

2.2. The concept of commodity

The Court describes the goods as products of economic value and which may form the object of commercial transactions [3]. According to the jurisprudence of the Court of Justice of the EU, commodities are also: works of artistic, historical, archaeological or ethnographical value, waste without no economic value (but involving costs for businesses), audio-visual materials (except broadcasts or advertising messages that are subject to regulations on the free movement of services [4]). The coins are not considered goods, as their transfer is governed by the provisions on the movement of capital, according to art. 63 TFEU. Instead, coins from the date they are no longer in circulation in a State Member are considered commodities [5].

2.3. Origin of goods and the regime of goods in free circulation

Goods may be obtained:

- solely in one country or territory. In this case, the goods are considered as originating in that country or territory (art. 60, para. 1 Union Customs Code [6]).
- or by the intervention of several countries or territories for their production. In this case, the goods are considered as originating in the country or territory where they underwent their last transformation or substantial, economically

justified processing performed in an undertaking equipped for that purpose and resulted in a new product or representing an important stage of manufacture (art. 60 par. 2 of the Customs Code of the Union [7]. According to art. 5 point. 23 of the Customs Code of the Union, free movement of goods principle applies to the following categories of goods, named “commodities union”:

a) goods wholly obtained in the customs territory of the Union [9] and which do not contain goods imported from countries or territories outside the customs territory of the Union;
b) goods brought into the customs territory of the Union from countries or territories not forming part in this territory and released for free circulation, according to art. 29 TFEU, it is considered that it is in open circulation in a Member State products originating in third countries, on which import formalities have been completed and for which the Member State have collected customs duties and charges having equivalent effect and which have not benefited from a total or partial drawback of these fees and charges (Art. 29 TFEU).
c) goods obtained or produced in the customs territory of the Union, either solely from goods referred to in (b) or from goods referred to in (a) and (b);

The “un-unional goods” are goods other than those referred to above or which have lost their customs status of goods union (art. 5 point. 23 of C.V.U).

For such goods, there origin may be:

a) Preferential. For goods to benefit from some rules on the Common Customs Tariff (included in the measures under Art. 56 para 2 letter d or e of CVU [10]) or non-tariff preferential measures, they must comply with the rules on preferential origin, according to C.V.U., *i.e.*:

- the goods outside the customs territory from countries, territories or groups of countries or territories under **agreements** with the E.U., setting forth the rules on preferential origin (art. 64 par. 2).
- the goods from countries or territories or groups of countries or territories outside the customs territory of U.E. other than those mentioned above, on which **the EU unilaterally adopt preferential measures** (art. 64 par. 3).

These rules are based either on the criteria of obtaining goods entirely or on the basis of sufficient working or processing.

For goods benefiting from preferential measures applicable in trade between the customs union and Ceuta and Melilla, contained in Protocol 2 to the Act of Accession of 1985, the rules on preferential origin shall be adopted in accordance with Article 9 of the Protocol (art. 64 para. 4).

- the goods from overseas countries and territories associated to U.E. Their preferential measures are contained in preferential commitments for these countries or territories (Art. 64 para. 5). Rules on preferential origin of the goods are taken according to art. 203 TFEU.

b) Non-preferential, as a general rule. They relate to goods which do not fall under any category of goods referred to above.

Goods moving within the Union are presumed to be goods of the Union, the authorities concerned are required to prove the nature of the un-unional goods.

2.4. Exchanging goods in the Union space

Trade in goods is carried out across the Union or between Member States and between Member States and third countries. Across the Union, according to Art. 28 para. 1 and art. 34 and 35 TFEU, the free movement of goods involves two types of prohibitions.

The first category concerns the prohibition between Member States:

1. **Customs duties on imports and exports;**
2. **Any charges having equivalent effect;**

In addition to these prohibitions, the provisions of Articles 110 are added also fiscal provisions relating to internal taxation imposed by a Member State on similar domestic products coming from another Member State which shall not be greater, as follows:

3. No Member State shall impose, directly or indirectly, products of other Member States any **internal taxation** of any kind in excess of that imposed directly or indirectly to similar domestic products;
4. No Member State shall apply to products of other Member States **any internal taxation such as to indirectly protect** other production sectors;

The four prohibitions concern fiscal obstacles, fees or taxes, failure which is likely to hinder intra-Community trade.

The second prohibition is regulated by art. 34 and 35 TFEU and concerns the quantitative restrictions.

Between Member States there are prohibited:

- quantitative restrictions on imports and all measures having equivalent effect;
- quantitative restrictions on export and all measures having equivalent effect.

The Court of Justice of the EU referring to these measures calls then “non-fiscal” or “non-tariff” obstacles [11].

Although customs duties on imports and exports (under art. 28 and 30 TFEU) and quantitative restrictions were eliminated on July 1, 1968, just a year earlier than expected, for the prohibition of measures having an effect equivalent and the harmonization of relevant national legislation, the deadline was not met, which is why they became the object of a constant effort for the Member States to complete free movement of goods.

It may be claimed the lack of definitions in the Treaty, the Court of Justice of the EU being obliged to offer them in its case-laws.

A. Prohibition of charges having an effect equivalent to customs duties: Article 28 (1) and 30 TFEU

According to the jurisprudence of the Court of Justice of the EU any charge, whatever its designation or mode of application, “which imposed on a product imported from a Member State, but not on a similar domestic product, has by changing the price, the same effect on the free movement of goods as a customs duty” may be regarded as a charge having equivalent effect, regardless of the nature or shape [12].

The Court of Justice held that “all taxes, whatever their mode of application, which are imposed unilaterally on goods crossing borders without the strict regime of customs duties, represent charges having equivalent effect [13]”. Any pecuniary charge, regardless of size, purpose and method of application unilaterally imposed on domestic or foreign goods crossing a border without being called duty is a charge having equivalent effect [14].

The jurisprudence of the Court of Justice referred above highlights the following specific features that characterize duties having equivalent effect:

a. there are pecuniary obligations / charges;
b. they are unilaterally imposed by the authorities of the Member States;
c. they are imposed on goods (domestic or foreign) crossing a border.

Charges having equivalent effect to customs duties are prohibited even if they do not produce a discriminatory effect [15]. Despite having a lower value than of the charge, it is considered pecuniary charge having equivalent effect the pecuniary charge which increases the cost of goods, thereby representing an obstacle to the free movement of goods.

There are not considered charges having equivalent effect to customs duties:

- the fees that are part of internal taxation system of a Member State, if applied without discrimination to all goods, local or national (art. 110, art. 111 TFEU);
- the fees incurred for services rendered by economic agents, when the fee is proportional to the service;
- the fees required under a provision of Community law for certain services carried out under the following conditions: the fees do not exceed the value of services, verification measures and taxation are uniform and binding throughout the Community / Union, the fee is established in the public interest Community / Union service provided is able to stimulate the free movement of goods.

B. Prohibitions of measures having an effect equivalent to quantitative restrictions on imports and exports, according to art. 34 and 35 TFEU

According to art 34 and 35 TFEU, the quantitative restrictions on imports and exports and all measures having equivalent effect are prohibited in Member States. Measures with equivalent character produce similar effects on quantitative restrictions.

Quantitative restrictions and measures having equivalent effect to these have been defined by the Court of Justice of the EU in its case laws.

Also, measures having equivalent effect may be not only legal provisions (laws, regulations, administrative provisions) but also administrative practices of public authorities, all instruments that come from a public authority, including recommendations (not binding) [16], which affect intra-Community trade (for example, long examination of the request in order to obtain use permits of imported equipment, passivity and tolerance of administrative authorities against individuals who consequently jeopardize the free movement of goods) [17]. Administrative practices mean as provided by Directive 70/50 of the Commission on the elimination of measures having an effect equivalent to quantitative restrictions on trade between Member States "any standard or procedure commonly used by a public authority and which, although does not legally oblige those to whom it is addressed, it determines them to have a certain conduct".

To avoid the scope of Article 34 TFEU those rules must be non-discriminatory on covered economic operators and in their effects, in law or in fact, on the marketing of domestic products and those coming from other Member States [18]. "When these conditions are met, the application of such provisions to sales of goods from another Member State meeting the requirements set by the state is not such as to prevent their access to the market or hinder more than it impedes access of indigenous products" [19].

Obstacles to the free movement of goods may arise from differences between the national laws of the Member States on the production and marketing of goods [20]. These "obstacles" introduced by national laws must be understood and accepted for fulfilment of mandatory conditions that take the following requirements: fiscal surveillance measures; measures to ensure fairness in trade relations; measures to ensure consumer protection; measures that protect social and cultural values of local or national.

B.1. Types of measures having equivalent effect

Directive 70/50 / EEC [21] on the elimination of measures having an effect equivalent to quantitative restrictions on imports lists in art. 2 without being exhaustive, a number of measures that may be encountered in different situations. However, practice has led before the Court of Justice a multitude of situations, which identifies the following measures having an effect equivalent to quantitative restrictions [22].

One of the measures is contained in national regulations in prices. It is "a measure having equivalent effect" if prices are set by national legislation to such a level that the sale of imported products becomes more difficult than that of domestic products or even impossible [23].

Avoiding this "measure" caused, for example, the adoption by the European Commission of a communication on the compatibility of Art. 30 TEC (now Art. 36 TFEU) on measures taken by Member States to control drug prices and reimbursement [24].

Another measure is the obligation to use the national language. In this regard the Commission published a communication on the use of languages in marketing of foodstuffs in the light of the judgment of the Court of Justice [25].

There are considered measures the situations in which art. 34 and 35 TFEU apply to state aid; it can be illustrated the situation where a Member State shall promote the sale and purchase of domestic products through a publicly funded campaigns. If a financing campaign unjustified discriminate the domestic products from those of other Member States, its action is covered by art. 34 TFEU.

B.2. Exceptions from the prohibition of measures having equivalent effect to quantitative restrictions

According to art. 36 TFEU Member States are entitled to take measures that can have an effect equivalent to quantitative restrictions on imports, exports or transit of goods between them only if they are justified according to general considerations, uneconomic, namely: public morality [26], public order [27], public safety [28], protection of health and life of humans and animals, plants' conservation, protection of national treasures of artistic, historic or archaeological value or the protection of industrial and commercial property. However, prohibitions or restrictions shall not constitute a means of arbitrary discrimination nor a disguised restriction on trade between Member States (Art. 36 TFEU).

These exceptions to the general principle must be interpreted and applied strictly and cannot be extended by interpretation to other situations. However, exceptions cannot be justified where a Union legislation prohibiting such exceptions came into force in that field [29].

Also, the measures must have a direct effect on public interests which must be protected and must not exceed the required level (according to the principle of proportionality) [30].

In this respect, the Court of Justice upheld its case-laws [31] that Member States may make exceptions from the prohibition of measures having an effect equivalent to quantitative restrictions under mandatory requirements pertaining to: the effectiveness of fiscal supervision, the protection of public health, the fairness of commercial transactions and defence of consumers.

Member States are obliged to notify the Commission of national measures derogating from the restrictions of art. 36 TFEU. In this regard procedures for exchange of information and monitoring mechanism to facilitate supervision of such national exemption measures have been introduced. They feature: Articles 114 and 117 TFEU, the Decision. 3052/95 / EC of the European Parliament and of the Council of 13 December 1995 and Regulation (EC) No. 2679/98 of 7 December 1998.

The principle was formalized in Regulation (EC) No. 764/2008 on mutual recognition, adopted in 2008 as part of the so-called New Legislative Framework (NLF) [32].

3. European Parliament's role in supporting the completion of the internal market [33]

The European Parliament, **completing the internal market through a special support for the Commission's adoption of the White Paper mentioned in connection with the free movement of goods, has also brought** a significant legislative contribution to Directives on harmonization. This contribution was reflected particularly in the package on the new legislative framework adopted in 2008. During negotiations with the Council, the Parliament aimed to create an agreement as collateral “through which all economic agents involved to be responsible, an increasing extent, the enforcement and the safety of products they place on the market and to further strengthen the CE mark by greater consumer awareness [34]”.

In this respect, in its resolution of March 8, 2011 [35], the Parliament asked the Commission to establish a single system of market surveillance for all products (harmonized or not) based on a single piece of legislation covering both the Directive on General safety of products and Regulation (EC) No. 765/2008 on market surveillance in order to achieve a high level of product safety and market surveillance and to clarify the legal basis. After two years, the Commission, at the Parliament's request, submitted on February 13, 2013, the Package on product safety and market surveillance. The package aims to improve market surveillance systems in the Member States. The Package represents new rules for the internal market of goods, national authorities have the right to monitor the market, to enforce the law and provide means of more comprehensive consumer protection. National authorities will be provided with the means to identify dangerous products. Moreover, consumer product safety rules will be simplified and unified in a single legislative act. “The three most important parts of the package are:

1. A proposal for a new regulation on product safety for consumers (RSPC);
2. A proposal for a single regulation on market surveillance of products, unifying and simplifying the existing fragmented legislation;
3. A multiannual plan for market surveillance containing 20 individual measures that the Commission will adopt in the next three years [36]”.

Besides **the principle of mutual recognition,** a central role in the functioning of the internal market, contributing significantly to ensuring, within it, the free movement of goods, has **standardization**. Enabling EU businesses to become more competitive, these standards help health protection and safety of European consumers and the environment.

On this line of concerns, on 21 October 2010, Parliament adopted a resolution [37] requesting to be maintained and improved many elements of successful standardization system and balancing the size of the national, European and international dimension. The Parliament also considered that adding the "adequate representation" is vital, since it is very important to take proper account of the positions of all stakeholders, whenever public interest is at stake, especially the development of standards intended to support EU policies and legislation [38].

On October 25, 2012, the Parliament and the Council adopted Regulation (EU) No. 1025/2012 on European standardization, modernizing and improving the mechanism for establishing the European standards [39]. The Parliament completed work on eCall [40] regulation and the Decision on interoperability solutions for European public administrations, businesses and citizens (ISA2) [41]. In the package on circular economy, the Parliament is currently drafting legislation on placing on the single market of fertilizers CE marked [42]. The Parliament supports the need for closer cooperation between the EU and national authorities to improve the quality of EU legislation and to identify legislation in need for simplification or codification, in accordance with the objective of further efforts for better regulation, a prompt transposition and correct implementation. The Parliament calls also other institutions to support, whenever possible, co-regulation and voluntary agreements in accordance with the same principle of better regulation [43].

4. Conclusions

Member States' efforts to harmonize national legislation since the late 1970s allowed the removal of obstacles created by national provisions making them inapplicable in order not to impede the free movement of goods within the Community [44].

Harmonization was pursued and facilitated by the introduction of the rule of the qualified majority required for most directives relating the completion of the single market [45] and the adoption by the Commission in 1985 (June) of a White Paper in which it made a proposal to avoid a too expensive and detailed process of harmonization in this area. The proposal was based on the Council Resolution of May 7, 1985 (confirmed by the Council Resolution of December 21, 1989 and Decision 93/465 / EEC), in which the basic principle is mutual recognition of national rules.

Harmonization should concern only the essential requirements and is justified only when national rules cannot be considered equivalent and create restrictions.

The Directives adopted under the Commission proposal aim:

- to ensure the free movement of goods through technical harmonization of entire sectors of activity and
- to ensure a high level of protection of public interest objectives. In this regard, "the European Parliament and the Council (...) adopt measures for harmonization of laws, regulations and administrative provisions of the Member States which have as their object the establishment and functioning of the internal market (art. 114 par. 1 TFEU). Commission, in formulating proposals (Art. 114 para. 1 TFEU) on health, safety, environmental and consumer protection, assumes a high level of protection, taking account in particular of any new development based on scientific facts (art. 114 par. 3 TFEU). They are exemplified in this regard, toys, construction materials, machinery, equipment on gas and telecommunications terminal equipment.

References

[1] The **Lisbon Treaty** was signed by EU Member States on 13 December 2007 and entered into force on 1 December 2009. The Treaty amends the Treaty on European Union (also known as the Treaty of Maastricht) and the Treaty establishing the European Economic Community (also known as the Treaty of Rome). In this process, the Treaty of Rome was renamed the **Treaty on the Functioning of the UE**

[2] For example, products from Iceland, Liechtenstein and Norway enjoy free movement of goods under the Agreement on the European Economic Area.

[3] Case Art Italian 7/68 Commission v. Italy (1968) Rec. 617.

[4] https://dreptmd.wordpress.com/cursuri-universitare/dreptul-comunitar-al-afacerilor/libera-circulatie-a-marfurilor/
[5] Old gold coins are considered goods because they are not ordinary means of payment, see, Case, 7/78 Regina v. Ernest George Thompson, Brian Albert, Brian Albert Johnson and Colin Alex Norman Woodiwiss (1978) ECR 2247; See also, Tudorel Stefan, Beatrice Andreşan Gregoriu, *Drept comunitar*, C.H. Beck Publishing House, 2007, p. 324
[6] Throughout the paper we use C.V.U.E. for Union Customs Code.
[7]OJ L 269/1, 10. 10. 2013 Regulation (EU) No. 952/2013 of P.E. and the Council of October 9, 2013 on the Union Customs Code. http://codfiscal.net/media/2013/10/Codul-Vamal-UE-Regulament-952-2013.pdf
[8] It was adopted by Regulation No. 952/2013 of P.E. and the EU Council, it began to apply from June 1, 2016, except for certain organizational provisions entered into force on 30 October 2013. See art. 5 of C.V.U.E.
[9] Comprising the territories of the customs union of Member States of U. E. (n. a.) Including their territorial waters, internal airspace (art. 4 para. 1 Union Customs Code)
[10] They are considered: (d) the preferential tariff measures contained in agreements which the Union has concluded with certain countries, territories or groups of countries or territories outside the customs territory of the Union; (e) preferential tariff measures adopted unilaterally by the Union towards certain countries or territories or groups of countries or territories outside the customs territory of the Union
[11] Fiscal barriers or having an equivalent effect (...) are not covered by Art. 28 TFEU; See Case 74/76, Iannelli Volpi SpA c. Ditta Paollo Meroni, 1977 ECR 557; see also, Tudorel Stefan, Beatrice Andreşan Gregoriu, op. cit. p. 326.
[12] Cases 2/62 and 3/62 of December 14, 1962 and case 232/78 of September 25, 1979
[13] Florentina Camelia Stoica, *Dreptul Uniunii Europene. Libertatile fundamentale*, UniversitaraPublishing House, Bucharest, 2009, p. 15; Case 82/1969, Hot. no. 231.
[14] Idem
[15]https://dreptmd.wordpress.com/cursuri-universitare/dreptul-comunitar-al-afacerilor/libera-circulatie-a-marfurilor/
[16] Octavian Manolache, *Drept comunitar*, fourth edition, All Beck, Bucharest, 2003, p. 230. Also, the acts by which the public authorities recommend a certain attitude, such as campaign promotion of domestic products are regarded as measures having equivalent effect; https://dreptmd.wordpress.com/cursuri-universitare/dreptul-comunitar-al-afacerilor/libera-circulatie-a-marfurilor/
[17] See Florentina Camelia Stoica, op. cit. p. 19; in the same direction and https://dreptmd.wordpress.com/cursuri-universitare/dreptul-comunitar-al-afacerilor/libera-circulatie-a-marfurilor/
[18] C 267 - 268/91, Keck et Mithouard hot. of November, 4 1993 Bull. EC no. 12/1993, p. 165-166, C. 401 and 402/1992 (related).
[19] Idem; see O. Manolache, op. cit. p. 227 and the case-laws cited therein
[20] See Florentina Camelia Stoica, op. cit. p. 18, 19
[21] JOUE L 013/29 of December 22, 1969
[22] See Florentina Camelia Stoica for details, p. 24-30 and the case-laws cited therein: C-51-54 / 71, International Fruit Company c. Produktschap voor en Fruit Groenten; C-189/95, Franzen; C. -251/78 Denkavit Futtermittel c. Ministry Emahrung fur; C. -251/78 Denkavit Futtermittel c. Ministry fur Emahrung; C-113/80, Commission v. Ireland; C-4/75 Rewe- Zentralfinanz eGmbH c. Landswirtschafkammer; C -367/89, Aimee C. Richardt and C -23 / 99, Commission c. France; C-155/82, Commission v. Belgium; C. -267 - 268/91, Keck et Mithouard, Bull. EC no. 12/1993, p. 165-166; C - 65/75, Tasca, C. -88-90/75, Sadam, C-181/82, Roussel, C.-16-20 / 79, Denis; C - 222/82, Apple and Pear Development Council c. Lewis; C -321/94 Pistre; C-261-81, Rau c. De Smedt
[23] C - 65/75, Tasca, C-88-90 / 75, Sadam, C -181/82, Roussel, C. -16-20/79, Denis

[24] OJCE C 310 of December 4, 1986
[25] OJEC C 345 of December 23, 1993; See, in this regard, C -366/98, Geffroy c. Casino France, C. -Piageme c. Peeters, C -369/89 and C. -85/94
[26] Nor the Treaties (TFEU, TEU) nor ECJ case laws, does not provide a definition of "public morality". Each Member State has its own rules on morality; see Florentina Camelia Stoica, op. cit. p. 31
[27] C. -7/78, Regina c. Thompson
[28] The ECJ jurisprudence have shown that "the road safety is circumscribed to public safety", referred by TFEU in art. 36; see in this respect, C. 241/86, Bodin.
[29] See Mariusz Maciejewski http://www.europarl.europa.eu/ftu/pdf/ro/FTU_3.1.2.pdf
[30] Idem
[31] Cassis de Dijon C. -120 / 78 of 20 February 1979
[32] See Mariusz Maciejewski, http://www.europarl.europa.eu/ftu/pdf/ro/FTU_3.1.2.pdf
[33] Idem
[34] The Parliament continues its work in this area by harmonization package which includes new directives for various products, including elevators, fireworks and explosives; see Mariusz Maciejewski, http://www.europarl.europa.eu/ftu/pdf/ro/FTU_3.1.2.pdf
[35] OJ C 199 E, 07.07.2012, p. 1.
[36] See Mariusz Maciejewski, http://www.europarl.europa.eu/ftu/pdf/ro/FTU_3.1.2.pdf
[37] OJ C 70 E, 8.3.2012, p. 56.
[38] Mariusz Maciejewski, http://www.europarl.europa.eu/ftu/pdf/ro/FTU_3.1.2.pdf
[39] The Legislative Review continued with the ninth directive of the hormonization package. Idem
[40] European Parliament and Council Regulation on type-approval requirements for the installation of eCall in vehicles and amending Directive 2007/46 / EC (COM / 2013/0316) http://eurlex.europa.eu/legalcontent/RO/TXT/?uri=CELEX%3A52013PC0316.
[41] Decision of the European Parliament and of the Council establishing a program on interoperability solutions for European public administrations, businesses and citizens (ISA2). Interoperability as a means of modernizing the public sector (Text with EEA relevance) (COM (2014) 0367), http://eur-lex.europa.eu/legal-content/RO/TXT/ HTML /? Uri = CELEX: 52014PC0367 & from = EN
[42] Proposal for a Regulation of the European Parliament and of the Council laying down rules on making available on the market of fertilizers with CE mark and amending Regulations (EC) No. 1069/2009 and (EC) No. 1107/2009 (COM (2016) 0157)
[43] For more detailed information, please see the study prepared by the Committee on Internal Market and Consumer Protection (IMCO) Parliament entitled "EU Mapping: Overview ofIMCO-re http://www.europarl.europa.eu/RegData/etudes/STUD/2015/536317/IPOL_STU(2015)536317_EN.pdf
[44] See Mariusz Maciejewski http://www.europarl.europa.eu/ftu/pdf/ro/FTU_3.1.2.pdf
[45] It's about art. 95 of the EC Treaty, as amended by the Maastricht Treaty which states "(...) The Council shall adopt measures aimed at the harmonization of laws, regulations and administrative provisions of Member States which have as object the establishment and functioning of the internal market, acting in accordance with the procedure referred to in Article 251 TEC, according to which (...) the Council decides with qualified majority, after obtaining the European Parliament's opinion (...)". Article 95 TEC (amended by TMS) is art. 114 TFEU (currently).

Considerations on the obligations impacted by modalities

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Abstract: *The modalities that may impact the obligations, as they are regulated by the Romanian Civil Code are of great importance, not only in the daily business life, but especially in judicial practice in connection with the manner of execution or extinction of obligations. Sometime these modalities are very important in determining the existence or the absence of the legal relationship itself. Thus, the performance by the debtor of the obligations may be affected by a term or condition previously established, but often, the question is what happens to a payment made after the occurrence of such modalities - term or condition.*

Keywords: *Romanian Civil Code, obligation, time frame, conditions*

1. Introduction

The current Civil Code lays down, in Title III of Book V, the modalities impacting obligations, setting forth, in Article 1396, that obligations may be simple, mere obligations or obligations impacted by modalities.

A recent case of the High Court of Cassation and Justice, *i.e.* Decision no. 1780 of 31 October 2016, provides the opportunity to further discuss the modalities of obligations, in particular given that, at times, in practice, they raise certain issues.

Such difficulties in the enforcement the above-mentioned provisions may occur when, for more complex reasons, the obligations impacted by modalities are closely connected to obligations of the parties which are impacted by no such modalities and it is necessary to determine whether such obligations were duly fulfilled or they should be returned.

2. Legal framework

Mention is to be made that the previous Civil Code also regulated the modalities of obligations, in particular in Article 1004 to Article 1025, a regulation which, in substance, was largely taken over in the current regulation, clearer and more specific.

In the relevant literature, although modalities have been and continue to be regulated in the chapter on obligations, their review was also conducted in light of the civil law act, taking into account precisely the fact that it is the main source of obligations.

Thus, when certain authors refer to the classification of civil law acts, the literature (Boroi and Stănculescu, 2012) specified that one of the classifications of civil law acts is of legal acts simple and civil legal acts impacted (affected) by modalities, more

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specifically by a time frame (time), a condition or an encumbrance. The above-mentioned authors state, besides, that civil law acts may fall in the category of civil acts that may or may not be impacted by modalities or legal acts incompatible with modalities. Such classification is relevant in light of the validity of legal acts, as the modality at issue may impact the very existence of the act.

Therefore, the above-mentioned authors refer, in this case, to modalities from the standpoint of the source of obligations that is the main legal act, but the regulation at issue – both under the previous Civil Code and under the current one – is enforced from the perspective of the civil law relationship's content, in particular from the perspective of obligations arisen within that civil law relationship.

In the current regulation – Article 1396 of the Civil Code – obligations may be simple, mere obligations or obligations impacted by modalities.

Obligations simple are not impacted by modalities. Mere obligations are not impacted by time or condition and may be fulfilled forthwith, upon own initiative or upon the creditor's demand.

An obligation is a mere obligation, not conditional, if its enforceability or termination depends on an event that, without the parties knowing, had already taken place at the time when the debtor undertook that obligation subject to a condition.

3. Modalities of obligations

The modalities which may impact obligations, as per the current regulation – and also under the former civil code – consist of time and condition.

3.1. Time

In accordance with Article 1411 of the Civil Code, an obligation is impacted by a time frame when its fulfilment or settlement depends on a future certain event. This time frame may be determined by the parties or is stipulated by law.

Time frames may be classified according to several criteria (Beleiu, 2001) and one of them is the effects it takes. Thus, there is a suspensive time frame – Article 1412 of the Civil Code – when the maturity of the obligations is delayed until its expiry, but also an extinctive time frame when, upon its expiry, the obligation is settled.

Another classification of time frames may be made depending on the beneficiary of the time frame, and in that case we are dealing with time frames determined (i) in favour of the debtor, this being the rule, the majority of cases, (ii) time frames determined in favour of the creditor, for instance the time frame applicable in a deposit agreement, determined in favour of the depositor, (iii) but also time frames established both in favour of the debtor, and of the creditor, as in the case of time frames determined in insurance agreements.

The classification of time frames according to the beneficiary is relevant because only the beneficiary may waive such benefit, without being required the consent of the other party, in accordance with Article 1413 paragraph (2) of the Civil Code.

The legal literature (Beleiu, 2001) further sets forth other classifications of time frames, in particular (i) depending on their source and in that case they may be (a) legal – determined by law, (b) in a traditional manner – determined by parties, or (c) judiciary – namely ordered by court or (ii) depending on the possibility to know its expiry date and in that case we are dealing with (a) certain time frames – when the expiry date of the time frame is known, or (b) uncertain – when the calendar date is not known (for instance, the date of the beneficiary's death, in case of life-income agreements).

3.2. Effects of time frames

Mention is to be made that, in determining a time frame – suspensive or extinctive (extinguishing) – only the performance of the act is envisaged and not its existence.

Thus, in respect of a suspensive time frame, in accordance with Article 1414 of the Civil Code, what is owed subject to a time frame may not be demanded before the expiry of such time frame, and what was performed in a wilful and informed manner before its expiry does not need to be returned.

As such, the subjective right and correlative obligation are certain, they exist, but may not be enforced. This is also the source of the provision according to which if they are nevertheless performed in a wilful and informed manner, they need not be returned.

In respect of extinctive time frames, the expiry thereof results in a discharge of subjective rights and correlative obligations, such as the death of the life-income beneficiary in a life-income agreement, or expiry of the lease term.

If the beneficiary of the time frame waives such benefit or forfeits it, in accordance with Article 1418 of the Civil Code, the obligation becomes immediately exigible. A debtor forfeiting the benefit of the time frame, even jointly, is not binding upon the other co-debtors. Besides, if an event which the parties deem to be a time frame does not take place, the obligation becomes exigible on the day when the event should normally have occurred – Article 1420 of the Civil Code.

3.3. Condition as a modality of obligations

In accordance with Article 1399 of the Civil Code, an obligation is impacted by a condition if its enforceability or termination depends on a future uncertain event.

Unlike time, which is also a future event, a condition is uncertain. In the case of an uncertain time, the uncertainty only refers to the moment of its occurrence, because it will take place nonetheless, however, in case of a condition, uncertainty refers to the occurrence of the event itself.

Therefore, while the time frame impacts the fulfilment of the obligation, a condition impacts (affects) the existence of the obligation itself.

3.3.1. Classification of conditions as modalities

Conditions as modalities of an obligation may be classified depending on several criteria.

Depending on the effects a condition may take, it is (i) suspensive, its fulfilment being conditional for the arising of rights and relevant obligations and (ii) resolutory, its fulfilment entailing the retroactive abolishment of the obligations' relationship – Article 1400 and Article 1401 of the Civil Code.

Another classification of conditions may be drawn according to the cause upon which its fulfilment or non-fulfilment depends. According to this criterion, a condition may be (i) nexus, when its fulfilment depends on hazard, (ii) mixt, when its fulfilment depends both upon the will of a party and of the will of a third party, and (iii) arbitrary, when its fulfilment solely depends upon the will of a party.

The relevance of this classification derives from the fact that Article 1403 of the Civil Code sets forth that an obligation contracted subject to a purely arbitrary condition takes no effect if the fulfilment of that condition exclusively depends upon the will of a party, without any other outside event being involved. In this latter case, a condition is arbitrary simple and does not fall under the scope of Article 1403 of the Civil Code (Stătescu and Bîrsan, 2002).

Depending on whether the event occurs or not, the condition may be (i) positive – when an event will occur or (ii) negative – when an event will not occur.

In order for a condition to take legal effects on the obligation relationship, it needs to be licit, moral and possible – Article 1402 of the Civil Code.

3.3.2. Effects of conditions

In case of a suspensive condition, it is assumed that until the obligation is fulfilled, it does not exist and therefore the creditor may not demand that such obligation be fulfilled. If the debtor pays, it may demand repayment as undue, the obligation may not be settled by compensation, and the statute of limitations (the extinctive prescription) shall not run. Within that period, the creditor may enforce measures to preserve its right or receive securities – pledge, mortgage, etc. or may assign that receivable.

If the condition was fulfilled, in accordance with Article 1407 of the Civil Code, it shall take retroactive effects, from the time when the agreement was concluded. Consequently, the payment performed before the condition was fulfilled is validated and may no longer be repaid, while the rights transferred before the fulfilment of the condition shall be validated.

As regards the resolutory condition, until the fulfilment of such condition, the legal act settling the obligation is deemed not to have been impacted by any modality and therefore, it shall be a simple act. Within that period of time, parties are bound by the fulfilment of obligations similarly to acts not affected by modalities, while the rights acquired under a resolutory condition by *inter vivos* or *mortis causa* acts are also acquired under to a resolutory condition.

Upon the fulfilment of a resolutory condition, in accordance with Article 1407 paragraph (4) of the Civil Code, each of the parties shall have an obligation to return to the other party the performances received subject to the obligation, as if it had never received them. A legal act shall thus be retroactively terminated and therefore, the acquirer who acquired a specific individual asset before the condition was fulfilled will return it, in accordance with the principle *resoluto iure dantis resolvitur ius accipientis*.

3.4. Encumbrance

Although not expressly regulated as a modality of civil obligations, encumbrance is analysed in the legal literature (Stătescu and Bîrsan, 2002) because it is specific to free of charge agreements and consist of an obligation to give, to do or to not do, imposed by the principal to the beneficiary. As such, we are dealing with encumbered donations, as governed under Article 1207 et seqq. of the Civil Code or, for instance, the donor's obligation to pay debts contracted in the future by the donor, where the maximum value thereof shall be determined in a donation agreement – Article 1015 paragraph (2) of the Civil Code.

Encumbrances do not impact the existence of a legal relationship of obligation, and if such encumbrance is not fulfilled, the creditor may bring suit in court, requesting its fulfilment in kind or indemnification.

4. Decision no. 1780 of 31 October 2016 of the High Court of Cassation and Justice

In the case referred to above, which falls under the scope of the previous Civil Code, given that the legal relationship was subject to such regulation, the court was called to settle the case of an obligation undertaken subject to a suspensive condition which the debtor partially fulfilled.

In the case at hand, the plaintiff claimed the return of a certain amount of money, consisting of a success fee unlawfully collected and damages for the defendant's failure to fulfil certain contractual obligations in a timely manner, at the required quality.

In the agreement that was concluded, the defendant had undertaken to provide management and coordination of a project in exchange for a lump sum plus a success fee for motivation purposes.

The plaintiff paid a part of the amount consisting of the success fee, although the first stage of the works had not been performed by the specified time. It registered the invoice in the accounting books by accident and made payment, although the contractual conditions had not been satisfied.

The court of first instance ordered, *inter alia*, repayment of the amounts collected as success fee, considering that the obligation was undertaken subject to the suspensive condition that the works be performed on time, which did not happen, and the defendant's claim that the failure to implement the project was the result of force majeure determined by inappropriate weather conditions could potentially impact the contractual liability, and not the obligations undertaken subject to a suspensive condition. Consequently, the court of first instance decided that the performances occurred prior to the suspensive condition shall be returned irrespective of the reason why the condition was not fulfilled.

In the appeal, the court of appeal dismissed the plaintiff's motion and ruled that the success fee was paid subject to a contractual ground and that the conditions to repay it are not satisfied because the obligation existed in accordance with the agreement and was not paid by error, as the plaintiff's officers knew or should have known what payment was being performed.

In the second appeal, the High Court of Cassation and Justice quashed the ruling and determined that, in the case at issue, the obligation to pay the success fee was undertaken subject to a suspensive condition, until the condition was fulfilled. Therefore, until the works were completed in the case, the obligation did not exist and its performance was not actually payable, even if it originated in the works agreement.

The suspensive condition may not be deemed fulfilled under and in light of the agreement having been implemented because in that case the suspensive condition would be converted into a condition simple. And thus, it would be conditional upon whether there was a fault by the manager in complying with the agreement and not strictly upon whether the event representing the condition occurred or not.

5. Conclusions

It is extremely important to know whether there are any modalities in the case of legal relationships of obligations and such obligations should be known because they are conditional not only for the manner in which obligations are fulfilled or abolished, but sometimes for the existence of the legal relationship as such itself.

This entails significant consequences on the debtor's fulfilment of the obligations, on the performance delivered prior to the occurrence of the time frame or condition at issue, the extent to which payment may be returned and the time when the payment is validly performed, the validity of certain transfers of rights concluded subject to a resolutory condition, the rights pertaining to the creditor of the obligation subject to a suspensive condition etc.

References

Boroi, G. & Stănculescu, L. (2012). *Instituţii de drept civil în reglementarea noului Cod civil,* Hamangiu Publishing House, Bucharest, p. 86

Beleiu, G. (2001). *Drept civil român. Introducere în dreptul civil. Subiectele dreptului civil,* Universul Juridic Publishing House, Bucharest, p. 180-181.

Stătescu, C. & Bîrsan, C. (2001). *Drept civil. Teoria generală a obligaţiilor,* VIII Edition, All Beck Publishing House, Bucharest, p. 410 - 414*et seqq*.

The High Court of Cassation and Justice, Second Civil Division, Decision no. 1780 of 31 October 2016

PS4 AUDIT AND ETHICS

Chairperson: Anna Alon, University of Agder, Norway

The relevance of financial information and contents of the new audit report for lending decisions of commercial banks

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The impact of administrative and legal barriers on the effectiveness of financial analysis and audit of companies in developing countries – Polish experience

Lukasz Prysinski

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The relevance of financial information and contents of the new audit report for lending decisions of commercial banks

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Abstract: *This research study examines the importance of financial information and information contained in the ISA's New Audit Report effective from 2016 for lenders as capital providers. We base our findings on a survey conducted in September of 2016 with corporate loan officers for medium-large corporate clients in Macedonia. The results show that the annual report of the company, except for the management report and notes to the financial statements, has consistently high importance and usability for respondents' decision making. Various accounting ratios related to liquidity, financial stability and profitability of the company are considered very important and regularly used in credit analysis. However, respondents were not consistent in their shared perceptions regarding high importance of projected profits and historical information on operating cash flows. All loan officers gave high importance to the information found in existent auditor's report format regardless of the form of expressed opinion. Also, information on key audit matters, additional information on going concern and related auditor's judgement, procedures related to fraud risk were considered of high importance. Lenders rated as less important the disclosure of the name of engagement partner, auditor's statement on independence and compliance with ethical requirements and the level of materiality used in the audit.*

Keywords: *importance of audit, new auditor's report, survey, lenders, lending decisions*

1. Introduction

This study examines the importance and use of accounting information and accounting ratios for lending decisions, as perceived by corporate loan officers and heads of corporate loan departments. The study also focuses on perceived importance of information contained in the existent audit report format according to ISA's requirements and incremental information content of ISA's New Auditor's Report as effective from December, 2016.

The importance and usage of accounting information and accounting ratios in lending decisions is extensively investigated in the literature and remains an important topic in financial reporting since creditors as capital providers are considered key users of financial statements (Hines, 1982; Bartlett and Chandler,1997; Berry and Robertson, 2006). Researchers also reported changes in traditional importance of certain accounting information and accounting ratios over time, such as shifts from balance

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sheets and income statements to cash flow statements and increased use of projected financial statements and management accounts (Berry and Robertson, 2006). One of the main motivations of our study was to investigate how traditional are banks in Macedonia in the use of accounting information for lending decisions and whether they tend to rely more on official and historical accounting information for reliability reasons or give more value to management projections and unaudited financial information.

Many researchers provided empirical evidence on the relevance of certain information in the audit report for the decision making of investors and creditors (Gay and Schelluch, 1993; Miller *et al.,* 1993; Bamber and Stratton, 1997; Bartlett and Chandler,1997; Berry and Robertson, 2006; Guiral-Contreras *et al.*, 2007). However, there were critics, both in academia and practice, on the usefulness of auditor's report for capital providers in dynamic business environment where entities are exposed to more risky and complex transactions.

The first big change of the audit report content was in 1993 as a result of the researches that bankers, analysts and shareholders confuse the relative responsibilities of management and auditors for the financial statements. There were a lot of misconceptions of the auditor's role and responsibilities. Some research studies provided evidence that bankers placed greater responsibility for the completeness and accuracy of the financial statements on auditors than on management (Nair and Rittenberg, 1987). Bankers also felt in the past that audited financial statements were less reliable most likely because bankers were unfamiliar with the procedures employed by the independent auditors (Rankin, 1982). Even more, it was reported that the responsibility of the auditors is to prevent all major fraud and error (Gay and Schelluch, 1993). Despite of these misconceptions and unfamiliar understandings of audit report in the very early years of audit report usage, accounting scandals in recent past and the world economic and financial crises have imposed larger importance for the audit profession.

The implications and usages of audit report are different in many areas of business environment. With the latest changes of ISA 700, ISA 701, ISA 705, ISA 706, ISA 710 and ISA 720 and implementation of extended audit report, many questions were raised about its usefulness, its value added to different stakeholders and their decisions. The main purpose of our study was to evaluate perceptions of lenders about the importance of incremental information to be found in future audit reports in respect of, among the rest, key audit matters, going concern assumptions and material uncertainties, materiality used in the audit and procedures applied by auditor in respect of fraud in financial statements. We performed a survey among bank loan officers and heads of corporate loan departments involved in lending decisions with medium-large companies.

The results of the study show that historical accounting information and accounting ratios are very important for lending decisions in Macedonian banks. Loan officers give more importance to traditional and published financial information, in comparison to projected profits, historical cash flow information or the Management report part of the Annual report. Also lenders rely on information from the standard audit report, and gave equal importance weight to all types of auditor's opinion. Regarding the incremental information contained in the New Auditor's Report, lenders value most information on key audit matters, existence of material uncertainty and auditor's judgement for the going concern and auditor's procedures related to risk of fraud in the financial statements.

The reminder of the paper is structured as follows. The next section provides a literature review and presents the objective of the research and research hypotheses. The third section explains the research methodology, the empirical results are then presented, and a final section providing concluding remarks.

2. Literature review

Financial institutions loan millions of dollars to companies daily relying mainly on financial statements. This is one of the reasons why loan officers are considered among the principal users of financial information who are most affected by the credibility of audit reports and their interpretation is a key factor in loan granting decisions (Guiral-Contreras *et al.*, 2007). But bankers and loan officers reported different importance and usage of accounting information and audit report through the time. It is common conclusion from the academic papers, and practice too, that audited annual reports continue to be the most important single source of information for the lending decisions. Significant finding, worth to be mention, is the importance for credit analysis and loan decisions of balance sheets and income statements (Hines, 1982). Bartlett and Chandler (1997) highlighted shifts to cash flow statements as well as directors' report. Besides these changes in frequency of use of "traditional" statements and reports, there is noticed increased frequency of use of management accounts and projected financial statements (Berry and Robertson, 2006). Also financial indicators have changed ranking and importance through the time. For example, profitability ratios are not any more the most important, but the prime importance is given to liquidity ratios in accordance with previous finding for increased importance of cash flow statement (Berry and Robertson, 2006).

Long ago capital markets were not such developed like nowadays and audit report was significantly different from the one proposed in the latest ISA's. Up until now, it can be argued that standardized and predefined wording was used. Many researchers investigated usefulness of the standard form of the audit report (Miller *et al.*, 1993; Gay and Schelluch, 1993). According to Epstein and Pava (1992) the auditors' report is considered more important than it used to be, but according to other researchers there is decreasing importance or extend of reading of the audit report despite the fact that it was considerably extended in 1993 (Anderson and Epstein,1995; Bartlett and Chandler,1997; Berry and Robertson, 2006). The explanation for decreased importance of audit report could be found in increased complexity in accounting and audit profession that makes audit reports and published financial statements difficult for understanding outside the profession, for people such as loan officers.

The main changes in the current audit report were in 1993 when SAS600 (later on in 2004 replaced with ISA700) was primarily focused on identifying responsibilities of the management and the auditor (Masters, 2015). In this audit report introductory paragraph is included which specifically addresses relative responsibilities of management and auditors. Also, the scope paragraph of this audit report from 1993 was expanded to include a brief description of an audit and terms like "reasonable assurance" and "materiality" were introduced for the first time (Miller *et al.*, 1993).

The extended audit report significantly improved users' perception of the purpose and procedures of the audit as well as the responsibilities of the management and auditors (Gay and Schelluch, 1993).

Academics and practitioners are consistent about the increased requirements for audit quality and better communication of audit report. Triggered by the recent financial crises, new regulation and revised ISA 700, 701, 705 and 706 suggest expansion of the audit report in order to decrease the expectation gap which is characterized with continuous existence. The main feature of the new audit report is the introduction of Key Audit Matters (ISA 701) where additional information and explanation about the audit process will be included. The very first researches of the effects of the expanded audit report reported that the presence of the quite extensive explanations prescribed by ISA does not affect the expectation gap (Boolaky and Quick, 2016). Only the future will show whether KAM will really be valuable for users of audited financial statements (Kohler ***et al***., 2016).

In between the big change of audit report content in 1993 (1988 in USA) and the latest big change about expanding audit report content there was a changes adopted in 2006 that include a greater discussion on the auditor's responsibilities, a note that the auditor has complied with ethical requirements, a note that the audit evidence obtained is "sufficient and appropriate" to provide a basis for the audit opinion and an explanation as to why the auditor evaluates internal control (IAASB, 2003). The main critics about this revised ISA 700 were (Gray *et al.*, 2011): not quantifying level of assurance, materiality and sample since audit report users are aware that auditors work on samples but are not sure what reasonable assurance, level of materiality and size of the sample are needed to provide assurance that financial statements are free of material misstatement, do not imply anything about the quality of internal controls nor explicitly say anything about fraud. Similar findings about expectation gap between auditors and users are identified by Asare and Wright (2012) too.

IAASB and AICPA, aware for the existence of the expectation gap between users' understanding and the intended meaning of the standard audit report, have consulted many research papers to identify and evaluate this gap (Gray, et al., 2011;Asare & Wright, 2012;Gold, et al., 2012). IAASB exposure draft of ISA 700 released in 2013 initiate many researches about the perception of auditors and other users of new proposed changes. In these studies, respondents support the IAASB's proposed reforms addressing the expectations, information and communication gaps (Simnett and Huggins, 2014). Recent studies indicate that participants give attention to the supplementary information presented in the auditor's reports and that the matters mentioned in the report affect the participants' information acquisition in a way that users paid higher attention to the information mentioned in the key audit matters in auditor's report. Furthermore, the number of matters mentioned in the report also has an effect on information acquisition by users (Sirois ***et al.,*** 2014).

Auditors following the new audit format should be very careful in choosing what to report in key audit matters since there is evidence that users might to perceive the level of audit quality to be lower especially if there is only one matter mentioned in the auditor's report (Sirois, et al., 2014). However, new audit report provides a roadmap that helps users navigate complex financial statements and focus on matters highlighted by the auditor (Sirois, et al., 2014) although this could have bias effect on distracting the users' focus from other information presented in financial statements and in a way increase the expectation gap.

The new audit report (ISA 700 and ISA 701) proposed as Exposure draft in 2013 attempts to improve communication among auditors and financial report users, particularly in this research paper we are focused on loan officers. Many of the research studies about extended new audit report also are focused on loan officers. For example, preliminary effects and perceptions are that loan officers have the highest audit expectation gap and place significantly higher value on additional information about the audit process and information about the entity (Litjens *et al.*, 2015).

Regarding the standard audit report that was in force till 2015, the loan officers were better able to identify the responsibilities assumed for the financial statements by both management and the independent auditor (Miller *et al.*, 1993) than from the previous format of the audit report where only the audit opinion was expressed. Furthermore, the modified audit report influenced the loan officers' risk assessment, the interest rate premium and the decision whether or not to grant the loan (Bamber and Stratton, 1997). The bankers granted loans less often to a company with a modified report than a company with a standard report, and assigned higher interest rate premiums to the former company. Elias and Johnston (2001) in another study investigated whether the explanatory paragraph about going concern has any information content. The results showed that explanatory paragraph indicating going concern uncertainty appeared to convey no additional information content, i.e. bankers receiving modified report did not feel significantly less confident of their decision than those receiving the standard report.

Regarding the audit opinion expressed in audit report, loan officers give no importance to an unqualified audit report if they receive other financial information that is unfavourable towards the client requesting credit, or they are prepared to change a previously favourable attitude when faced with adverse opinions expressed by the auditors (Guiral-Contreras *et al.*, 2007). In later situation, audit report act as 'red flag' that only alerts the loan officers to be more critical and severe in the conditions imposed on a loan when it contradicts the a priori favourable attitude by the loan officers vs. modified or adverse audit report. But there are research studies that do not support the prediction that modified opinions have impact on credit availability possibly because lenders use other kinds of data for their loan decisions (Niemi and Sundgren, 2012). Other authors go in more details and connect the audit opinion with the internal control opinion describing situation where auditors express unqualified overall opinion but also express adverse internal control opinion that weakens the importance of financial statements and consider the auditors' opinion about internal controls as relevant for their decisions for granting loans (Schneider and Church, 2008). In other words, even when an auditor provides an unqualified opinion on financial statements, loan officers may view material weaknesses of internal controls and adverse opinion on them as bad news and as a basis for decision to do not grant loan. But very interesting fact about the user of financial statement audit and fact in front of which we cannot slur over is that users of audit report value audit, but do not read entire auditor's report, or even more they cannot assign a measurable value to the audit (Gray *et al.*, 2011). They will more preferably rely on quantitative data or independent analysis.

In order to address the existent expectation gaps of different users, audit profession should start thinking about innovative and tailor created audit reports that can meet the expectations and needs of different users (Litjens *et al.*, 2015). It means that although additional information is proposed to be included in the new audit report, it is not guarantee that expectation gap will be outmatching.

3. Objectives and hypotheses

We decided to conduct a survey study to analyse the perceptions on importance and usage of certain financial information and accounting ratios when deriving at corporate loan decisions. Furthermore, we aim to investigate what importance has for lenders information provided in the independent auditors report according to the old audit report format. The perceptions of lenders as capital providers about the information content of the new audit report is the main purpose of this study, so therefore our survey includes statements on information contents of the new audit report format and asked respondents to evaluate the importance. We were also curious to find whether there is additional information that lenders consider important but not required to be reported under the requirements of ISA's new audit reporting standards. By analysing this, we expect to be able to provide evidence on possible residual audit expectation gap from lenders perspective after implementation of the enhanced audit report in practice. Based on the above we formulate the following hypotheses:

H01: Lenders perceive that the part of the annual report provided in the statement question is not important when making their lending decisions.

H02: Lenders perceive that the accounting ratio provided in the statement question is not important when making their lending decisions.

H03: Lenders perceive that the information provided in the audit report according to the old form is not important for their decision making.

H04: Lenders perceive that incremental information required by ISA's new audit reporting standards as not important in their lending decisions.

H05: The additional information, if provided by auditors in the audit report has no incremental value for lenders decisions.

4. Research methodology

The research was carried out with corporate loan officers and heads of corporate loan departments with the banking sector in Macedonia. The online survey was conducted in September 2016 covering in total 114 identified corporate loan officers and heads with 15 banks in the country. Only loan officers and heads involved in disbursement of corporate loans to medium and large companies at least were considered for the sample. The reason is that small and micro companies in Macedonia are not legally required to perform statutory audit on their financial statements, in addition, size thresholds for companies applicable in the country are considered low and there are rare cases of small companies engaging auditors for cost efficiency reasons. The first letter and request to participate in the study was sent early in September 2016, directly through e-mails to all heads of corporate loan departments. In total 18 respondents completed the online survey after the first request, two weeks after the first request a second request was sent and 31 completed online survey questionnaires were considered for the analysis. The table 1 below shows the response statistics for the survey instrument.

Table 1. **Survey response statistics**

Focus group	Population	Mailed	Incomplete	Responses	Response rate
Corporate loan officers and heads	114	114	2	31	27.2%

(*Source:* Authors' calculations)

The response rate based on completed surveys without omissions is 27.2 per cent and is considered as satisfactory since online surveys are usually considered inferior to other survey data gathering methods (Owen and Jones, 1994). The survey questionnaire itself was composed of four parts, containing statements on the following:

PART I: Data on respondents' characteristics (i.e. gender, relevant experience),
PART II: Importance of main statements in companies' annual report,
PART III: Statements on the use and importance of certain accounting ratios in deriving at lending decision,
PART IV: Statements designed to examine the importance of auditors' opinion and other information provided in accordance with the old and new format of the audit report.

The questions were made in closed-ended format in form of a statement that is easier to answer. Likert scale was used for the answer options, ranging from being not important (1) to being very important (5) and accordingly for the extent of reliability in lending decision analysis where the answer options were ranging from never (1) to always considered (5). We conducted focused interviews with four loan officers in the process of constructing the questionnaire in order to achieve reliable understandability for the statements related to the new information that is part or considered desirable in the audit report. In the next section we provide the descriptive statistics for the perceived importance and extent of use of financial information and audit report information by corporate loan officers. We have performed non-parametric Chi-square test in order to test whether there is equal probability for any importance to be given by respondents to the investigated financial or auditor's information, in other words whether our respondents were consistent in assessing the surveyed information as important or not for their lending decisions.

5. Results

Most of the respondents were female and had more than 6 years of experience in corporate lending decision making. Cumulatively more than 70% of the respondents were between 31 and 40 years old (table 2).

The second part of the questionnaire was designed to investigate perceived importance of the component parts of companies' annual report and the extent of use when evaluating loan proposals. It was expected that loan officers will undoubtedly perceive balance sheet and income statement as very important, but we didn't expect that loan officers will give only medium importance to the Management report. Although, respectively 11 and 10 of the 31 respondents perceived the Management report as considerably important and used very often in their analysis there were also respondents that viewed the report as not important and never used for their decisions. This contradicts the findings of Berry and Robertson (2006) who provided evidence of increased use of projected financial statements and management accounts in lending decision making.

Table 2. **Respondents characteristics**

Gender			**Experience**		
	Frequency	Percent		Frequency	Percent
Female	20	64.5	less than 3	2	6.5
Male	11	35.5	3-5	4	12.9
Total	31	100	6-10	11	35.5
			more than 10	14	45.2
			Total	31	100

Age		
	Frequency	Percent
23-30	7	22.6
31-35	15	48.4
36-40	8	25.8
40-	1	3.2
Total	31	100

(*Source*: Authors' calculations)

In respect of disclosed accounting policies and the notes to the financial statements most of the respondents (18 out of 31) considered the information as very important and always used in the analysis, however considerable number of respondents perceived medium or no importance and usability. Therefore, we conclude that ***H01*** regarding importance and usage of Annual Report contents in lending decision-making cannot be fully rejected for the Management Report since the answers provided by respondents were not consistent.

Table 3: Descriptive Statistics and Chi square test for the Components of the Annual Report

	Importance (1- not to 5-very important)						Use (1- never to 5-always)				
Components of Annual Report	N	Mean	S.D.	Chi square	Sig.		Mean	S.D.	Chi square	Sig.	
Balance sheet	31	5,00	0,000				5,00	0,000			
Income Statement	31	5,00	0,000				5,00	0,000			
Cash flow Statement	31	4,87	,341	17.065	,000	***	4,65	,755	46.032	,000	***
Management report	31	3,87	,957	5.516	,138		3,48	1,262	6.258	,181	
Accounting policies & other notes to financial statements	31	4,35	,839	8.581	,014	***	4,13	1,118	28.839	,000	***
Auditor's report	31	4,90	,301	20.161	,000	***	4,68	,702	46.806	,000	***
***Significant at 1 per cent level											

(*Source:* Authors' calculations)

The third part of the questionnaire focuses on perceived importance of selected accounting ratios and suggested type of analysis that uses historical or prospective accounting information. The descriptive statistics and respective Chi-square test results are presented in table 4 below. We conclude that respondents were consistent in evaluating the high importance and usage of liquidity and financial stability ratios. However, respondents were not consistent when they evaluated the importance of projected figures for company's profitability, although this information is very often used in lending decision making. Similar perceptions loan officers have regarding the importance of historical operating cash flow information. Most of the respondents considered it little less important than other surveyed information (mean of 4.41 for importance and 4.28 for use).

Table 4: Descriptive Statistics and Chi square test for Accounting information and Ratios

		Importance (1- not to 5-very important)					Use (1- never to 5-always)				
Ratios	N	Mean	S.D.	Chi square	Sig.		Mean	S.D.	Chi square	Sig.	
Liquiduty											
Current ratio	31	4,68	,653	27.161	,000	***	4,81	,543	40.323	,000	***
Quick ratio	31	4,61	,667	20.194	,000	***	4,71	,643	31.326	,000	***
Working capital trend analysis	31	4,45	,810	25.129	,000	***	4,32	1,045	35.290	,000	***
Financial stability											
Interest coverage	31	4,84	,374	14.226	,000	***	4,81	,543	40.323	,000	***
Total debt/equity	31	4,87	,428	45.355	,000	***	4,84	,583	45.355	,000	***
Interest bearing debt/equity	31	4,45	,888	27.968	,000	***	4,35	1,082	40.774	,000	***
Long-term debt maturity analysis	31	4,74	,445	7.258	,007	***	4,52	,811	20.194	,000	***
Profitability											
Profit margins (i.e. gross, oper., net)	31	4,90	,301	20.161	,000	***	4,97	,180	27.129	,000	***
Historical trends in profitability	31	4,68	,599	24.065	,000	***	4,71	,588	27.548	,000	***
Projected future profitability	31	4,35	,755	5.871	,053		4,16	1,068	17.387	,001	***
Cash flows											
Planned cash flows	31	4,84	,454	40.516	,000	***	4,65	,755	46.032	,000	***
Long-term debt maturity analysis and planned future cash flows	31	4,81	,402	11.645	,001	***	4,55	,768	32.871	,000	***
Historical cash flows from operating actitivities	31	4,42	,765	8.968	,011	***	4,32	1,045	35.935	,000	***
Planned cash flows from operating activities against all loans	31	4,68	,599	24.065	,000	***	4,52	,890	32.871	,000	***
***Significant at 1 per cent level											

(*Source:* Authors' calculations)

Our research shows interesting results for the primary focus of the study, the importance of information contained in the audit report for lending decisions as perceived by corporate loan officers and heads of corporate loan departments. Our hypotheses *H03* and *H04* were formulated with the purpose of assessing whether bankers as capital providers find information contained in the standard short form of the audit report useful for their lending decisions. In addition, we wanted to assess their views on newly required information according to new and revised ISA's on audit reporting (table 5 and table 6). In order to obtain data on lenders' perceptions to reject *H05* and conclude whether the New Audit Report will satisfy needs of creditors in respect of audit information, we deliberately introduced statements for additional information that could be considered important for creditors but is not required under new ISA's on audit reporting (table 6).

Corporate lenders rated the importance of main statements in the standard audit report as very high, and these perceptions were consistently shared among all 31 respondents (from 22 to 28 on 6 different statements). This is consistent with the findings of Epstein and Pava (1992), but contradicts the findings of Berry and Robertson (2006) and Bartlett and Chandler (1997) who provided evidence of decrease importance of the audit report.

Interestingly, our analysis showed the highest mean result (4.9 in table5) for the statement "*The Auditor has identified in his opinion existence of material misstatements in the financial statement*". This can be interpreted that corporate lenders expect to see qualified audit reports for certain financial statements' positions for which material misstatement have been identified. In that sense the audit report is more valuable to lenders and financial information provided in financial statements is more credible for usage in lending decisions.

Table 5: **Descriptive Statistics and Chi square test - Audit Report in the old format**

	Importance (1- not to 5-very important)					
Statements	N	Mean	S.D.	Chi square	Sig.	
The Auditor stated he is independent or highlighted conditions that threat his independence.	31	4,71	,643	28.323	,000	***
The Auditor expressed an opinion that financial statements give true and fair view of financial condition and results.	31	4,65	,608	20.968	,000	***
The Auditor has identified in his opinion existence of material misstatements in the financial statements.	31	4,90	,301	20.161	,000	***
The Auditor expressed unqualified opinion, however emphasized on the going concern of the entity.	31	4,65	,755	46.032	,000	***
The Auditor could not perform appropriate procedures and has given a disclaimer.	31	4,61	,844	46.032	,000	***
The Auditor expressed opinion that financial statements do not give a true and fair view of financial condition and results of the entity.	31	4,84	,523	45.355	,000	***

***Significant at 1 per cent level

(*Source:* Authors' calculations)

We continue our analysis in respect of perceived importance of new information content of the Audit Report as required by new and revised ISA's on audit reporting. As shown in table 6, loan officers perceived information related to going concern assumption and any material uncertainties for the assumption as highly important for lending decision process, and they were consistent in their evaluation. This contradicts the findings of Elias and Johnston (2001) who found no evidence of information content differences attributable to auditors' explanatory paragraph for going concern in addition to notes disclosure.

Also, loan officers considered information on audit procedures related to risk of fraud in financial statements and disclosed information on key matters for auditors as very important. Key audit matters disclosed in the audit report were also perceived as very important and this is consistent with the findings of Sirois ***et al.*** (2014). However, less important is the information for the name of the audit partner in the engagement and the level of materiality used. Different loan officers were also inconsistent when evaluating the importance of this type of information disclosed in the audit report (chi-square at 1% significance level).

Table 6: **Descriptive Statistics and Chi square test for the New Audit Report**

	Importance (1- not important to 5-very important)					
Information content	N	Mean	S.D.	Chi square	Sig.	
*Information **required** by new ISA's on audit reporting*						
Description of procedures used by auditor to assess whether the entity is a **going concern**.	31	4,13	,957	13.258	,004	***
Separate information section whether the entity is **going concern** when material uncertainty exists.	31	4,58	,720	19.806	,000	***
Information on key matters considered during the audit related to most risky and complex areas that can result in material misstatements in financial statements.	31	4,65	,798	51.452	,000	***
Information how the auditor addressed key audit matters.	31	3,97	1,048	6.548	,088	
The name of the partner of the audit firm responsible for the audit engagement.	31	3,55	1,261	6.258	,181	
Affirmative statement about the **auditor's independence** and fulfilment of relevant **ethical responsibilities**	31	3,77	1,359	18.839	,001	***
Information disclosed for the level of **materiality** used during the audit.	31	3,77	1,087	1.903	,593	
Description of **auditor's procedures** related to the **risk of fraud** in the financial statements.	31	4,32	,909	20.226	,000	***
*Information **not required** by new ISA's on audit reporting*						
Information in the Audit report for **identified misstatements** been corrected and misstatements for which financial statements are not corrected.	31	4,52	,811	31.839	,000	***
Information on effectiveness of internal controls related to **the process of producing financial information.**	31	4,10	,978	14.290	,003	***

Information on effectiveness of internal controls related to the **overall operations of the entity.**	31	4,13	,922	10.935	,012	***
Information on **entity's breach of covenant provisions in loan agreements** related to required financial results and condition.	31	4,61	,803	45.774	,000	***

***Significant at 1 per cent level

(*Source:* Authors' calculations)

Concerning information that is not required to be disclosed by the auditor in the audit report prepared according to the requirements of new and revised ISA's on audit reporting, loan officers gave consistently high importance to information related to identified misstatements for which financial statement were corrected or not corrected (mean 4.52). Also, considerably high importance is perceived for disclosed information on entity's breach of debt covenants related to required financial condition and performance. Loan officers were consistent when evaluating information on internal controls related to financial reporting as important but less important than above mentioned information (mean 4.10). Considering information on internal controls related to the overall operations of the entity, respondents gave inconsistent assessments for the importance resulting in a mean result for high importance (mean 4.13).

6. Conclusions

Based on the results from the survey study discussed, we can conclude that published accounting information and traditional accounting ratios remain very important for lenders when arriving at lending decisions. Management information for projected profitability or provided in the Management report part of the Annual report are less important when bank loan officers evaluate loan proposals of their clients. Direct balance sheet and income statement information is considered more important than information on accounting policies used or other information provided in the notes to the financial statements.

Lenders perceive the standard audit report as valuable source of information for lending decisions, regardless of the type of the auditor's opinion. However, lenders are keener to see qualifications in the auditors' reports regarding material misstatements in the financial statements. Most of the incremental information in the New Auditor's Report is perceived as very important, such as information on key matters for the auditor, existence of material uncertainty and auditor's judgement for the going concern and auditor's procedures related to risk of fraud in the financial statements. However, there is still important information that could be provided by auditors, as per lenders perceptions, but disclosure of such information is not required under ISA's new and revised audit reporting standards effective from 2016. Lenders expect to see information on effectiveness of internal controls related to financial reporting. Also, information on identified misstatements during the audit for which financial statements were corrected, as well as misstatements for which statements are not being corrected is considered very important. As usually evidenced by researchers of bankers' preferences for financial and audit information, details on eventual breach of debt covenants provided in the audit report are very important.

Similar to other survey studies, this study has limitations deriving from the method employed in terms of possible non-response bias. Also, on-line surveys do not provide large samples in comparison to other ways of gathering survey data. Although we have taken appropriate steps while constructing questions and statements to measure the variables, statements bear certain degree of subjectivity. The study does not go into indebt analysis of lenders understanding of certain type of information found or to be found into auditor's report, nor their ability to use and interpret such information in order to improve lending decisions. Respondents of the study have no practical experience with the New Auditor's Report, so future survey research performed on the same focus group could provide evidence of different views for the importance of incremental information provided in the New Auditor's report.

Nevertheless, the study contributes the limited literature so far investigating the impact of the information contained in the New Auditor's Report on lenders decision making and general perceptions in the public about the quality of the audit report of the future and audit expectation gap.

References

Anderson, R. & Epstein, M. (1995). The usefulness of annual reports. *Australian Accountant,* Issue April, pp. 25-28.

Asare, S. & Wright, A. (2012). Investors', auditors', and lenders' understanding of the message conveyed by the standasrd audit report on the financial statement. *Accounting Horizons,* 26(2), pp. 193-217.

Bamber, E. M. & Stratton, R. A. (1997). The Information Content of the Uncertainty-Modified Audit Report: Evidence from Bank Loan Officers. *Accounting Horizons,* 11(2), pp. 1-11.

Bartlett, S. & Chandler, R. (1997). The corporate report and the private shareholder: Lee and Tweedie twenty years on. *British Accounting Review,* Issue September, pp. 245-261.

Berry, A. & Robertson, J. (2006). Overseas bankers in the UK and their use of information for making lending decisions: Changes from 1985. *British Accounting Review,* Vol. 38, pp. 175-191.

Boolaky, P. K. & Quick, R. (2016). Bank directors' perceptions of Expanded auditor's report. *International Journal of Auditing,* Vol. 20, pp. 158-174.

Elias, R. Z. & Johnston, J. G. (2001). Is There Incremental Information Content in the Going Concern Explanatory Paragraph?. *Advances in Accounting,* Vol. 18, pp. 105-117.

Epstein, M. & Pava, M. (1992). How useful is the statement of cash flow. *Management Accounting,* pp. 52-55.

Gay, G. & Schelluch, P. (1993). The Effect of the Longform Audit Report on Users' Perceptions of the Auditor's Role. *Australian Accounting Review,* 3(2), pp. 2-11.

Gold, A., Gronewold, U. & Pott, C. (2012). The ISA 700 Auditor's report and the audit expectation gap: do explanations matter?. *International Journal of Auditing,* Vol. 16, pp. 286-307.

Gray, G., Turner, J., Coram, P. & Mock, T. J. (2011). Perceptions and misperceptions regarding the unqualified auditor's report by financial statement preparers, users and auditors. *Accounting Horizons,* 25(4), pp. 659-684.

Guiral-Contreras, A., Gonzalo-Angulo, J. & Rodgers, W. (2007). Information content and recency effect of the audit report in loan rating decisions. *Accounitng and Finance,* Vol. 47, pp. 285-304.

Hines, R. (1982). The usefulness of annual reports: the anomaly between the efficient market hypothesis and shareholder surveys. *Accounting and Business Research,* Issue Autumn, pp. 296-309.

IAASB (2003). *The independent auditor's report on a complete set of general purpose financial statements,* New York: IAASB.

Kohler, A. G., Quick, R. & Willekens, M. (2016). The new European audit regulation arena: discussion of new rules and ideas for future research. *International Journal of Auditing,* Vol. 20, pp. 211-214.

Litjens, R., Buuren, J. & Vergoossen, R. (2015). Addressing information needs to reduce the audit expectation gap: evidence from Dutch bankers, audited companies and auditors. *International Journal of Auditing,* Vol. 19, pp. 267-281.

Masters, C. (2015). *ACCA.* [Online] Available at: http://www.accaglobal.com/pk/en/student/sa/news/the-audit-report-evolution.html [Accessed 15 11 2016].

Miller, J. R., Reed, S. & Strawser, R. (1993). Bank Loan Officers' Perceptions of the New Audit Report. *Accounting Horizons,* 7(1), pp. 39-52.

Nair, R. & Rittenberg, L. (1987). Messages Perceived from Audit, Review and Compilation Reports: Extension to More Diverse Groups. *Auditing: A Journal of Practice and Theory,* 7(Fall), pp. 15-38.

Niemi, L. & Sundgren, S. (2012). Are modified audit opinions related to the availability of credit? Evidence from Finnish SMEs. *European Accounting Review,* 21(4), pp. 767-796.

Owen. F., Jones. R. (1994). Statistics. Pitman. London.

Rankin, L. J. (1982). *A Study of the Effects of Compilation and Review Reports on CPAs' and Bankers' Perceptions of the Reliability of Financial Statements.* s.l.:Michigen State University.

Robertson, J. C. (1988). Analysts' Reactions to Auditors' Messages in Qualified Reports. *Accounting Horizons,* 2(June), pp. 82-89.

Schneider, A. & Church, B. (2008). The effect of auditors' internal control opinions on loan decisions. *Journal of Accounting and Public Policy,* Vol. 27, pp. 1-18.

Simnett, R. & Huggins, A. (2014). Enhancing the auditor's report: to what extend is there support for the IAASB's proposed changes?. *Accounting Horizons,* 28(4), pp. 719-747.

Sirois, L., Bedard, J. & Bera, P. (2014). The informational value of key audit matters in the auditor's report: evidence from an Eye-tracking study. *Available at SSRN 2469905.*

The impact of administrative and legal barriers on the effectiveness of financial analysis and audit of companies in developing countries – Polish experience

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Abstract:

Idea: *Eastern Europe is experiencing dynamic development. Countries such as Romania, the Czech Republic, Slovakia, Hungary and Poland have experienced tremendous growth and economic development in the last ten years. Experience in business development in specific countries of the region are different but they can certainly learn from each other. Polish companies are experiencing dynamic growth, which continues even in spite of the global economic crisis. However, every development encounters numerous barriers. The purpose of the study was to highlight the legal and administrative barriers to the development of enterprises, their impact on financial analysis and audit, and the presentation of strategies for overcoming these barriers by domestic companies.*

Data: *Data for quality analysis comes from a survey of 40 companies from the service, trade and manufacturing sectors, and from 20 companies specialized in financial analysis.*

Tools: *For the purposes of the article survey, interview and analysis of legal acts were conducted.*

What's new? *The article shows good practices proven in business practice, allowing to improve the quality of financial reporting and financial analysis.*

So what? *The conducted research shows some effective business activities against internal barriers and can be helpful for companies in other countries.*

Contribution: *This research contributes to the need for greater knowledge on avoiding internal threats of the development of businesses.*

Keywords: *financial analysis, audit, barriers to development, legal contradictions*

1. Introduction

Eastern Europe is experiencing dynamic development. Countries such as Romania, the Czech Republic, Slovakia, Hungary and Poland have experienced tremendous growth and economic development in the last ten years. Analysts say that more and more dynamic GDP growth should be expected in these markets as compared to the one in the developed markets. Emerging economies are still far behind developed countries, hence potential for their long-term growth can be expected. Macroeconomic conditions suggest that emerging-market countries generally have lower debt-to-GDP ratios than developed markets, providing them with a more stable and sustainable economic base (Mobius and Dover, 2017). The differences between

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the interest rates in the economies representing these two categories are large, giving central banks in Eastern Europe greater flexibility (Potts, 2001).

Experience in business development in specific countries of the region are different but they can certainly learn from each other. Polish companies are experiencing dynamic growth, which continues even in spite of the global economic crisis. However, every development encounters numerous barriers.

This article focuses on internal constraints on business development, mainly legal and administrative ones. The topic of the admirable dynamics of Polish companies encountering barriers within the country is interesting enough to make these experiences a source of inspiration and caution for other developing economies.

The aim of this work is to highlight the legal and administrative barriers to the development of enterprises, their impact on financial analysis and audit, and the presentation of strategies for overcoming these barriers by domestic companies.

The article uses the following research methods: analysis of legal acts, analysis of expert opinions, survey and an interview. Legal acts analysis can be treated as secondary data, but acts have a potential for comparative analysis (Hoir ***et.al.***, 2007).

2. Overview of administrative and legal barriers for business in Poland

The biggest obstacle to the development of Polish companies is bureaucracy. For years, the ‘overregulation’ of Polish economy has been leading the way among all obstacles identified by entrepreneurs. This fact is not surprising; it has been known for years. According to research (International Business Report, 2017) conducted for 20 years by Grant Thornton in 40 countries of the world among more than 11,000 entrepreneurs, bureaucratic obstacles are the most important barrier to the development of Polish companies.

Bureaucracy is a very broad concept and constitutes a barrier that significantly limits the development of companies in Poland. Entrepreneurs estimate that their revenues could be up to 10% higher if they were not involved in the fight against the administration and unclear regulations. The stake in this battle, is the increase of revenue by more than 200 billion zlotys.

The development of companies in Poland is accompanied on a daily basis by coping with complicated regulations, administrative requirements and ineffective courts. The consequence of this situation are weaker financial results and fewer development projects in enterprises. Polish companies are still not as innovative as those from Western European countries. The development process takes time and capital. Both of these factors are wasted on solving administrative and tax problems. Overcoming many administrative barriers limits the dynamics of enterprises, mainly the possibility of working on development projects. This is evident in the prolonged deployment of development projects, extra costs are generated, such as legal fees. Another problem is the difficulty in determining the administrative risk, that is, verifying whether a given tax decision is correct or not. This also negatively influences the tendency of entrepreneurs to take initiatives.

The existing administrative and tax barriers most restrict the development of the sector of small and medium enterprises, which are the foundations of Polish entrepreneurship.

According to entrepreneurs, the biggest administrative barriers are:

- duration of proceedings before administrative courts,
- labour law regulations,
- number of required permissions, concessions, licenses,
- lack of uniform interpretations of tax regulations,
- lack of responsibility of administrative officers for wrong decisions.

Polish entrepreneurs are coping surprisingly well in the economic reality surrounding them, effectively surmounting the barriers encountered. Naturally, companies that generate higher revenues cope better with existing barriers, but this is mainly due to their greater organizational and financial capabilities. Government actions to remove barriers and administrative burdens are still not enough. Deregulation laws that provide mechanisms to eliminate payment bottlenecks have led to the opposite effect. Applying regulations in the area of whether it is possible (or not) to count expenses towards the cost of earning revenue depending on whether they have been paid (or not), requires to incur additional costs, including personal and accounting expenses, from entrepreneurs. For today, the only beneficiary of these changes may be the state budget, which will receive additional tax liabilities, but not the entrepreneurs. The impact of these changes on business liquidity is small. Without significant reforms in the administrative, legal and tax fields, business development in Poland will still be too slow to meet the demands of the global market.

It usually takes approximately two and a half years for the administrative court and then the court of appeals to give a final decision. If the administrative decision is revoked not for substantive reasons but because of procedural irregularities, the case may be reviewed even 5 years. It is hardly surprising that the entrepreneurs perceive the uncertainties lasting several years regarding e.g. the level of public-law liabilities (sometimes very significant) as an important barrier to a smooth functioning.
Legal regulations are not only barriers, but also real costs. Here are some examples:

a. Charging the employer with ca. 20% social insurance contributions over the gross salary of a worker is a very perceptible expense for many entrepreneurs.
b. It is also important for small entrepreneurs to cover sick pay costs financed by the employers for the period of 33 days per calendar year, for employees under 50 years old or 14 days for employees over 50 years of age.
c. Extension of parental leaves during which the employee staying on the leave for one year does not lose the right to holiday leave, is also a significant cost of ineffective work of an employee during this period is troublesome for some employers as well.

Indolence of courts, unfavourable labour laws, and the need to obtain countless permissions, concessions, and licenses affect all businesses, but especially large companies. This is because they are burdened with a greater number of administrative requirements, and with revenues reaching millions the scale of the problems arising, for example, from unresolved litigation is also greater. Overdue court proceedings carry a high risk of the need to create reserves by large entities, which can have a negative impact on their financial results. For smaller companies, prolonged court proceedings, whether in arrears or claims, can lead to liquidity problems and, in extreme cases, to bankruptcy.

Too much time to settle disputes in court is much more detrimental to trading companies, which very often use this way to claim receivables from their partners. In the case of manufacturing companies, the need to obtain numerous permissions, concessions or licenses is high, which in this sector of the economy is often one of the key factors for the success or failure of the investment. Inflexible labour law provisions seem to affect both trading and manufacturing companies, as does the need to meet the requirement of filing declarations and providing other information to governmental and local government bodies.

Taxation is also an important problem for entrepreneurs. The personal income tax law has been amended approximately 220 times since it was passed, the corporate income tax law – about 160 times, and the VAT (Value Added Tax) law, passed in 2004 – more than 40 times. As a result, there is a huge number of inquiries for interpretations. The Minister of Finance issues more than 30,000 interpretations to individual taxpayers in a year. This is a problem, that exists not only in Poland, but in some jurisdictions, such as USA, tax regulations never dominated financial reporting (Nobes, 2010).

In the case of large companies, some tax problems are not a big barrier. This is due to the fact that large companies have financial resources, employ experts, and use legal and tax advisors to help them deal with the volatility and ambiguity of regulations. Most importantly, the tax barriers affect the entrepreneurs running production businesses. Representatives of this sphere of business think that the regulations are too complicated. Production companies, considering the high level of complexity of the processes, have the most varied legal regulations which they are obliged to follow.

An example may be the CIT (Corporate Income Tax) law from 2013, which obliges taxpayers to exclude costs that have not been paid to contractors by the dates required by law and the relevant contract from the revenue costs. The application of these regulations in manufacturing companies, in the case of the purchase of materials for production, which may subsequently appear as production in progress, semi-finished products, in-store products or sold products, is practically impossible. Despite many appeals from entrepreneurs and their organizations, there has not been any change to these regulations yet, nor has the Minister of Finance indicated how production companies should apply these regulations.

3. Contradictions between accounting law and tax law as a specific polish barrier

Differences in accounting law and tax law seems to be the most visible practical barrier and they create opportunities to manipulate the evaluation of results of companies and have a negative influence on managing businesses.

Clear legal regulations are fundamentals of optimal management (Alexander *et al.*, 2003). In order to look at the problem from as wide a perspective as possible, we need to take a look at the entire accounting system in which businesses operate (see table 1).

Table 1. **Comparison of the continental and Anglo-Saxon systems – selected issues**

Continental system	Anglo-Saxon system
Legal approach, safety of trading	Economic approach
Significant importance of creditors	Capital market-oriented
Significant importance of tax law	Significant importance of information available to investors
Conservative stance, risk-averse stance	Stance open to risk
Commercial companies' code	Common Law
Account plans	Conceptual assumptions
Carefulness rule	Accounting rules
	Significant importance of the expert community
	True and far view

(*Source*: Own work based on Jaruga, 2005)

As shown in table 1, the continental and Anglo-Saxon system vary in their approach to accounting; it appears that the continental system is more susceptible to regulations, which however are not always coherent (Pachler and Mori, 1991).

3.1. Impact of accounting rules on the interpretation of the difference of financial result in accounting law and tax law

The rules of accounting apply both to accounting law and tax law, but are different to each other. According to accounting law, statutory accounting rules are of a fixed and universal character, while when it comes to tax law the above is not true and accounting rules may be subject to change. This is an inherent result of the changes in tax law. The tax laws which are reflected in accounting rules are mostly those that directly influence costs, revenue and income from operations. They include:

- Accrual principle,
- Matching principle,
- Prudence principle.

The accrual principle is used in tax law alongside the cash-basis principle, which constitutes its opposite. The cash-basis principle states that revenues are deemed to be obtained when cash is received, in contrast to accounting law, which states that revenues are obtained whenever they are recognised, regardless of when they are actually paid. Positive exchange rate differences and interest on credits and loans constitute revenues that are characteristic to the cash-basis principle, interpreted in accordance with the corporate income tax act. However, when it comes to costs, it is not stated exactly when they should be recognised using the cash-basis principle, and when they should be recognised under the accrual principle. The corporate income act stipulates that the cost of revenue is incurred on the day on which it is recognised in the books based on a received invoice, with the exception of situations where the above would apply to reserves recognised as costs or accrued expenses (*Corporate income tax act of* 15th Februry 1992. article 15 subsection 4e). However, costs such as negative exchange rate differences, interest and remuneration constitute exceptions to the above and are recognised in accordance with the cash-basis principle.

Stemming from the accrual principle, the principle of matching in tax law is aimed at presenting the relationship between revenues and tax costs, which is used to determine taxable income. In tax law, the relationship between tax-deductible costs and revenues is somewhat different to the same relationship in accounting law, because it is determined in a different manner. Under tax law, costs can be divided into those directly and indirectly connected to earning income, which brings them somewhat closer to accounting law. However, a significant problem exists with regards to matching costs and revenues, in the form of costs that constitute costs from an economic standpoint and according to accounting rules, but do not constitute tax-deductible costs within the meaning of tax law when determining taxable income (Olchowicz, 2009).

Under tax law, the prudence principle results from a different interpretation of write-downs made due to revaluation of assets and creating provisions for liabilities. Under accounting law, asset revaluation write-downs result in a permanent decrease of the value of assets, while tax law clearly states that asset revaluation write-downs are not deemed to be tax-deductible costs, with the caveat that tax-deductible costs constitute asset revaluation write-downs, specified in the accounting act, on that part of the receivable which had earlier been assigned to amounts shown as due, and their unrecoverability has been made probable pursuant to article 2a subsection 1.

The differences found when comparing accounting rules in accounting law and tax law have been illustrated in the below table (see table 2).

Table 2. **Statutory accounting rules in accounting law and tax law**

Accounting rule	Accounting law	Tax law
Accrual principle	Business operations connected with the accrual of receivables and liabilities are recognised when they occur, and not when cash is received.	Business events are recognised in accordance with both the accrual principle and the cash-based principle. According to the cash-based principle, revenues are recognised when cash is received. Costs are recognised in accordance with the accrual principle, with the exception of exchange rate differences, remunerations and interest.
Matching principle	Applies to costs and revenues recognised in accordance with the accrual principle in order to determine the financial result. The condition is that costs and revenues must fall in the same period.	Costs are divided into direct and indirect. When determining taxable income, costs that match the revenues according to accounting rules and from an economic standpoint are not considered as tax deductible costs.

Accounting rule	Accounting law	Tax law
Prudence principle	When determining the value of assets and financial results, revenues should not be inflated and costs should not be understated. Through applying this principle, asset revaluation write-downs and provisions for liabilities are created.	Revaluation write-downs are not considered to constitute costs, with the exception of receivables which are considered to constitute tax deductible costs, provided they meet certain conditions.

(*Source*: Own analysis, based on the accounting act and the corporate income tax act)

The variety of accounting standards and practices among the nations of the world has been a substantial problem for multinational experiences (Mosich, 1992) It seems that economic and political changes in Poland made that problem even more visible, despite the fact, that international harmonisation of accounting and auditing has got a long history (Chan and Jones, 1998).

3.2. Differences in recognising assets and components of equity in accounting law and tax law

Difficulties in reconciling the account act and the tax act are found not only in bookkeeping, but also in reporting. It must be noted that rules of reporting require that a company's statements must be examined by a chartered accountant, who must draw up a credible opinion while taking into account the differences in law (Żukowska and Janik, 2012). Assets and liabilities are among the concepts that are significant from the point of view of reporting and that might cause difficulties. To illustrate the individual differences, below are listed those fixed assets that are treated differently depending on which acts of law are analysed, including:

- right of perpetual usufruct,
- cooperative member's ownership right to residential or commercial premises,
- livestock,
- long-term investments.

According to the accounting act, fixed assets include, among others, the right of perpetual usufruct of land and cooperative member's ownership right to commercial premises, while under tax law the above constitute intangible assets. Livestock under accounting law constitutes a fixed basset only if it is used for a period of more than a year. Provisions of tax law classify this asset solely as a material (Koślicki, 2017).

Recognising long-term investments is equally important. Provisions of accounting law state that they do not constitute fixed assets. Meanwhile, the tax act treats these investments as fixed assets.

It is not only the recognition of fixed assets that creates difficulties, other components of the balance sheet create similar problems. Differences can be found in classifying such amounts as European Union grants, settlement of interest in the case of loans granted by the owner or the question of realised or unrealised exchange difficulties, which impact the tax and balance sheet results in a different manner.

Unfortunately, these differences force many businesses to run a double accounting system: one system to meet the requirements of accounting law, and another to meet the requirements of tax settlements. In some cases, one might even consider the existence of a separate tax policy, existing parallel to accounting policy (Żukowska and Janik, 2012). It must be noted that the above applies the most to manufacturing companies, who run an extensive analyses of accounts (Garrison, 2003) due to running complicated manufacturing phases and owning various assets, which makes it much harder to divide records into tax records and balance sheet records.

3.3. Depreciation and amortization in accounting law and tax law

Right of perpetual usufruct of land is not subject to amortisation for tax purposes. Depreciation write-downs must however be made for balance sheet purposes. The situation is the same with regards to assets that are no longer used due to the company ceasing that part of its operation wherein these assets where required. According to the accounting act, such assets are subject to depreciation, while under tax law depreciation may not be applied.

If significant differences exist between the period of using the assets as taken for tax purposes, and the actual period of using the assets by the business, taken into account in accounting depreciation, then the information about costs, results and the business' financial situation becomes distorted and can mislead not only external, but also internal users, who will make decisions based on distorted data. This results in the improper calculation of unit cost, costs of individual periods, and finally in the improper calculation of the financial outcome. Should depreciation be misapplied to individual reporting periods, these distortions may occur even with regards to several years.

3.4. Impact of differences in law on manufacturing operations

Manufacturing companies differ between themselves, but many of them run elaborate accounting systems, particularly with regards to analytical accounts. This is caused by the fact that businesses in the manufacturing sector record many cost items. We can therefore conclude that differences in accounting law and tax law may cause difficulties, if not distortions, in unequivocally calculating tax deductible costs. While direct costs may be calculated mostly unequivocally, problems can appear with regards to some indirect cost items and general management and sales costs.

Differences in accounting law and tax law influence the evaluation of results achieved by businesses. This evaluation occurs on many stages of operation, in particular on the stage of:

- calculating manufacturing costs,
- determining total cost,
- consequently, also on the stage of determining the financial result.

The above-mentioned points, where differences may potentially appear, may cause distortions to appear with regards to evaluating performance by:

- distorting costs,
- distorting results,
- distorting profitability,

- distorting cash flows.

The first three distortions create a cause-and-effect relationship, as distortion of costs causes a distortion of results, which in turn creates a false image of profitability. Main profitability factors include profitability on sales, assets and own equity. The financial result (profit/loss) forms the numerator of each of these factors, the only difference is that sales, the sum of assets and sum of owners' equity are respectively used as the denominator. Obviously, the financial result – calculated in accordance with the accounting act and found in the balance sheet – is used to calculate and interpret ROS (Return on Sales), but if the differences in results obtained using accounting law and tax law, then obviously the performance of the company will be distorted and may not reflect the actual situation of the company or be used to make a selective evaluation, which could constitute a form of manipulation.

Distortions of cash flows are meanwhile connected with depreciation. As stated above, this cost is not particularly susceptible to differences between accounting law and tax law. A tendency can even be observed that businesses mostly conform to tax law when calculating depreciation rates. This is caused by the fact that balance sheet depreciation is determined by managers of the business, while tax depreciation results directly from tax law, therefore managers often decide to consolidate depreciation rates, which does not always correspond to the actual economic wear of individual fixed assets.

Depreciation however constitutes a special cost, as it can result in the increase of financial flows. The cash flow statement is used to achieve many goals, but it is definitely of key importance when valuating businesses using income-based methods and when evaluating the effectiveness of investments. Use of the NPV (Net Present Value) method when financial flows are distorted due to depreciation may have far-reaching effects, and may surely lead to manipulations.

3.5 Revenues, costs and financial result in accounting law and tax law

Revenues are defined under tax law in a manner completely different to accounting law, as the tax law definition is based on a list of exceptions not included in the category of revenues, while in the accounting act revenues are defined as obtaining an economic gain (Adamczuk *et al.,* 2010).

The amount of revenues is determined under tax law both in accordance with the cash-basis principle and the accrual principle. Tax revenues differentiate between temporary and permanent differences. Temporary differences result from the differences in the moment where revenues are recognised under accounting law and tax law. Permanent differences result from the types of revenues which constitute revenues under accounting law but do not constitute revenues under tax law. These include (Czubakowska *et al.* 2009):

- revenues from agricultural operations, excluding revenues from special sectors of agricultural production,
- revenues taxable by a lump sum,
- return of revenues that was not classified as tax deductible costs,
- interest received in connection with the return of overpaid tax obligations and other budget liabilities.

Permanent differences are characterised by a different way of interpreting revenues and costs, both under accounting law and tax law. The effects of these differences are irrevocable and manifest within a single accounting year.

When it comes to revenues, these differences apply in two situations (Czubakowska *et al.*, 2009):

- revenues recognised in the profit and loss statement are not recognised as revenues by tax law; they constitute positive permanent differences on the side of revenues,
- revenues not recognised in the profit and loss statement are recognised by tax law; they constitute negative permanent differences on the side of revenues.

A similar situation applies to costs. In tax law, costs – that is tax deductible costs – are costs that are incurred in order earn revenues, or to retain or secure a source of revenues, with the exception of costs specified in CIT act.

Tax deductible costs are divided into costs indirectly and directly related to earning revenues. This division determines the moment where costs are deducted in order to calculate taxable income. Costs that are directly related to revenues include, among others:

- value of wares sold at purchase price,
- net accounting value of fixed and intangible assets sold.

Costs indirectly related to revenues include other costs that are not directly related to obtaining revenues. Should the period of tax deductible costs directly related to revenues be longer than the tax year, then such costs are settled over time in individual tax years.

Apart from costs directly and indirectly related to revenues, tax law also provides for costs recognised in foreign currencies and exchange rate differences, which constitute components of tax costs. Under tax law, other tax deductible expenses include also costs borne in order to earn revenues or retain or secure a source of revenues.

Costs that do not constitute tax deductible costs under tax law include:

- expenses made to purchase and increase the value of fixed assets, that do not constitute tax deductible costs and historic events decreasing their volume,
- costs that constitute sanctions (e.g. penalties, fines, costs of enforcement proceedings, additional fees),
- costs related to settlements that are not completed in the appropriate manner, due to failing to receive statutory settlements or making them in an improper manner
- costs recognised by tax law as baseless, unnecessary or luxurious.

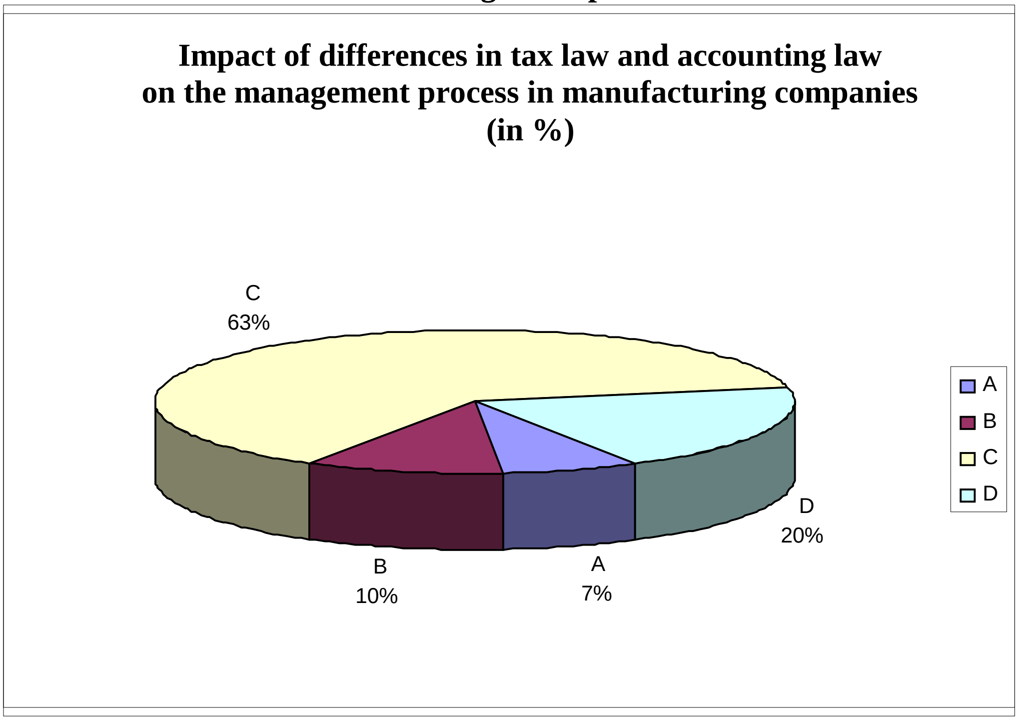
Gross profit, which is calculated in the profit and loss statement, simultaneously constitutes the starting point for calculating tax results, i.e. income.

4. Business strategies against legal barriers – own research

In this part of the paper, the focus is on the emphasis of entrepreneurs' activities against legal barriers and how these barriers affect the financial analysis process. Nevertheless, first of all, it is necessary to devote a few words to the effects of the previously discussed barriers.

There was a survey done among 40 companies The opinion of business owners with regards to the impact of the issues under discussion on the entire management process may be used to sum up all the above considerations. The below diagram illustrates these opinions (see diagram 1).

Diagram 1: **Impact of differences in tax law and accounting law on the management process**



(*Source*: Own analysis, based on a survey)

where:

A. Differences in law do not create any problems in managing the business.
B. Differences in law are significant, but only when it comes to bookkeeping (I do not review these differences in actual operations)
C. Differences have significant impact on manufacturing operations and are a constant point of interest of the board.
D. Differences have significant impact from the point of view of investment operations.

7% of respondents stated that differences in accounting law and tax law have no impact on the management of a manufacturing business. This is mostly due to the small scale of operations carried out by such businesses. For 10% of respondents the problem exists, but is limited to having to pay attention to keeping appropriate accounts and does not significantly impact the management process. However, a significant majority of responses (63%) indicates that the issue is of significant importance and impacts the management of manufacturing businesses. For 20% of respondents, mostly large businesses, the impact of differences in law is significant for evaluating development operations.

Some companies recognize that administrative and legal barriers cannot be overcome and must be reconciled irrespective of the costs they generate. However, representatives of most of the surveyed companies believe that it is necessary to develop actions and procedures to minimize the costs of existing barriers.

The study allowed to distinguish several coordinated actions undertaken by Polish companies, namely:

a. Avoiding court proceedings, especially in terms of claiming receivables from contractors and insuring receivables.
b. Accounting for long-term administrative procedures when concluding contracts.
c. Simplification of contracts (companies in the service industry).
d. Consolidation of depreciation rates in accordance with tax laws.

The nature of these activities is discussed below.

a. Avoiding court proceedings, especially in terms of claiming receivables from contractors and insuring receivables

Entrepreneurs try to minimize the risk of overdue receivables, which often involves the need to take such charges to court, by:

- the verification of the business partner before the first transaction,
- the use of effective debt collection procedures,
- the insurance of receivables.

The standard today is to analyse the business partner's financial statements, applied before the first transaction, not only in large units but also in smaller companies.

When it comes to commercial transactions, creditors apply debt collecting procedures, developed by the lawyers, which are then effectively enforced.

Under unstable management conditions, almost every deferred receivable payment carries the risk of failure to substantialize as the financial position of a business can change drastically overnight. Failure to receive the payment in time or not receiving it at all lead to the problems on the side of the crediting company.

Deferred receivables payment insurance is becoming a popular solution as it guarantees checking and monitoring of business partners, collection of claims and, in the case of ineffective recovery - payment of compensation in the event of commercial partner bankruptcy or delay in payment.

Each entrepreneur has the possibility to insure their invoices with deferred payment, both domestic and export ones.

It gives the following advantages:

- ability to monitor the payment situation of the contractor during the insurance period. It is a form of preventive action against co-operation with unreliable partners when the probability of not receiving payment is high,
- recovery of insured receivables in case of late payment, at no additional cost,
- compensation in case of ineffective recovery, which helps to maintain financial liquidity.

b. Accounting for long-term administrative procedures when concluding contracts
Prolonged and burdensome administrative procedures could often lead to inability to meet deadlines, so entrepreneurs have learned to take into account the time needed to complete these procedures before entering into contracts. This is particularly important when contracting with consumers who are not always aware of the time needed to deal with administrative matters, and are often inclined to enforce fast execution of orders.

c. Simplification of contracts
This strategy is particularly important in the sphere of services. The origins of the problem are exceptionally burdensome public procurement laws, which still give the lowest possible price as the most important criterion in selecting contractors. This legal provision led to a huge underestimation of the value of contracts that companies offered for government and local government orders. As a result, large companies executing orders with smaller sub-contracting companies signed complex contracts with them, which often prevented small businesses from properly performing their services and getting paid. Numerous bankruptcies of small entities led to developing short and clear contracts, which greatly accelerated their recovery and reduced the bankruptcy of these companies.

d. Consolidation of depreciation rates in accordance with tax laws
The often conflicting tax laws and balance sheet law (the accounting law), described in the preceding sections, expose entrepreneurs to conflicts with tax authorities. In response to this state of affairs, entrepreneurs often choose to apply depreciation rates in accordance with tax law. This simplifies audit procedures, helps accountants calculate the financial result. However, it has some negative effects on financial revision, as described below.

5. Impact of legal barriers on financial analysis and revision

Unfortunately, not only operational activities or financial reporting of companies suffer from legal difficulties. Financial analysts and auditors also raise doubts. Among the most frequently mentioned doubts and ambiguities, the following need to be highlighted and discussed:

a. Excessive documentation.
b. Problem of effectiveness measurement.
c. Amortization and actual depreciation of assets.
d. Problem of overdue receivables in the balance sheet.

For the purpose of this article an interview among 20 analysts was conducted. Analysts and auditors point out that the above points impede the conduct of analyses and revisions and often give a false image of the performance of enterprises.

a. Excessive documentation
The necessity to justify the evaluation of the property, its consumption and depreciation for balance sheet and tax purposes requires companies to collect increased documentation, including numerous valuations, justifications, consumption calculations and declarations. Firms safeguarded themselves against being accused of increasing costs or increasing the value of the assets, which makes it difficult to analyse the abundant documentation in case of a revision.

b. Problem of effectiveness measurement
Financial analysts in turn point to the fact that it is the profit that plays a vital role in profitability measurement. The ability to generate profit is calculated in reference to assets, sales revenue and equity. Tax law restricts some of the significant cost items and thus the gross financial result is greater than it would be if the incurred costs which are not recognized by the tax law were accounted for. Higher financial results mean, in turn, higher profitability. This leads to overestimation of profitability, which translates into the perception of the company by potential investors, such as the stock market, for example. Analysts agree that this can be a significant limitation in the correct assessment of an individual’s performance.

c. Depreciation and actual depreciation of assets
The consequence of asset depreciation manipulation is that it is incompatible with actual asset use and recognized as depreciation in the balance sheet. Auditors point out that, according to the principle of true and fair view, this situation distorts the image of the entity’s property.

d. Problem of overdue receivables in the balance sheet
As mentioned above, long court proceedings induce businessmen to avoid proceedings and claim repayments on their own. Regardless of whether or not a debt recovery proceeds in court, it is often the case that companies wait a long time to get paid and maintain a high level of overdue receivables. This in turn is challenged by the auditors, who demand to remove difficult receivables from the balance, which reduces the sum of receivables and negatively translates into the state of the entity’s assets.

6. Conclusions

The above examples of business development barriers and ways of levelling them out seem to draw two important conclusions.

Polish entrepreneurs have to spend money and valuable time to overcome the barriers posed by their own government.

It is possible to develop successful ways of combating bureaucracy and the legal system but it does disturb the effectiveness of the business and leads to many difficulties in analysing and reviewing the financial situation.

Certainly, it is impossible to relate the experiences of Polish companies directly to the situation in other economies, but some Polish experiences can also be valuable for companies in other developing countries of Eastern Europe.

References

Accounting law act of 29th September 1994

Adamczuk J., Szewc, W. & Ziółkowska, K. (2010), "Ujęcie przychodów według regulacji prawa bilansowego i podatkowego w Polsce", *Zeszyty teoretyczne rachunkowości* vol. 54 (110*),* Warszawa: SKwP

Alexander D., Britton, A. & Jorissen, A. (2003), *International financial reporting and analysis*, Australia: Thomson.

Corporate income tax act of 15th Februry 1992.

Chan J. L. & Jones R. H., (1988), *Governmental accounting and auditing – international comparisons*, London and New York: Routledge.

Czubakowska K., Gabrusewicz, V. & Nowak, E. (2009), *Przychody, koszty, wynik finansowy przedsiębiorstwa,* Warszawa: PWE.

Garrison R.H., Noreen, E. W. & Seal, W. (2003) *Management accounting*, European edition, London: Mc Graw Hill.

Hair J. F., Jr. (2007), *Research methods for business*, New York: Wiley.

International Business Report, available on-line at: http://www.internationalbusinessreport.com, date 12.03.2017, and also at http://grafik.rp.pl/grafika2/1144116 date: 12.03.2017.

Jaruga A. (ed.), (2005), *Jednostkowe sprawozdanie finansowe według Międzynarodowych Standardów Rachunkowości MSSF/MSR*, Warsaw: SKwP.

Koślicki, K. (2017), *Prawo podatkowe a ustawa o rachunkowości – zbyt wiele różnic*, available on-line at: http://www.podatki.biz/artykuly/prawo-podatkowe-a-ustawa-o-rachunkowosci-zbyt-wiele-roznic_31_22466.htm, date: 12.03.2017.

Mobius, M. & Dover, S. H., *Prognozy dla rynków wschodzących na 2017*, available on-line at: http://mobius.blog.franklintempleton.com/pl/2016/12/22/prognozy-dla-akcji-spolek-z-rynkow-wschodzacych-na-2017-r/date:12.03.2017.

Mosich, L. (1992), *Modern advanced accounting*, fourth edition, New York: Mc Graw Hills.

Nobes, C. W. (2010), *Current debates in international accounting*, Northampton: EE.

Olchowicz, I. (2009), *Rachunkowość podatkowa*, eights edition, Warsaw: Difin.

Pachler, A. J. & Mori J. E., (1991), Advanced accounting, fourth edition, San Diego: HBJ.

Potts, J. (2001), The new evolutionary microeconomics, New York: Edward Edgar.

Żukowska, H. & Janik, W. (eds.) (2012), *Audyt zewnętrzny sprawozdania finansowego a wiarygodność przedsiębiorstwa*, Lublin: KUL.

PS5 CORPORATE REPORTING IN CEE

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Exploratory study of geographic segment reporting practices of multinationals operating in CEE

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Exploratory study of geographic segment reporting practices of multinationals operating in CEE

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Abstract: *It is generally considered that countries are competing for attracting investments of multinational corporations (MNC) due to their expected positive effects on the local business environment. But how transparent are MNC in reporting financial information regarding the various countries where they operate? By compiling an original dataset of MNC subsidiaries from Central and Eastern Europe (CEE), this study aimed to determine if MNC report individual country segments for their foreign operations and to identify the factors that influence their segmentation practices. Descriptive statistics and binary logistic regression analyses were conducted in order to assess geographic segment reporting practices of MNC during 2011-2015 period. It was found that decision of country segment reporting is most likely influenced by a sum of company-related and country-related factors, such as size of operations, overall segmentation policy of reporting entity, market valuation of MNC, and risk ratings of operating countries. This innovative approach of studying subsidiary – parent company relationship reveals a tendency of secrecy in geographic reporting practices of MNC and indicates that more geographic segment requirements may increase the level of disclosure. Useful in decisions about the future of country-by-country reporting, this study highlights the attitude of MNC towards country level disclosure.*

Keywords: *Geographic segment reporting, managerial approach, disclosure, multinational corporations, CEE countries*

1. Introduction

Multinational corporations (MNC) play an important role in the worldwide economy and their influence is generally visible on the foreign markets where they operate. However, MNC seem to be reserved in their financial disclosure about overseas activities and thus, they limit the predictability of going-concern in their operating locations. Ranging between accounting regulations and interests of the firms, disclosure practices of multinational groups are controversially debated by standard-setters, investors, governments, corporations, academics and other organisations. Moreover, more specific requirements are expected to be imposed to MNC, especially in European Union, due to transparency and taxation reasons. These recent international initiatives of controlling fiscal practices of foreign companies draw the attention to the problems related to financial reporting strategies of MNC. Proposing an innovative approach, this study investigates attitude of foreign corporations towards country level financial reporting.

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Nowadays, main international financial reporting standards (IFRS, US GAAP) require public disclosure of geographic information in a flexible manner, within the framework of operating segments reports. This information needs to be provided if it is available and if its cost is not excessive, if the basis for operating segments determination is not the geographic one. Thus, financial aspects related to overseas activities of a company should be reported according to the internal need of disclosure for managerial decisions purposes. The current standards require only few mandatory items to be reported and let the companies decide about supplemental disclosure. However, financial position and performance of foreign subsidiaries are not only on the interest of parent corporation. Investors and numerous other stakeholders, such as employees, local competitors, business partners, local communities, governments, pressure groups, trade unions are influenced by these firms and interested in their overseas activity (Nobes and Parker, 2010). Moreover, it is known that foreign investments are located based on strategic and competitive reasons, and thus it is valuable for the users of financial information to identify and evaluate those strategies as reflected on geographic segment reports of MNC.

Previous studies mainly evaluated the quality and extent of segments disclosure, its predictive ability or its value-relevance under the influence of various reporting standards applicable over time (Balakrishnan *et al.*, 1990; Boatsman *et al.*, 1993; Herrmann and Thomas, 1996; Senteney, 2002; Hope *et al.*, 2006; Hope *et al.*, 2009; Park, 2011; Albu *et al.*, 2013; Blanco *et al.*, 2014; Aleksanyan and Danbolt, 2015; Franzen and Weißenberger, 2015; Leung and Verriest, 2015; Andre *et al.*, 2016; Nichols *et al.*, 2016). To the best of our knowledge, only a few studies referred to country segments disclosure, especially under US GAAP, with focus on its value relevance or in comparison to regional segmentation (Doupnik and Seese, 2001; Seese and Doupnik, 2003; Joliet and Muller, 2016). It is the aim of our paper to explore geographic segment reporting practices of multinational corporations with subsidiaries in Central and Eastern European countries (CEE) from the perspective of subsidiary - parent company relationship. This study seeks to identify the factors which determine whether a specific operating country is defined as a distinct reporting segment, and to test the influence of these factors on disclosure of MNC's operations in CEE. Contributing to financial reporting and international business literature, our study focuses on segment reporting in general, irrespective to a specific financial reporting framework, and thus, it is not limited to IFRS or US GAAP requirements. Our exploratory research evaluates actual tendencies in geographic reporting of MNC, covering a period of five financial years (2011-2015) and observing their attitude towards disclosure of their operations in CEE. Due to the sensitivity of geographic information, it is expected that various corporate and market related determinants will be found relevant in explaining geographic disclosure practices of MNC, and that a preference for secrecy among reporting entities will be noticed.

Our results show that country level reporting is not only a matter of materiality. It depends on the overall segment disclosure policy of reporting entities and on the level risk of individual operating countries. In line with previous studies we noticed a preference for reporting a reduced number of segments and items per segments, especially if the segments are defined as individual countries. Also, segments are more likely defined on an aggregated level, per regions or unspecified categories. However, headquarters proximity, reporting standards framework or size of reporting entities do not have a significant direct effect on country disclosure. As on interest of stakeholders, financial information regarding countries with a higher estimated risk is more likely to be presented in annual fillings of MNC, especially if the companies have a lower market-to-book ratio. These evidences should be on interest of standard setters and other regulatory organisms which define the financial reporting framework of MNC. Our findings may serve also to professional financial statements users, especially financial analysts or auditors, in designing valuation and risk models taking into account geographical structure of the firms.

The content of our paper is structured as following: in the next section, we present the theoretical background and literature insights regarding geographic segment reporting; in the third part, we define the methodology of the empirical study; in the fourth part, we discuss the research findings, and in the last section, we present the conclusions.

2. Literature review

The problem of geographic segment disclosure does not represent such an intensely studied topic, but rather a secondary matter on the discussion of business segment disclosure. However, geographical aspects are sensitive for business performance of a company and of overall business environment within a region or country. Recently, most of the studies which focused on the impact of the latest segment reporting standards (SFAS 131, issued by FASB and IFRS 8, issued by IASB) reported changes in disclosure practices of companies in terms of increase or decrease of numbers of reported segments and disclosed items. Nichols *et al.* (2016) found a decline in reportable segment information in the first year of applicability of IFRS 8 on a sample of companies from 14 European countries. Mardini *et al.* (2012) found an increase in the number of items, in the number of business and geographic segments and, in the number of Jordanian companies disclosing segmental data in the financial year 2009. Franzen and Weißenberger (2015) analysed German firms for the same year 2009 and found that while the number of reportable segments slightly increased, the amount of information disclosed for each reportable segment decreased. Leung and Verriest (2015) conducted also a study on companies from 18 European countries for the year 2008-2009 and found that on average, firms report more disaggregated segments under IFRS 8, but the number of disclosed items and the frequency of reporting geographical income declined significantly. In a review study, Nichols *et al.* (2013) noticed that adoption of IFRS 8 generally determined a consistent decrease in the average number of disclosures for operating segments. A limitation of these studies, recognized by their authors, is the fact that they cover a short period of time, main the first year of applicability of the new standard. In addition, it is considered that there may be other effects that influence the change of disclosure practices, which were not included in the existing research and need to be considered (Mardini *et al.*, 2012; Leuz and Wysocri, 2015; Nichols *et al*., 2013). For example, it should be assumed that practices of companies are not uniform (Leung and Verriest, 2015) and there are possible differences determined by the size of firms, industry, country of origin, domestic or cross-countries listing, financial results or other factors relevant in explaining tendencies in geographic segment reporting of MNC.

Besides these, there are studies proving contradictory results surprising the rapidly changing nature of disclosure practices and regulations which still vary among countries. Even if nowadays global accounting is highly harmonized and IFRS are internationally adopted, reporting standards are not applied and not enforced on the same extent. Cultural aspects also influence accounting practices (Akman, 2011).

It is known that disaggregated information is sensitive and MNCs may avoid a high level of disclose (Pardal *et al.*, 2015) due to competitive protection or taxation reasons, secrecy of managerial strategies, decline in performance in some regions or parts of the business, etc. This is in detriment of users of financial information and limit the monitoring capacities of shareholders regarding the managers' decisions and activities of the firms (Hope and Thomas, 2008; Blanco *et al.*, 2015). However, remembering that financial reporting is principally a communication tool (Tokar, 2015) between companies and their stakeholders, geographical segments reporting should be seen as a reflection of activity and performance of the reporting entities.

Due to the importance of geographical disclosure for stakeholders, a proposal of country level segments reporting was presented to accounting standards setters. Despite all efforts of organizations which promote this idea, country-by country reporting was not recognized as a mandatory component of financial statements (Longhorn *et al.*, 2016). However, it became a filling of interest for fiscal authorities. Different regulations and guidelines requesting country level disclosure are drafted at the moment and it is expected that country level reporting will be imposed by numerous countries. Although in the interest of tax administrations, it is still unclear if country-by-country reporting will be publicly disclosed. Thus, the aspects related to informational need of investors and other stakeholders are pending to be reconsidered and clarified. Based on our exploratory research, we expect to draw some suppositions regarding the preference of MNC towards country level disclosure in their annual fillings.

Segment information plays a key role in forecasting the financial results of a company and is related to its market valuation (Hope *et al*. 2006; Blanco *et al*., 2015; Schröder and Yim, 2016). Providing details regarding the risks of foreign activities (Jahmani, 2003; Park, 2011) and the effects of overseas economic and political conditions (Nichols *et al*., 2013), segment disclosure decreases information asymmetries, agency costs (Blanco *et al*., 2014) and cost of capital (Blanco *et al.*, 2015). Joliet and Muller (2016) highlighted the importance of foreign operations disclosure in comparison to domestic operations disclosure, and the specific role of country level segmentation of overseas activities in financial reporting. Demerens *et al*. (2016) studied the contribution of geographic segments reporting to analysts' estimates and noticed that it is relative to its quality. To the same conclusion came also Andre *et al.* (2016) who found also that quality of disclosure can be a serious problem for analysts, in valuating segment information. In these studies, quality is proxied by disaggregation level of segments, and in fact, it reflects how segments are defined, on country, regional or more aggregated level. Among the critics of segment disclosure, it was assumed that it may generate uncertainties about profitability perspectives of foreign operations (Blanco *et al.*, 2015). It was noticed also that the variety of disclosure may diminish the usefulness of segment information (Aleksanyan and Danbolt, 2015) and that a certain level of comparability needs to be maintained across firms (Schröder and Yim, 2016). Thus, as Nobes and Parker (2010) stated, the outcome of segment reporting is associated to specificities of applied regulations and firms' practices (Nobes and Parker, 2010).

Size of reporting entity (Farias and Rodriguez, 2015; Leung and Verriest, 2015), number and size of define segments, combined with country-risk effect seem to influence financial predictions of a company (Demerens *et al.*, 2016). As it was previously studied, selection of host countries for foreign investments is determined by institutional and economic specific factors of receiving countries (Boateng *et al.*, 2015; Wang *et al.*, 2013; Taran *et al.*, 2016; etc.). Thus, country level characteristics have an important effect in localisation decision of MNC subsidiaries and the same factors influence the persistence of those operations. Differences in socio-economic or political conditions, investors' protection regulations or business environment can influence reporting practices of MNC (Choi and Meek, 2011), but also, the interest of stakeholders in information related to specific operating segments of a company. As Seese and Doupnik (2003) noticed through an experimental approach of analysts' judgement, size and country-risk associated to foreign operations should the main factors considered in defining geographic segments. By this study, we are trying to respond to their call for extended empirical research regarding country-level segments for different operating countries.

Other studies explaining disclosure characteristics of the firms indicate that the way companies present their geographic financial position, performance and risks can be also influenced by their achieved performance (Blanco *et al.*, 2014; Leuz and Wysocri, 2015), listing status or home country of the reporting entity (Herrmann and Thomas, 1996). Taking into account all the aforementioned aspects, we explore if MNC decide whether to report individual country segments for their operations in CEE based on their general segment reporting policy, performance and size, relative size of the segments and risk associated to defined segments.

3. Research methodology

In order to explore geographic disclosure patterns of corporations with foreign activity, we tracked subsidiary – parent company connections and searched to identify the factors which affect the geographical reporting practices of the group. Following previous research, we selected a set of determinants of country level financial reporting, as summarised in **Table 1**.

The dependent variable in our study (***CGS***) indicates if a certain country is reported as an individual segment in financial statements of MNC. As financial reporting standards impose to overall operating segments, it is expected that geographical segments are defined based on materiality criteria. Refining the financial reporting standards' stipulations, the size of segments is determined as the relative ratio of sales revenue of subsidiaries from a selected country in total sales revenue of the foreign group. In addition, factors related to overall segment reporting policy of MNC are expected to influence how geographic segments are defined. Thus, in line with Herrmann and Thomas (1996), Leung and Verriest (2015), Demerens *et al.* (2016), Andre *et al.* (2016), who analysed the quantity and quality of segment reporting, through different reporting standards, we considered that number of segments, their fineness, number of reported items per segment and applicable reporting framework can influence MNC disclosure practices and specific-country segmentation. The influence of other company related factors, such as localization, size and market performance are also tested, since there are evidences that they are relevant in corporate disclosure decisions and previous studies report the need of controlling their effect (Herrmann and Thomas, 1996; Blanco *et al.*, 2014; Blanco *et al.*, 2015; Farias and Rodriguez, 2015; Leung and Verriest, 2015). According to Park (2011) and Li *et al.* (2014), macroeconomic characteristics and risks from operating countries affect forecasts and performance of the firms. Refining the approach of Seese and Doupnik (2003), we expressed the country-risk effect of operating countries by a computed risk index defined based on risk ratings issued by traditional agencies (Standard & Poor's, Moody's and Fitch) and GDP growth rate.

Table 1. **Selected Variables**

Variables	Explanations
Country Geographical Segment ***(CGS)***	Reporting the country of subsidiary as a distinct segment (0 - No; 1 – Yes)
Subsidiary Revenue Ratio ***(SubsRev)***	Ratio of sales revenue of subsidiary in total sales revenue of MNC (%)
Aggregation Level of Segments ***(Agg)***	The way geographical segments are defined*, refined from Doupnik and Seese (2001) (0 – unspecified, mixed or region level; 1 – country level;)
Number of Segments ***(SegNo)***	Number of geographical segments yearly defined by the reporting entity
Number of Items per Segment ***(ItemsNo)***	Reflects the orientation of MNC towards disclosure
Financial Reporting Standard ***(IFRS)***	Reporting standard applied by MNC (0 - Other GAAP; 1- IFRS)
Region of MNC Headquarters ***(Region)***	Home region of MNC headquarters compared to country of subsidiary (0-Other regions; 1-CEE)
Size of MNC ***(Size)***	Total Assets (Natural logarithm)
Market to Book Ratio ***(MTB)***	Market performance of MNC
Country-Risk Index (***RiskIndex***)	Yearly average of the scores** attributed to Long-Term Issuer Credit Ratings issued by Standard & Poor's, Moody's and Fitch agencies
GDP Growth Rate ***(GDPgrowth)***	Economic growth of operating countries

* Following Doupnik and Seese (2001) and Leung and Verriest (2015), home country segment of the reporting entity is not considered in classification. As well, one unspecified segment (e.g. "others") is accepted in measurement of country level style of segments reporting.

** We proposed a conversion scale of these ratings based on their range of values, giving the same score to values with similar degree of risk according to the three ratings.

(*Source*: Authors' processing)

Our proposed model is constructed according to binary logistic regression methodology, as following:

$$Log\left(\frac{pi}{1-pi}\right) = \beta_0 + \beta 1\ \textbf{SubsRR} + \sum \beta i\ \textbf{MNC Reporting Factors} + \sum \beta j\ \textbf{MNC Factors} + \sum \beta k\ \textbf{Country Risk Factors} + \varepsilon,$$

where: $\mathbf{p_i}$ is probability of CGS=1, *MNC Reporting Factors* are ***Agg***, ***SegNo***, ***ItemsNo, IFRS***,

MNC Factors are: ***Region***, ***Size, MTB***, and

Country Risk Factors are: ***RiskIndex and GDPgrowth***.

The statistical applied method was determined according to the type of variables that we proposed and to the causal relationship that we want to explore. Thus, we applied binary logistic regression method. Recommended for studying causal relationships with a binary outcome and consecrated also in accounting literature, logistic regression analysis does not impose any assumptions about the distributions of the predictor variables (Ho, 2013). The statistical instrument used for this study is IBM SPSS statistical software, version 20.

We applied our model to geographical segment reports of MNC that have subsidiaries in CEE countries. Subsidiaries were identified from Deloitte CE Top 500 companies ranked by sales revenue, 2016 edition. Data regarding their sales revenue was determined from the same top of companies, for the financial period 2011-2015. Ultimate parent and their related data, including segment reporting data, were retrieved from Thomson Reuters Eikon database. Country-risk ratings were also collected from Thomson Reuters Eikon database whereas the other macroeconomic indicators were obtained from World Development Indicators database of The World Bank.

The composition of our defined sample is presented in **Table 2**.

Table 2. **Sample selection**

Items	Observations
Initial Sample	500 companies
Not foreign ultimate parent	172
Not listed or not found ultimate parent	173
Number of subsidiaries	**155 companies**
Subsidiaries in the same country with the same parent MNC (data aggregated at country level)	17
Not Available Geographic Segments Data	5
Final number of subsidiaries	**130 companies**
Number of reporting companies (distinct ultimate parent)	**84 MNC**
Pooled data	**665 Firm-year observations**
Missing values	32 observations
Final Sample	**633 Firm-year observations**

(*Source*: Authors' processing)

As in the considered overall top 500 companies from CEE, subsidiaries with foreign ownership included in our final sample are located mainly in Poland (34%), Czech Republic (18%), Hungary (17%), Romania (14%) and Slovakia (10%), and only 7% in the other CEE countries (Bulgaria, Lithuania, Serbia, Slovenia and Ukraine). Their parent companies are multinationals headquartered in European countries except CEE (63%), Asian countries (South Korea, Taiwan, Japan, Singapore, Hong-Kong - 16%), US (14%), other countries (Canada, Russia, Israel - 3%), the rest of 4% of MNC being from CEE countries (Poland, Hungary). Thus, only 4% of observations correspond to subsidiaries owned by MNC from the same region.

Corporations headquartered in CEE are generally reporting a distinct segment for the other CEE countries where they have activities (64%) if the sales revenue in these countries is on average around 14% on the total sales revenue of the group. However, their segment reporting policy does not involve a country level disclosure. Furthermore, the MNC from CEE define on average a high number of geographic segments (10 segments), but disclose only 2-3 items per segment, as required by IFRS. In comparison with MNC from other regions, MNC from CEE seem smaller (mean total assets 13.15 mil. Euro in comparison to 37.97 mil. Euro) and have a lower market performance (mean market-to-book ratio 0.87 in comparison to 2.09).

Foreign corporations from other regions than CEE tend to report country level segments with an average of sales revenue of 4.66%. Almost 23% of them define their geographical segments per countries, although they report on average only 7 segments. It can be noticed that these foreign MNC are more opened to voluntary disclosure and present around 5 items per segment. Regarding the applied financial reporting standards, as it was expected, not all foreign MNC apply IFRS, even if they have subsidiaries in CEE countries. The composition of our selected sample, based on the applied financial standards is summarized in **Table 3**.

Table 3. **Financial reporting standards applied by selected sample of MNC (number of companies)**

	2011	2012	2013	2014	2015
IFRS	55	57	60	60	61
US GAAP	23	23	23	23	22
Other GAAP	6	4	1	1	1

(*Source*: Authors' processing)

Companies from Canada and Taiwan which had applied other financial reporting standards switched to IFRS during the analysed period. Taking into account that Japanese GAAP is considered similar to IFRS and IFRS previsions regarding segmental reporting are inspired by and similar to US standard SFAS 131, we assume that geographical segmental reports of MNC are comparable. However, reporting standards influence the overall accounting practices and policies of reporting entities and thus, their measurement and disclosure policy of geographical items. Among MNC which present their financial information according to IFRS, 19% include CEE countries in their segments report and 20.7% use to define geographical segments on country level. The mean size of segments reported by these entities is 5.14% sales revenue in comparison to 4.73% sales revenue for companies which apply other standards than IFRS. Descriptive statistics data shows that IFRS adopters from our sample report on average 7 geographic segments while the other companies report only 5. Also, the number of disclosed items seem to be higher (5 items, on average) in the case of MNC applying IFRS in comparison to other companies (4 items, on average). MNC which apply IFRS tend to have a smaller market performance (mean market-to-book ratio 1.69 in comparison to 3,19) and a smaller size (mean total assets 24.21 mil. Euro in comparison to 41.13 mil. Euro). Surprisingly, out of 21% companies which mainly define their geographical segments on country level, only

42% report CEE selected countries as distinct segments. The more aggregated segments cover on average 4.76% sales revenues of the company whereas the country level segments are reported if they generate on average 6% sales revenue. Furthermore, we noticed that companies which present a high number of segments tend to consider individual countries as reporting segments, although they do not disclose also a higher number of items. Unexpectedly, these companies which define country level geographical segments seem to have, on average, a lower market performance (mean market-to-book ratio 1.59) than the companies which report more aggregate segments (mean market-to-book ratio 2.17). All these distinctive evidences show that geographical disclosure practices of foreign group companies vary depending on home region of MNC, reporting standards and aggregation level of defined segments. As shown in **Table 4**, the other factors distinguish between cases of individual country segments as well. The quantitative threshold for country level disclosure is on average 10.84%, as recommended by IFRS 8, although the values range between 1.15% and 50.49%. These evidences are in line with results of Doupnik and Seese (2001) who found that generally US based companies report county-specific segments with a relative size less than 10%. The overall number of reported segments is on average higher for companies which disclosed their operations in CEE countries. On contrast, the number of items per segments is lower, covering the items imposed by IFRS 8 (external and total revenue, and long-lived assets), and other a few more items if it is the case, mainly the number of employees. This indicates that MNC are opened to present more financial information on a more aggregated level without specifying the exact location of their results, on country level.

Table 4. **Descriptive statistics**

	Cases*	**Mean**	**Std. dev.**	**Minimum**	**Maximum**
SubsRev	0	3.89%	3.96%	0.12%	24.44%
	1	10.84%	9.67%	1.15%	50.49%
	Total	5.04%	5.93%	0.12%	50.49%
SegNo	0	5.54	2.41	1	20
	1	13.71	9.51	3	33
	Total	6.90	5.38	1	33
ItemsNo	0	5.16	3.92	1	20
	1	3.79	2.65	2	15
	Total	4.93	3.77	1	20
Size	0	24.42	1.16	21.47	27.04
	1	23.81	1.05	22.10	25.38
	Total	24.32	1.16	21.47	27.04
MTB	0	2.20	3.36	0.17	54.79
	1	1.31	0.75	0.22	3.03
	Total	2.05	3.10	0.17	54.79
RiskIndex	0	3.48	0.87%	2.44	7.00
	1	3.65	1.03%	2.44	7.00
	Total	3.51	0.90%	2.44	7.00
GDPgrowth	0	2.29%	1.83%	-9.87%	6.04%
	1	2.19%	2.18%	-9.87%	5.46%
	Total	2.28	1.89%	-9.87%	6.04%

*Cases type 0 represent countries which are not defined as distinct segments (105 observations), whereas cases type 1 represent countries defined as distinct segments in segment reports of parent companies (528 observations).

(*Source*: Authors' processing)

It has been noticed also that smaller companies, with a lower market value are more likely to disclose country-level information. Moreover, as expected (Seese and Doupnik, 2003), country-specific segments seem to be countries with a higher level of risk, as defined by rating agencies, GDP growth rate. As shown in **Table 5**, the analysis of observations per countries illustrate that frequency of reporting CEE countries as individual geographic segments mainly vary according to their estimated risk. Ukraine and Serbia faced a medium to high risk, while Bulgaria, Hungary and Romania registered a medium country-risk. Czech Republic and Slovakia are considered as having the lowest risk among CEE country, with an overall low to medium risk, followed by Poland, Lithuania and Slovenia. These statistics prove also that the presence of MNC in CEE region may be associated with the risk level of these countries.

Table 5. **Country risk and individual country segments**

Country	**Total observations**	**Cases CGS=1**	**Frequency of disclosure**	**Average SubsRev**	**Risk Index****
Bulgaria	15	5	33%	8%	4.06 – 4.28
Czech Republic	112	18	16%	6%	2.44
Hungary	106	12	11%	5%	4.50 – 4.72
Lithuania	5	1	20%	21%	3.33 – 3.83
Poland	213	29	14%	5%	3.11
Romania	95	25	26%	4%	4.28 – 4.39
Serbia	5	0	0%	2%	5.33 – 5.55
Slovakia	63	10	16%	7%	2.66 – 2.89
Slovenia	10	0	0%	2%	2.44 – 3.88
Ukraine	9	5	56%	3%	5.89 – 7.00

*Range values over 2011-2015 period, on a scale from 1 to 9, with 1 representing the lowest risk and 9 the highest risk.

(*Source*: Authors' processing)

As we noticed from our sample, the mean size of segments, their number and the way they are defined do not change considerable over time, although the number of items per segments registered a decreasing trend. Whereas the mean size of reporting entities seems constant, the market performance of the companies increased during the analysed period, as sign of economic recovery after the 2009-2011 financial crisis. In terms of risk, the overall agencies' ratings were slightly varying, while GDP growth ratio was significantly fluctuating.

4. Results

As a preliminary analysis which helps to identify the intensity of connections between selected variables, Pearson correlation test revealed that country segment variable is significantly correlated to subsidiary, reporting and MNC-related variables, as summarized in **Table 6**. This results enhance the expectations regarding the significance of the identified factors in determining country level disclosure policy of MNC. However, country related factors are not significantly correlated to specific country disclosure. Although significant correlations or associations were identified between some of the independent variables, these do not have a high intensity. Additional multicollinearity tests did not reveal suspicions regarding our dataset. The variance inflation factor (VIF) values are below 2 (Demerens *et al.*, 2016).

Table 6. **Correlation matrix**

	SubsRev	***Agg***	***Seg No***	***Items No***	***IFRS***	***Region***	***Size***	***MTB***	***Risk Index***	***GDP growth***
CGS	.44**	.36**	.56**	-.14**	.13**	.26**	-.19**	-.11**	.07	-.02
Subs Rev		.09*	.03	-.16**	.03	.32**	-.51**	-.05	-.07	.04
Agg			.36**	-.12**	-.04	-.11**	-.08	-.08	.06	-.02
Seg No				-.19**	.18**	.12**	.05	-.12**	.08*	-.07
Items No					.07	-.13**	.14**	.12**	-.08	.02
IFRS						.11**	.20**	-.21**	-.17**	.06
Region							-.18**	-.08	-.07	.02
Size								-.15**	.07	-.01
MTB									-.07	.03
Risk Index										-.20**

**. significant at the 0.01 level (2-tailed); *. significant at the 0.05 level (2-tailed).

(*Source*: Authors' processing)

The results of binary logistic regression analysis, summarized in **Table 7**, mainly confirm our expectations for the overall analysed period and for yearly basis estimations. Our model is statistically significant. The identified factors explain over the analysed period around 70% of the probability of reporting geographic segments on country level. The predictive accuracy of the model is 92.3%, with 70.5% correct classification of the country-level segments reported and 96.6% accuracy for non-disclosure cases. These probabilities vary on yearly analyses, but reflect a high level of confidence on overall classifications. According to our estimates, it is more likely that MNC report individual country segments if these have a higher contribution to the group revenues, confirming the prevalent role of materiality criteria, in line with Hope *et al.* (2009). However, this evidences also the reduced probability of disclosure of country-by-country segments. Furthermore, general disclosure policy of the company, in terms of geographic reporting, is also significant. This means that if companies tend to report more items, more segments and more disaggregated information, it is more likely that results from specific operating countries will be reported as well. Thus, transparency tendency, if exists, it will be visible on all segmental reporting matters. Surprisingly, companies with a more stable position on the financial market, as reflected by their market-to-book ratio, do not necessarily disclose country-level information. It can be assumed that is more likely for the companies with a smaller market performance to report more detailed information as a result of their efforts to enhance or maintain their performance, if their activity is facing more risks or lack of credibility. However, for profitable firms, this seem to not apply. Moreover, our estimations show that in terms of risk, individual country segments are reported if these countries are rated by international rating agencies as having a higher level of risk. Regarding the other macroeconomic characteristics of the operating countries, reflected by GDP growth rate, our findings are inconclusive and suggest that their effect may enhance or diminish country-level disclosure according to interests of reporting entity or to the relative importance of these factors in comparison to the other geographic reporting determinants. The volatility of these measurements may explain also why they are not significant disclosure factors. These evidences are in line with Leung and Verriest (2015) who found that institutional environment of foreign operations do not seem to influence the quality of segmental reporting practices.

Table 7. **Logistic regression results**

Indicators	**Pooled data**	**Yearly data**				
		2011	*2012*	*2013*	*2014*	*2015*
N	633	123	124	128	130	128
CGS = 1	105	19	19	21	23	23
Constant	-7.414	-16.354	-10.330	-1.598	-3.379	-9.406
SubsRev	29.479***	45.600***	40.873**	22.678**	42.889***	32.858***
Agg	2.267***	2.041*	3.354***	2.987***	3.152**	2.445**
SegNo	0.465***	0.676***	0.616***	0.614***	0.526***	0.454***
ItemsNo	0.166***	0.144	0.171	0.178	0.363**	0.278**
IFRS	0.118	0.509	1.284	-0.793	-0.652	-0.091
Region	0.897	-0.659	0.700	1.281	-1.141	2.645
Size	-0.102	0.308	-0.101	-0.412	-0.331	-0.105
MTB	-0.496**	-0.419	-1.562	-1.166	-0.938	-0.452
RiskIndex	0.501**	-0.230	0.664	0.330	0.397	0.636
GDPgrowth	-0.035	-0.685*	-0.643	-0.046	0.280	0.278
Classification accuracy						
CGS 0	96.6%	97.1%	96.2%	97.2%	96.3%	95.2%
CGS 1	70.5%	78.9%	63.2%	71.4%	73.9%	73.9%
Overall	92.3%	94.3%	91.1%	93.0%	92.3%	91.4%
-2 Log Likelihood	227.422	34.068	35.276	45.831	43.261	45.168
Nagelkerke R Square	0.703	0.766	0.757	0.701	0.744	0.730
Hosmer and Lemeshow (p-value)	0.390	0.961	0.904	0.981	0.937	0.996

***. Significant at the 0.01 level; **. Significant at the 0.05 level;
*. Significant at the 0.1 level.

(*Source*: Authors' processing)

Surprisingly, according to our analysis, size of MNC is not a statistically significant determinant of country-level disclosure. Leung and Verriest (2015) explain that size can proxy various aspects regarding reporting entities and it is most likely that bigger firms provide better disclosures since they most likely afford information cost. Our findings can be explained by the strategic interests of MNC and sensitiveness of country information. Also, even descriptive statistics analysis proved the tendency of country disclosure of MNC headquartered in CEE region, region effect is not significant for overall sample. Since it is known that foreign investments are determined by numerous other factors than geographical proximity, it is not surprisingly that MNC do not necessarily disclose country information related to localisation. Similar and related to region effect, IFRS applicability is not a significant determinant of geographic reporting practices of MNC. Based on the convergence efforts of standard-setters, it can be assumed that international standards referring to segmental reporting are similar. IFRS 8 “Operating Segments”, effective since 2009 was issued within the framework of cooperation between IASB and FASB, following the model of the equivalent US standard, SFAS 131, effective since 1997 (Nichols *et al.*, 2013). Our results confirm that also in practice, existing reporting standards referring to segments reporting have the same effect for MNC.

As expected, the signs of coefficients indicate that country-specific reporting policy of MNC combines both the interests of stakeholders and of the reporting group. This explains the inconsistency of signs of coefficients for IFRS, region, size and risk variables in yearly regressions. In addition, the coefficients’ significance shows that some factors may not be yearly considered in disclosure decision of MNC, but on the long-term they are relevant. In fact, it is not even beneficial to reporting entity and users of information that reported segments change yearly.

Our empirical study confirms our theory-driven assumptions and proves that size and risk exposure of foreign operations, and as well disclosure policy and performance of MNC are significant determinants of individual country reporting. Taking into account managerial approach as a framework, it should be assumed that information disclosed is used in managerial decisions and it does not impose additional costs. Even of interest for investors and other stakeholders, geographic segments information is valuated differently according to the regions where are located the operating activities of reporting entities (Jolie and Muller, 2016). In line with this remark, we are reserved regarding generalization of our results.

5. Conclusions

Multinational corporations play an active role in global economy and information regarding their operations is on interest of various stakeholders. This study questioned the tendencies of MNC in reporting their foreign activities on a country basis, regardless of their primary basis of operating segments reporting. First of all, it was remarked that MNC continue to present geographic information and geographic segments in their financial reports. Secondly, several factors were identified as significant in explaining whether operations from a specific country will be reported as a distinct segment in geographic information reports: relative revenue ratio of the country, country risk, market performance of the reporting entity and its segment disclosure policy defined by the preference for regional or country segmentation, the overall number of segments and the number of items per segment. These evidences prove that despite the materiality criteria, companies have their own disclosure strategy, sensitive to their market valuation and risk of their foreign operations. Other factors, such as financial reporting standards applied by reporting entities, proximity of MNC headquarters to their foreign operations, size of the reporting group seem to not affect specific-country reporting. Findings regarding the effect of economic conditions as an expression of risk of operating countries, proxied by GDP growth, are inconclusive due to their volatility. However, it is expected that under certain circumstances of high risk and economic instability, macroeconomic factors determine disclosure of specific geographic segments.

Providing valuable insights regarding reporting behaviour and geographic segments transparency, this research distinguishes by relating subsidiaries to parent corporations in order to assess which are the factors which influence individual country segmentation. On top of that, it reveals an overview of the relative position of CEE subsidiaries within the group structure of their parent MNC, and a comparison of country-risk status of CEE countries. These results show that managerial approach in geographic segment reporting let companies disclose or non-disclose financial information relative to its importance and sensitiveness for the reporting entity. Besides that, these findings can be helpful for accounting standard-setters and other regulatory organisms which impose financial reporting rules such as country-by-country reporting. However, the main limitations of this research are the limited sample size, limited financial information regarding MNC's subsidiaries and the short-time analysed period, and thus, our results cannot be generalised. Overcoming these constrains, since geographic reporting topic was barely studied, further research may consider market valuation of individual country disclosure in order to prove stakeholders' expectations and the contribution of specific country reporting in replying to their informational needs. Moreover, a comparison between geographic information presented in narrative part of annual reports and quantitative information presented in operating reports may reveal new insights about the strategies that MNC apply on reporting geographic aspects of their activity.

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References

Akman, N.H. (2011) "The Effect of IFRS Adoption on Financial Disclosure: Does Culture Still Play a Role?", *American International Journal of Contemporary Research*, vol. 1, no. 1: 6-17

Albu, N., Albu, C.N. & Mateescu, R. (2013) "The Analysis of Segment Reporting Practices– The Case of Entities listed on the BSE", *Audit Financiar*, no 10: 32-38

Aleksanyan, M. & Danbolt, J. (2015) "Segment Reporting: Is IFRS 8 Really Better?", *Accounting in Europe*, vol. 12, no. 1: 37-60

Andre, P., Filip, A. & Moldovan, R. (2016) "Segment Disclosure Quantity and Quality under IFRS 8: Determinants and the Effect on Financial Analysts' Earnings Forecast Errors", *The International Journal of Accounting*, vol. 51, no. 4: 443–461

Balakrishnan, R., Harris, T.S. & Sen, P.K. (1990) "The Predictive Ability of Geographic Segment Disclosures", *Journal of Accounting Research*, vol. 28, no. 2: 305-325

Blanco, B., Garcia Lara, J.M. & Tribo, J. (2014) "The relation between segment disclosure and earnings quality", *Journal of Accounting Public Policy*, vol. 33, no. 5: 449–469

Blanco, B., Garcia Lara, J.M. & Tribo, J. (2015) "Segment Disclosure and Cost of Capital", *Journal of Business Finance & Accounting*, vol. 42, no. 3-4: 367-411

Boateng, A., Hua, X., Nisar, S. & Wu, J. (2015) "Examining the determinants of inward FDI: Evidence from Norway", *Economic Modelling,* vol. 47: 118-127

Boatsman, J.R., Behn, B.K. & Patz, D.H. (1993) "A Test of the Use of Geographical Segment Disclosures", *Journal of Accounting Research*, vol. 31: 46-64

Choi, F.D.S. & Meek, G.K. (2011) *International Accounting, Seventh Edition*, Upper Saddle River: Prentice Hall

Demerens, F., Delvaille, P., Manh, A.L. & Pare, J.-L. (2016) "The use of segment information by financial analysts and forecast accuracy: A study on European Intermediate-Size Companies", *Thunderbird International Business Review*, pp.1-18, early view, DOI: 10.1002/tie.21881, available online at: http://onlinelibrary.wiley.com/doi/10.1002/ tie.21881/full (accessed on 24.03.2017)

Doupnik, T.S. & Seese, L.P. (2001) "Geographic area disclosures under SFAS 131: materiality and fineness", *Journal of International Accounting, Auditing & Taxation*, vol. 10, no. 2: 117-138

Farias, P. & Rodriguez, R. (2015) "Segment disclosures under IFRS 8's management approach: has segment reporting improved?", *Spanish Journal of Finance and Accounting*, vol. 44, no. 2: 117–133

Franzen, N. & Weißenberger, B.E. (2015) "The adoption of IFRS 8 – no headway made? Evidence from segment reporting practices in Germany", *Journal of Applied Accounting Research*, vol. 16, no. 1: 88-113

Herrmann, D. & Thomas, W. (1996) "Segment Reporting in the European Union: Analyzing the Effects of Country, Size, Industry, and Exchange Listing", *Journal of International Accounting & Taxation*, vol. 5, no. 1: 1-20

Ho, R. (2014), *Handbook of Univariate and Multivariate Data Analysis with IBM SPSS, Second Edition*, Boca Raton: CRC Press

Hope, O.-K., Thomas, W.B. & Winterbotham, G. (2006) "The Impact of Nondisclosure of Geographic Segment Earnings on Earnings Predictability", *Journal of Accounting, Auditing & Finance*, vol. 21, no. 3: 323-346

Hope, O.-K. & Thomas, W.B. (2008) "Managerial Empire Building and Firm Disclosure, *Journal of Accounting Research*, vol. 46, no. 3: 591-626

Hope, O.-K., Kang, T., Thomas, W.B. & Vasvari, F. (2009) "The Effects of SFAS 131 Geographic Segment Disclosures by U.S. Multinational Companies on the Valuation of Foreign Earnings", *Journal of International Business Studies*, vol. 40, no. 3: 421-443

Jahmani, Y. (2003) "The Impact of Segmental Reporting Disclosure on a Firm's Perceived Risk", *International Journal of Commerce and Management*, vol. 13, no. 2: 102-121

Joliet, R. & Muller, A. (2016) "Are foreign earnings disclosures value-relevant? Disaggregation solves the puzzle", *Research in International Business and Finance*, vol. 37: 170–183

Leung, E. & Verriest, A. (2015) "The Impact of IFRS 8 on Geographical Segment Information", *Journal of Business Finance & Accounting*, vol. 42, no. 3-4: 273–309

Leuz, C. & Wysocri, P. (2016) "The Economics of Disclosure and Financial Reporting Regulation: Evidence and Suggestions for Future Research", *Journal of Accounting Research*, vol. 54, no. 2: 525-622

Li, N., Richardson, S. & Tuna, I. (2014) "Macro to micro: Country exposures, firm fundamentals and stock returns", Journal of Accounting and Economics, vol. 58, no. 1: 1-20

Longhorn, M., Rahim, M. & Sadiq, K. (2016) "Country-by-country reporting: An assessment of its objective and scope", *eJournal of Tax Research*, vol. 14, no.1: 4-33

Mardini, G. H., Crawford, L. & Power, D. M. (2012) "The impact of IFRS 8 on disclosure practices of Jordanian listed companies", *Journal of Accounting in Emerging Economies*, vol. 2, no. 1: 67-90

Nichols, N.B., Street, D. L. & Tarca, A. (2013) "The Impact of Segment Reporting Under the IFRS 8 and SFAS 131 Management Approach: A Research Review", *Journal of International Financial Management & Accounting*, vol. 24, no. 3: 261-312

Nichols, N.B., Street, D.L. & Cereola, S.J. (2016) "An analysis of the impact of adopting IFRS 8 on the segment disclosures of European blue chip companies", *Journal of International Accounting, Auditing and Taxation*, vol. 21, no. 2: 79– 105

Nobes, C. & Parker, R. (2010), *Comparative International Accounting, 11th Edition*, Essex: Financial Times Prentice Hall

Pardal, P., Morais, A.I. & Curto, J.D. (2015) "Competitive harm and business segment reporting under IFRS 8: Evidence from European Union listed firms", *Repositório Comum*, available online at: http://hdl.handle.net/10400.26/8880 (accessed on 23.11.2016)

Park, J.C. (2011) "The effect of SFAS 131 on the stock market's ability to predict industry-wide and firm-specific components of future earnings", *Accounting and Finance*, vol. 51, no. 2: 575–607

Schröder, D. & Yim, A. (2016) "Industry Effects in Firm and Segment Profitability Forecasting: Corporate Diversification, Industry Classification, and Estimation Reliability", available at http://www.bbk.ac.uk/ems/faculty/schroeder/schroeder-downloads/SSRN-id2073336.pdf (accessed on 31.10.2016)

Seese, L.P. & Doupnik, T.S. (2003) "The materiality of country-specific geographic segment disclosures", *Journal of International Accounting, Auditing and Taxation*, vol. 12, no. 2: 85–103

Senteney, D.L. (2002) "The Impact of Geographic and Business Segment Diversification Upon Investor's Perceptions of Earnings of U.S.-Based Multinational Enterprises", *Review of Accounting and Finance*, vol. 1, no. 2: 71-86

Taran, A, Mironiuc, M. & Huian, M.C. (2016) "Examining the influence of some macroeconomic factors on foreign direct investments", *Review of Economic and Business Studies*, vol. 9, no. 2: 159-182

Tokar, M. (2015) "What kind of accounting standards should the IASB write?", *Accounting and Management Information Systems*, vol. 14, no. 3: 439-452

Wang, T. D., Gu, F. F., Tse, K. D. & Yim, C. K. B. (2013) "When does FDI matter? The roles of local institution and ethnic origins of FDI", *International Business Review*, vol. 22, no. 2: 450–465

PS6 ACCOUNTING INFORMATION SYSTEMS

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An exploration of the accounting profession – the stream of mobile devices
Victoria Stanciu
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Avoid cloud captivity – facing the challenge
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An exploration of the accounting profession – the stream of mobile devices

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Abstract: *Facing the digital era challenge, the accounting profession is implied in its renewal process aiming at responding in an adequate manner to the companies' and society's continuous changing requirements. The paper emphasizes the impact of the information technology on the accounting profession and signals the positive impact and also the concerns brought by mobile devices in the accountants' work and training. In this context, the authors performed a survey aiming to understand the accounting students' perception in regard with IT impact over the accounting profession and the usefulness of mobile devices. The study's findings provide important insights on the mobile devices use in the accounting work and how the teaching process can help students acquire IT skills and awareness on the professional use of mobile devices. The paper contributes to the research on the accounting developments in the digital era demonstrating the benefit of new technologies' implementation and integration of the mobile devices.*

Keywords: *Accounting profession, information technology, mobile devices, m-learning.*

1. Introduction

Aiming at ensuring business increase and profitability for their companies, managers adopted new business models and new business approaches. A significant role in all these changes is played by information technology that has substantial changed the way we are doing business today and has fundamentally change the decision making process and reshaped many professional areas. The companies are operating in an intelligent economy that produces huge streams of data impacting the business and decision making process. The changes induced by big data, cloud computing, mobile and intelligent devices and not lastly social platforms, just to mention some information technologies "on the wave" are significantly impacting the accounting profession. The IT environments, in which the companies are running the businesses and the accountant professionals are performing theirs daily work, redefine the professional profile of the accountants. The accounting professionals have to face the new challenges generated by digital services, artificial intelligence, cybercrime etc. The properly use of all new technologies brings huge challenges for the profession and reshapes the professional profile of the accountant enlarging the capabilities and skills to be achieved at individual level.

The accounting function acquires an important and critical role inside the company and the accounting profession is exposed to a continuous pressure in regard with its

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ability to permanently respond to the shareholders' requests. The classical role of ensuring the accounting data processing and providing internal and external reporting is changing, the accountants being "left for more strategic roles" (Faye, 2013). It is expected that more time to be allocated to the data analysis aiming at emphasize the economic and financial trends of the company, to identify options for the decision making process, better control the risks and, not lastly, budgeting and planning.

The unprecedented impact of the IT stream over the accounting profession raises new challenges and expectations for the profession. The complex information systems ensuring data processing, the change of the accounting data flows and processes (as for example ERP systems and cloud computing) require new IT and control skills. Data management and information security become an important issue for the accounting professionals. The new IT solutions implemented in the companies as well as the computing based solutions for the accounting professionals change the environment in which the accounting professional is working, his way of thinking and practice and, is providing also important advantages – ensuring accuracy, effectiveness and efficiency.

The auditors feel at their turn the IT impact. The auditing procedures and objectives register changes as a result of the complex IT environment created inside the client's company and as a result of diverse IT audit software and mobile devices that are now part of the auditors' daily work. The auditors' thinking and procedures reshaped as a response to the new challenges. Auditing implies a deep understanding of the control environment, more and more IT-based in nowadays, that determine the auditors' decision in regard with the nature and deepness of the tests and procedures applied.

In the last years, the mobile devices and, especially smartphones and tablets, have exceeded the number of laptops and desktops. These mobile devices became significant instruments in the professional and personal life. In the business environment, the use of mobile devices and of the specialized applications offered important benefits as for example: high speed connectivity with the clients and employees, unlimited access to information, a closer collaboration between the actors in the business environment, new products and services delivered, improved and more accurate information provided for the decision making process. The companies that are proactive and prove strategic orientation to the new information technologies face better the competitive challenges and succeed in their effort to grow future opportunities. "Many technologies considered emerging – like cloud and mobile solutions – are quickly becoming mainstream" (Wolters Kluwer CCH, 2013). The professional use of mobile devices, and here is a significant increase of the BYOD (Bring Your Own Device) trend, induces not just significant advantages but also new problems and concerns regarding sensitive data security. Not all the companies proved real awareness regarding data security in the context of BYOD swift. Nowadays it is observed the extended professional use of m-devices like tablets and phones in social media. The more active ones are the young professionals. The vast majority prefers to act as "listeners" rather than "contributors" (INSIGHT, 2015). The international surveys emphasize that accountants are using social media aiming at remaining in contact with their professional network, keeping up to date with professional issues and sharing knowledge (INSIGHT, 2015).

The same trend of integration of the mobile devices it is observed in the educational environment. Next to the e-learning concept it is now more referred the concept of m-learning defined as a complementary form of learning, adapted to the digital era, offering direct access to the information with no space and time limit. The opportunities offered by m-learning are useful for the student's formation and also for the live long training of the professionals.

The present research is part of a wider research project initiated five years ago aiming at analysing and tracking the evolution of the accounting profession and the imperative requirements raised by the profession for the accounting students training through the university studies as a result of the IT deep emerge in the accounting professional life.

The purpose of this paper is to develop a discussion on the IT role and importance for the accounting profession and to raise the awareness on information technology dimension in the field and on the need for a more adequate training, using all new approaches and devices (mobile devices inclusively), in the benefit of the future professionals as well as for the certified accountants and auditors.

2. Literature review

2.1. The accounting reshaping in the digital era

The constant and sometime unforeseeable evolution of the global society inducing the dynamic of the professions, accounting inclusively, imposes permanent update of the universities' curriculum. The professional challenge is significant and the accounting aspirants have to face complex professional requirements. The Association of American Colleges and Universities signalled since 2007 that the new generations of graduates "need a cross-disciplinary knowledge, high level skills, an active sense of personal and social responsibility to apply knowledge to complex problems" (AAC&U, 2007). In this respect, universities cooperate with the professional bodies and recruiting companies aiming at revise the graduate attributes. As McCabe states, "graduate attributes are the qualities, skills and understandings the university community agrees its students should develop during their time with the institution" (McCabe, 2010). Those graduate attributes have to cover technical knowledge specific for the accounting profession and a diverse set of skills providing all together the professional basic foundation for the future accountant making him prepared to face not only the present challenges but also to permit its professional development for the next 30-40 working years. The IT skills and knowledge and the critical thinking are new learning coordinates in our opinion. In this context the universities should find the right answers at least two imperative questions:

- *What the accounting students should know?*
- *How he should learn?* Meaning which are the most appropriate approaches and technical (digital inclusively) means for accounting learning.

The accounting and financial professionals' work is performed today in a highly computerized environment. This new professional context implies extended IT abilities and skills for the accountants, changes in their thinking and work methodologies and procedures, new analytical skills and relevant information security knowledge. The entire accounting professional profile has been changed and this process will continue.

If traditionally, accountants analysed only historical data, in nowadays they need to investigate a larger field - big data – and to gain extended skills and knowledge to explore this endless and permanently renewing source of data. “As big data accelerates the process by which business reimagines itself, so the accounting and finance professionals will have to start to reinvent themselves” (Faye, 2013:8). Information technology in general and big data in particular will reduce the time spend by accountants for collecting, validating and processing (classical processing) data and enlarge the time spend for analytics procedures delivering business insights and stronger risk assessment changing the accountant role inside the company. Nga and Mun (2013) consider that the role of the accountant needs to be transformed from the “classical one” to a controller and moving onward as an enabler and co-creator of organizational value. The future accountants “have to be prepared for a more engaging role as leaders and partners of organizational change” (idem).

Specialists, clients and business managers positively appreciate the increasing usage of the mobile devices in the business and accounting field. Statistics emphasize that smartphones and tablets selling increased significantly from 11.8% in 2013 to 16.5% by 2017, and smartphones will increase from 59.5% to 70.5% (Columbus, 2013). The mobile workforce registered constant increase as a result of the BYOD wave being estimated at 1.3 billion in 2015.

Peters (2007) appreciates that the usage of the mobile devices in the business environment conducted to increased efficiency by flexibility, speed and access to the information for the businessmen at global scale, an increased satisfaction for their users, improved conditions for data storage and the associated back-up, “saving of time and money and creating greater responsiveness to change” (Peters, 2007:124).

Specialists from INTUIT (2011) consider that mobile devices like smartphones, tablets, notebooks etc. became vital instruments for the accounting professionals ensuring a perfect synchronization between their work and day-by-day life. „ *These technologies will reinvent work and the workplace, allowing greater flexibility around when, where and how work is done. Being onsite will become much less important, and these tools will enable, and often require, anytime, anyplace work”* (INTUIT, 2011:6). In the same time, it can be observed that the needed time for accounting and financial data collection and validation has increased the analysis opportunities offered to the clients and the mobile devices integration has generated a higher degree of work’s flexibility and a more ample interaction with the clients. This context of mobile device insertion in the professional work ensuring connectivity and availability “at anytime and anywhere” raises the potential risk to loose “control over boundaries between work and personal activities” (Cousins and Robey, 2015:3). This is an important issue that should be researched being a significant gap in regard with the negative and unpredictable impact of mobile devices.

2.2. Mobile devices in the accountants’ education and training

The changes induced by the new information and communication technologies had a significant impact over the education and training systems. It is observed an evolution from the traditional approach to new ones as for example e-learning and m-learning approaches.

The literature offers a large set of definitions for m-learning. Some authors consider, m-learning as an extension of e-learning characterised by the usage of mobile devise. „A new stage of e-learning having the ability to learn everywhere at every time through use of mobile and portable devices" (Georgiev *et al*., 2004 as cited by Akour, 2009:34) or „ E-learning that uses mobile devices and wireless transmission" (Pinkwart *et al*., 2003 as cited by Akour, 2009:34). Some other researches emphasize another important characteristic of m-learning system: getting access to the information in any time and location (Kutluch and Gulmez, 2013, Cheon *et al*, 2012). The arguments for this point of view stay in the mobile device properties: "(a) *portability*: mobile devices can be taken to different locations, (b) *instant connectivity*: mobile devices can be used to access a variety of information anytime and anywhere, and (c) *context sensitivity*: mobile devices can be used to find and gather real or simulated data" (Ben Moussa, 2003; Churchill and Churchill, 2008; Klopfer *et al*., 2002; Sharples, 2000, as cited by Cheon *et al.*, 2012:1055). We also retain the opinion emphasizing that *portability*, *social interactivity*, *context sensitivity*, *connectivity* and *individuality* (a "unique scaffolding that can be "customized to the individual's path of investigation") *"produce unique educational affordances"* (Klopfer *et al*., 2002 as cited in Peters, 2007:117).

Akour (2009) considers technology as a significant component of the m-learning system: the infrastructure, the mobile devices applications' interface, and the quality of the service represent characteristics with significant impact over the m-learning system. Aiming at completing the definition of the m-learning paradigm it should be added next to the technical component, the content, the curriculum design, and student learning styles. The m-learning system offers flexibility (the trainee decides when and where to study), availability for the persons with diverse disabilities, ensures interactivity by providing an easier cooperation and communication between trainees; stimulate the interest for the studied topics and increasing the efficiency of the learning process. The advantages offered by m-learning facilitates its promotion in the academic teaching process as well as in the accounting professional area aiming at improve live long training. There are also disadvantages induced by the technical characteristics of m-devices: limited memory, small screens, need for battery recharge, loosing Internet connection in the areas with limited access, use of files with special format. M-learning has different parameters comparing with e-learning and also t-learning (tablet learning). That imposes the learning materials adaptation in regard with the learning device.

Little (2013) considers that aiming at providing useful learning materials, they have to be adapted "for delivery from "e" to "m" and, now, from "e" to "t" and from "m" to "t" "(Little, 2013: 3). Tablet use in learning purposes is increasingly accepted being also a device used in work environments. The advantages brought by tablets are: light, "easy to transport, and have an interface capable of integrating all inputs and outputs" (Burford and Park, 2014: 1).

Derakhshan (2009) studied the students' interest for m-devices use in the learning process and emphasized that "students are "digital natives" and they natively speak the digital language of computers, handheld devices, and the Internet". (Derakhshan, 2009:77). In opposite, the professors manifested a reticence for the use of mobile devices.

Al Fahad (2009) studied the King Saud University students' attitudes and perceptions towards the effectiveness of mobile learning. His conclusions underline that the majority of the students, subjects in his study, considered that the wireless networks increase the flexibility access to the educational resources and the students' implication in the educational process is also increased. Al Fahad also emphasized that students' engagement in the learning process was affected in multiple ways: behavioural, intellectual and emotional. Kutluk and Gülmez (2013) have analysed the mobile learning perspective in the case of students taking accounting lessons. They retain the students' positive attitude in regard with mobile devices' integration in the learning process as a result of the ease of use and flexibility in research and homework tasks.

Several studies emphasize the m-learning disadvantages, analysed from technical, psychological and pedagogical point of view. Technically, the limits are induced by factors like: screen dimension and low resolution, inadequate memory, slow network speeds, and lack of standardization and comparability (Haag, 2011; Huan *et al.*, 2008; Lowenthal, 2010; Park, 2011; Wang and Higgins, 2006; Wang *et al.*, 2009 as cited by Cheon *et al.*, 2012). The psychological limitation is exemplified by the hedonic use of m-devices such as texting with friends, listening to music, and checking social network services (Park, 2011; Wang *et al.*, 2009 as cited Cheon *et al.*, 2012). The students less focus and class disruption induce the pedagogical limitations.

3. Insights in mobile devices perception of Romanian accounting students – an empirical study

3.1. Methodology

The authors' research had two coordinates: a qualitative one aiming to identify the tendencies, priorities, objectives in accounting profession as a result of the information technology penetration in the companies' processes and accountants' work and a second one aiming at performing and empirical study in regard with the accounting students' preparedness for the professional life in the context of the significant changes imposed by IT impact and especially by mobile devices. The research imposed the literature review of existing studies performed worldwide in regard with the accounting changes and new requirements as a result of the IT impact, and surveys performed by prestigious international organizations regarding the evolution of accounting profession in all its aspects and fields of action. The authors investigated the scientists and academics' research on the topic and retained their opinions and concerns that were synthetized in the previous chapters.

The empirical study was performed in 2016 aiming at investigate the accounting students':

- familiarity in regard with mobile devices
- opinion on mobile devices' use in professional purposes
- perception on ethical characteristics of an accounting professional.

Subjects of our study were the students of the Bucharest University of Economic Studies. We collected a total of 110 questionnaires, out of which we discarded seven. In our sample, 67% of the respondents are bachelors in Accounting and Management Information Systems and 33% master students in Accounting and Management Information Systems and Finance and Banking. 85.4% of the respondents were female, reflecting the characteristic of the students' structure in the Bucharest University of Economic Studies. The questionnaire included 10 items, and we conducted data analysis starting from the following questions:

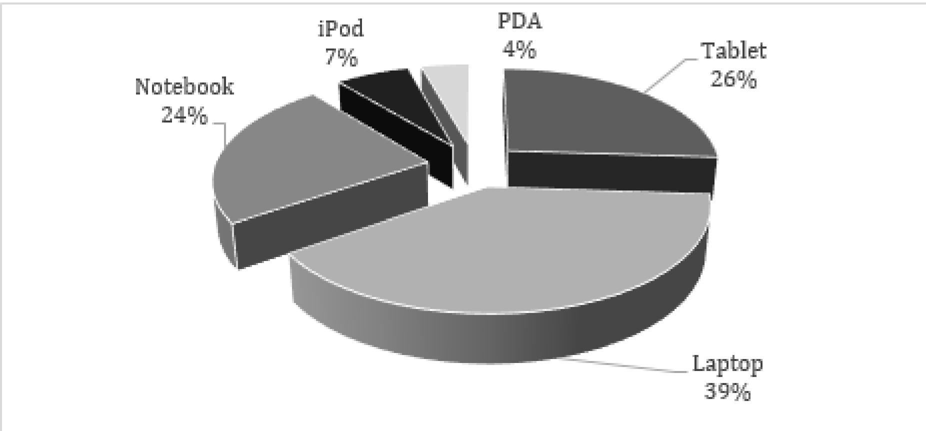
1. Are the accounting students aware of the IT importance for the profession?
2. Are the accounting students familiar with mobile devices use?
3. Do they appreciate the adequacy of mobile devices for the accounting work?
4. What are the usual activities performed on mobile devices by the accounting students?
5. Which are the accountant professional most important characteristics?

The study results and conclusions are presented in the chapter below.

3.2. Results and Conclusions

The study emphasized the students' awareness on the need of mobile devices use in the professional life. 92.2 % of the respondents consider very important the use of mobile devices the most appreciated being the laptops followed by tablets, notebooks, iPods and PDAs.

Figure 1. **Mobile devices for accounting**



(*Source*: Authors' projection)

Based on the responses, we conclude that the students are using a diverse set of mobile devices; just 10 out of 107 declared that they are not using mobile devices. In the top of the respondents' preferences are the laptops and smartphones. We detailed our analysis on the main groups of respondents: undergraduates and master students.

We investigated what are the mobile devices used by the undergraduate students. 44.12% declared that they are using just laptops, 11.76 % are using smartphones, and just two students are tablet users. 32.35% of the undergraduates have in daily use two mobile devices (mainly laptops and smartphones), 10.29% are using three mobile devices and just one student is using four mobile devices (laptop, smartphone, tablet and notebook). Seven students did not mention a mobile device in their daily use, and two-mentioned PCs (device that cannot be included in mobile category).

In the master students' sample, 45% are laptops' users. 30% are using on daily basis two mobile devices, six students out of 34 did not mention a mobile device and two master students responded PCs.

The responses reveal some important information: the students are mobile devices users in an overwhelming majority. In the top of preferences, for both undergraduate and master students are the laptops and smartphones. 17 students (16.5%) out of 107 did not mention a mobile device or indicated PCs. In our opinion, these 16.5% of the sample do not have a correct understanding of the concept of mobile device. We consider that more detailed training on mobile devices topic is needed aiming at clarifying the m-device concept, the specific characteristics, functionalities, advantages and disadvantages and how these devices can be integrated in the accounting systems and work.

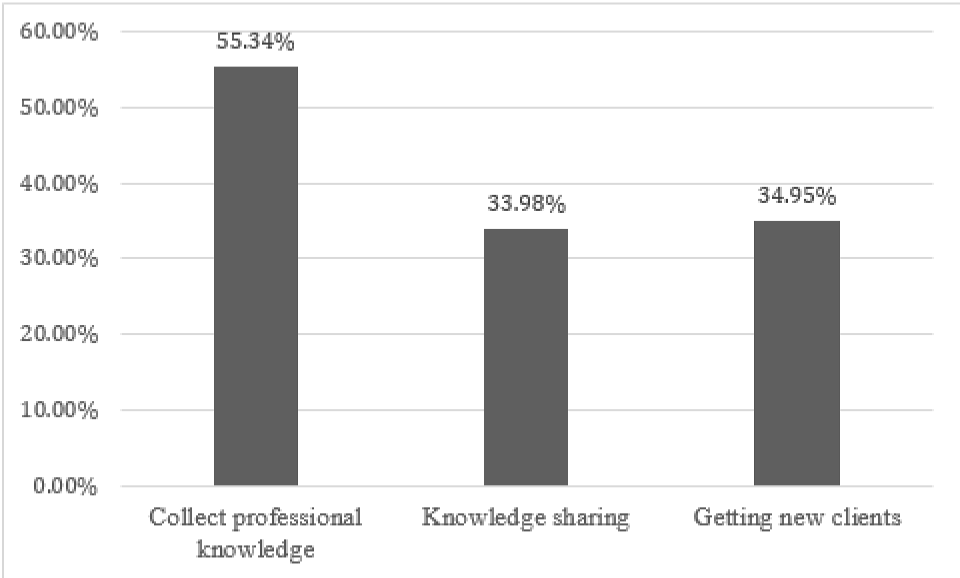
There are mobile devices that are not frequently used as for example tablets, notebooks etc. This situation can be explained in two ways: the students did not feel the need to use these kinds of devices (they are not aware of the devices capabilities or they really don't find these devices useful for their use) or there are financial constraints determining a certain priority in the mobile device purchase. If we correlate the students' answers on the use of mobile devices with the ones regarding the purpose of mobile device use, there is an evident correlation. As long as the students are using the mobile devices for collecting information and communication, the laptops and mobile phones are providing the needed capabilities. That is why, more theoretical and practical study cases are needed aiming at provide information in regard to the m-devices utility and capabilities.

The respondents' use of mobile devices in their daily activity focuses on collecting information (94.68%), communication (86.17%), information share (63.95%), and collaboration (62.33%). The fact that collecting information and communication are on the top of preferences is not surprising and confirms the results from the authors' surveys on previous graduates' generations. It remains the problem of selecting the information from credible sources, on this topic being room of training improvement. It is encouraging to see that 62.33% of the respondents consider mobile devices as providing collaboration support. The profession its self imposes collaboration and support for the work group and mobile devices are appropriate in this regard.

We also wanted to investigate the students' perception in regard to computing skills needed by the accountants. 96% of the respondents considered the computing skills as very important and important. Just 2 respondents considered the computing skills as being not important. In our opinion, this correct perception is sustained by the coherent and well balanced set of IT courses included in the Faculty of Accounting and Management Information Systems' curriculum. The theoretical basis and, very important, the practical abilities and skills acquired in the IT classes, in regard with accounting and auditing issues, determined the students' awareness on IT knowledge related to the profession. These IT fundaments will offer a solid base for further developments and will ensure their proactive approach towards new information technology use in the profession. Being familiar with mobile devices and understanding the advantages brought by these technologies, the students agreed on the utility of mobile device use in the accounting profession.

We investigated the students' opinion in regard to the social media use in the accounting profession. 97.17% of the respondents recognised the social media utility for the profession. The main declared scope was to collect professional knowledge (55.34%). Getting new clients represents the second motivation (34.95%), and lastly, knowledge share was indicated by 33.98% of the respondents. The survey results are in line with the international surveys on the same topic, indicating a passive attitude (preferring to collect new information and knowledge then sharing ones). These responses are correlated with the ones reflecting the students' preferences in regard with the mobile use, when they indicated as first preference the information collection.

Figure 2. **Social media use in profession**



(*Source*: Authors' projection)

We wanted to see the students' perception in regard with mobile devices use in the learning process. The advantages offered by mobile devices analysed were: interactivity, user satisfaction, efficiency, flexibility, and availability for persons with disabilities. The most students' options go to efficiency and flexibility.

Taking into consideration the survey's targeted subjects, undergraduates in the 3rd year of study and master students, we investigated their opinion in regard with the most important characteristics for an accountant. Our analysis was performed on three layers: ethics (with the following characteristics: honesty, integrity, trustworthy), professionalism (with the characteristics: professional, intelligent, wise, specific abilities) and leadership (with the characteristics: charismatic, model for others, good communicator, good listener, good organizer, high influential). On ethical layer integrity and honesty were the most appreciated. On the professionalism layer, the accountant professional profile and his intelligence were most appreciated. Less importance was allocated to wisdom and specific abilities. We believe that the respondents' limited experience in professional life explains their options; as long as for example wisdom is a characteristic that usually is put in relation with mature generation. In the respondents' view an accounting leader should be a good organizer, demonstrating good communication skills and being a good listener. His power of influence is appreciated to be more important rather than his ability to be a model for others and his charisma.

It was very important for us to see the undergraduates desire to apply for an accountant position. 66 out of 68 Accounting and Management Information Systems undergraduate students declared they option for an accounting career. One respondent declared that he/she wishes to apply for a programmer position (this being in line with the faculty speciality – Accounting Information Systems). Just one undergraduate declared that the accounting profession is not in line with his profile and, as a consequence, he is going to change the professional option.

Following the questions representing the initial starting point of our investigation the authors can conclude that:

- The students are aware of the importance of IT knowledge for the profession and consider mobile devices useful for their future work;
- The students are daily users of laptops and smartphones, and less oriented towards tablets and notebooks.
- There is room for better training in regard to the mobile devices capabilities aiming to enlarge their use for more diverse activities in accounting activities.
- Social media is considered important for the profession but the students prefer a passive role.
- Mobile devices use in training and learning is appreciated for the provided flexibility and efficiency.

4. Conclusions

The accounting profession continues its renewal facing the IT wave aiming at remaining in line with the companies' and society requirements. This process is continuous and implies deep changes in the accounting professionals' profile and work. New skills, knowledge and abilities are required nowadays. The accountants' work, in all the areas of the profession, is changing not only at the level of means and techniques used but also in its content and role. New developments like cloud computing, big data, mobile devices are impacting the accountants' work and way of thinking. The huge stream of data, which is increasing day-by-day, should be well managed, store, process and secured and the accountants have to adapt their work to the new IT environment. The changes in the accountant work determine a significant swift in regard with the accountant role in the company. He is now more implied in planning and strategic tasks and is a partner of organizational change.

The attention provided to the mobile devices is sustained by the significant advantages: flexibility, connectivity, portability, and ease of use. The other side of the coin emphasizes important concerns in regard with data security and the risk to lose control over boundaries between work and personal activities. Strong security and data processing policies next to improved organizations' culture and employees' training will facilitate the right integration of mobile devices in the accountants work and training, making possible the maximization of the IT resources effectiveness and efficiency.

References

AAC&U (2007) "College Learning for the New Global Century. A report from the National Leadership Council for Liberal Education & America's Promise", available on-line at https://www.aacu.org/sites/default/files/files/LEAP/GlobalCentury_final.pdf.

Akour, H. (2009) "Determinants of mobile learning acceptance: An empirical investigation in higher education" (Doctoral dissertation), available on-line at https://shareok.org/bitstream/handle/11244/7764/

Al-Fahad, F. N. (2009) "Students' attitudes and perceptions towards the effectiveness of mobile learning in King Saud University, Saudi Arabia", *The Turkish Online Journal of Educational Technology*, volume 8, Issue 2, available on-line at http://www.tojet.net/articles/v8i2/8210.pdf

Burfors, S. & Park, S. (2014) "The impact of mobile tablet devices on human information behaviour". *Journal of Documentation*, vol. 70, no.4: 622-639

Cheon, J., Lee, S., Crooks, S. M. & Song, J. (2012) "An investigation of mobile learning readiness in higher education based on the theory of planned behaviour". *Computers & Education*, no.59:1054-1064, available on-line at http://caite.fed.cuhk.edu.hk/projects/wp2016/wp-content/uploads/2016/06/An investigation-of-mobile-learning-readiness-in-higher-education-based-on-the-theory-of-planned-behavior-2012.pdf.

Columbus L, (2013) "IDC: 87% of Connected Devices Sales by 2017 Will Be Tablets and Smartphones", available on-line at http://www.forbes.com/sites/louiscolumbus/2013/idc-87-of-connected-devices-by-2017-will-be-tablets-and-smartphones

Cousins, K. & Robey, D. (2015) "Managing work-life boundaries with mobile technologies. An interpretative study of mobile work practice". *Information Technology and People*, vol. 28, no. 1: 34-71

Derakhshan, N. (2009) "Student and faculty perceptions of the features of mobile learning management systems in the context of higher education" (Doctoral dissertation), available on-line at http:shareok.org/bitstream/handle/11244/9739/ Derakhshan_okstate

Faye, C. (2013) "Big data: its power and perils". ACCA, November 2013, available on-line at www.acca.org

INSIGHT (2015) "Wolters Kluwer 2015 Social media survey – How Accountants are using social media for marketing and promotion", available on-line at www.cc.co.uk

INTUIT (2011) "Intuit 2020 Report Future of the Accounting Profession. A New Mind set and Model for Thriving in a Connected World", available on-line at http://http-download.intuit.com/http.intuit/CMO/intuit/futureofsmallbusiness/intuit_corp_vision2020_0111v5.pdf.

Little, B. (2013) "Issues in mobile learning technology". *Human Resource Management International Digest*, vol.21, no. 3: 26-29.

Kutluk, F. A. & Gülmez M. (2014) "A research about mobile learning perspectives of university students who have accounting lessons", *Elsevier*, *Procedia - Social and Behavioral Sciences,* no. 116:291-297, available on-line at https://parsproje.com/tarjome/hesabdari/h77.pdf

McCabe, G. (2010) "Graduate attributes and employability helping universities and students for the changing landscape". Interchange Spring, available on-line at www. Tla.ed.ac.UK/interchange

Nga, J. & Mun, S.W. (2013) "The perception of the undergraduate students towards accountants and the role of accountants in driving organizational change. A case of study of a Malaysian business school", *Education + Training*, vol.55, no. 6: 500-519.

Peters, K. (2007). "m-Learning: Positioning educators for a mobile, connected future", *International Review of Research in Open and Distance Learning*, Volume 8, Number

2, ISSN: 1492-3831, available on-line at http://www.irrodl.org/index.php/irrodl/article/view/350/894.

Wolters Klucer CCH (2013) “CPA Firms succeeding in the new economy”, available on-line at CCHGroup.com/Leaders

Avoid cloud captivity – facing the challenge

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Abstract: *In the IT services-oriented, or even IT services-dependent contemporary economic environment, the decision for IT services and processes outsourcing is based mainly on reasons of economic nature, and in many cases, the potential and consequences of the outsourcing process at the strategic and the innovation level are being overlooked. Given the general trend observed both in the field literature and in a series of business surveys performed during the last five years, the migration of internal IT services to a cloud-based service provider (CSP) must be carefully planned and executed. Especially, if modifications in the economic environment may require a change of the cloud services provider, or a re-internalization of the services, customer captivity (also called vendor lock-in) should always be avoided.*
Based on the results of a series of surveys conducted during the recent years by prestigious business institutions in the field, and also on the review of the relevant academic literature, the paper aims to identify and analyze the main factors to be taken into account before the deciding upon a migration to the cloud, and also during the migration. The paper also describes a case study for a SME and proposes a series of measures that allow companies benefiting from cloud services an increased flexibility if the basic conditions of the services delivery change. The analysis also attempts to cover some of the legal matters, based on the European Union regulations, and is centered on the case of small and medium businesses.

Keywords: *Cloud computing, cloud security, customer captivity, SMEs*

1. Introduction

Companies today are increasingly dependent on the IT processes and services received over the Internet and, by consequence, in many cases, the strategic and innovation potential of the IT department is overlooked, the company management focusing almost exclusively on the economic outlook and the obvious economic benefits (such as cost savings) when conducting strategic positioning of the company. As a result, when a migration of the company's IT services to a cloud services provider is decided, the decision and the actual migration process should be discussed, planned and carried out carefully, in order to avoid possible problems and pitfalls that may endanger the activity or even the existence of that company.

In such circumstances, it is crucial that the dependence level of the company to the cloud service provider should not be as high as any attempt to withdraw from the provider's services, may it be in order to use the services of another provider, or to return to an in-house solution should compromise the business activity or even the existence of the company. Thus, it is the company management's duty to ensure that

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the company has a flexible IT service environment, where services can be easily developed, extended, or migrated from one provider to another. In this context, it is of main importance to avoid the captivity effect, which can often be hidden in the details, terms and conditions of the service-level agreement contracts (SLA) that the company agrees upon with the cloud providers.

The paper aims to identify and analyze the factors that should be considered before deciding a migration to a cloud service provider, as well as during the migration process, those measures allowing for flexibility and giving the company an opportunity to alter the conditions for receiving and benefiting from cloud services. Moreover, the paper aims to provide an insight into the legal requirements that arise from the process of IT outsourcing to the cloud, as legal agreements can create many obstacles and issues when using a cloud services provider which was chosen almost exclusively based on economic reasons. Such obstacles are not always visible from a quick review of the legal documents, or to an unauthorized person. In this paper, a full recourse was attempted to reference only the legal system of the European Union, which, according to the author, provides a UE company the maximum level of safety, ensuring the largest number of rights and protection when dealing with a cloud service provider. The paper also aims to provide an overview of the demands and challenges that arise in the cloud migration process, focusing on the case of small and medium companies, whereas for the large companies, an enunciation of some generally applicable solutions is far more difficult, as major differences arise from case to case, requiring a very detailed individual examination of each company and its environment.

2. Research methodology

The paper addressed the issue of a small or medium size organization which takes into account a migration of its IT business services support in relation to the final decision for the adoption or the rejection of a *cloud*-based solution, in the context of a less and less forgiving economic environment. Its main objective is to provide insight regarding the real technical and legal tools that the company management can use in order to avoid being held captive by a cloud services provider, which may irreversibly affect the company ability to perform competitive business processes.

The information is provided in the form of a case study. The analyzed scenario refers to a small size medical cabinet which is considering the option to invest in a cloud-based IT infrastructure, mainly in order to cut costs. The purpose of the case study is to reveal the actual manner the company management should approach the migration towards the cloud and form an opinion, when the organization will have to choose among a self-managed in-house solution, a third-party managed in-house solution, and a *cloud*-based one. The analysis is based on the author's real life experience as a consultant for such a company, even if all references in the paper are anonymous.

The value added by the current analysis consists in approaching the cloud migration process for a SME in a manner which goes beyond the obvious economic and IT implications of the opportunity, referring to a set of legal, managerial, security and risk-related issues. The advantages and disadvantages of the main directions a SME can approach a cloud migration from are discussed, a real life case study also being provided.

3. A brief review of the relevant literature

The field literature defines the cloud services customer or beneficiary as someone who develops business relations and benefit from the services of one or more providers of cloud-based technologies (Aazam ***et al.***, 2016). Such a consumer selects the providers and their services in accordance with the own business needs, then signs a set of service-level agreement (*SLA*) contracts with the suppliers, in order to receive the selected services. The SLA contract is the main legal way the customer establishes and communicates the nature and size of the services it is seeking to benefit, stating the customer's claims against his supplier. In addition, the SLA contract describes calculation algorithms which shall determine the amount that the customer has to pay to the supplier. Although the range of services available in the cloud is extremely varied and in constant development, the main categories defined, based on the level of abstraction of the services offered, are:

- **Software as a Service (SaaS) –** refers to the service solutions that allow customers to use for supporting their business processes a set of applications made available by the supplier;
- **Platform as a Service (PaaS) –** includes services that allow customers to develop, test, deploy and manage their own applications in a cloud-based environment;
- **Infrastructure as a service (IaaS) –** describes services that enable customers to create, install, manage and monitor their own infrastructure in a cloud environment.

A cloud-based service provider (or *CSP*) is the entity responsible for the availability of a service or a package of cloud services to customers (Talbi and Haqiq, 2017). It is the service provider's duty to obtain and manage the hardware, software and network architecture required in order to make the cloud-based services available to the customers. The basic role of the supplier may be to install, manage, maintain and provide technical support for a range of applications for SaaS cloud; to provide development tools, and applications deployment and management for PaaS; or manage the computing power, storage, network bandwidth and application hosting environment for IaaS (Peltzl ***et al.***, 2014).

The analysis of a significant number of scientific articles published during the last four years, most of them based on the results of ample surveys made in the business environment, reveals that although the option for the cloud reached among the recognized solutions that organizations take into account when they redesign IT services and applications, the proper evaluation of the company business requests, together with the manner they can be properly responded to, is still mandatory before opting for an IT infrastructure migration to the cloud. The literature identifies a number of factors and aspects related to proper planning of the migration process.

Out of these aspects, a key role belongs to the existence and effectiveness of the security policies applicable to the new manner of managing the IT infrastructure. A security policy describes the security objectives and strategies implemented within the organization (Basu *et al.*, 2016). The basic aims of security policy are to protect people and information, to establish rules of behavior for each user, and to define and authorize consequences of rules violation (Kumari and Kamal, 2016). Currently there are several standards that can be followed to ensure information security and establish a consistent security policy. ISO/IEC 27001 (ISO/IEC 27001, 2013), ISO/IEC 27002 (ISO/IEC 27002, 2013), ISO 13335 (ISO/IEC13335-1, 2004), ISO 17799 (ISO/IEC 17799, 2005) are the most widely used standards for the definition of the requirements of an information security management system (*ISMS*). Another commonly referred standard is the BSI 100-1 standard (BSI-Standard100-1, 2008), which was widely used within the organization presented as a case study in this paper. According to some authors (Aazam *et al.*, 2016, Talbi and Haqiq, 2017), security policies must include provisions on the following essential elements of an organization's IT security:

- The main information security objectives of the organization;
- The relationship between the information security objectives and business objectives of the organization;
- The desired level of information security;
- Strategic level specifications about the manner the organization would be able to achieve the information security objectives;
- Strategic level specifications about how the achievement of the information security objectives can be verified;
- The fact that the stated security policy was approved by the organization's management, and also that it was disseminated across all the organizational levels

The two BSI-Standards, 100-1 and 100-2 (BSI-Standard100-2, 2008), together with a series of scientific research papers based on them (Basu *et al.*, 2016, Kumari and Kamal, 2016) describe the design and implementation details of an information security policy. Some authors consider it as essential that the greatest possible number of departments of the organization to be involved in its implementation. Even more, (Massonet *et al.*, 2016) believes that the security policy should be described so that all the departments and organizational components can be represented in its contents.

In a direct relation with the security policies is data privacy protection. (Zhang *et al.*, 2017) defines privacy as an individual's ability to control the manner information about his person are collected, used and disclosed. Cloud-based service providers have an obligation to protect customer data from both internal and external threats. Each system and service rendered available to the customers must include assurance that the customers will not be able to access and process data for which they do not have clearance or access authorization. In most cases, providers store data on virtual disks within the own infrastructure, and, as a consequence, Li *et al.* (2017) recommends the encryption of all data with an asymmetrical key system, so as customers can obtain reasonable assurance that their data have not been modified or accessed without the proper authorization since creation. The Cloud Security Alliance has developed a model for information life cycle management, whose main steps are shown in Figure 1 (Cloud Security Alliance, 2010). The phases are presented in linear sequence inside the model, but once the data have been created, they can skip one or more stages, or they may not reach a certain stage at all (Wu *et al.*, 2017).

Figure 1. **The Cloud Security Alliance Data Lifecycle Model**

(*Source:* The Cloud Security Alliance, 2010)

The management of the sensitive data is a real problem for many organizations, the issue being particularly demanding in the case of small organizations that lack the infrastructure and the resources needed to implement a comprehensive security system. Some authors (Modi and Acha, 2017) mentioned the existence of cases where the sensitive data of an organization's customers were moved to the cloud, without those customers being consulted, or even without the customers knowing about the process. It is believed that even if sensitive data is properly placed in the cloud, the organization should keep a copy of the data inside their local infrastructure, as in the case of data loss, the organization management will be held responsible in the first place, and only then the cloud service provider that caused or allowed for the data loss (Kandira *et al.*, 2013). Protection of sensitive data must be carried out at all stages of a migration to the cloud, not only at the source and at the destination. It is particularly important to protect data in transit (Hashi *et al.*, 2016). During the migration process, data can be transferred from a legacy infrastructure to a cloud service provider, can be transferred between two cloud service providers (for backup or redundancy reasons), or it can be transferred between different applications and services inside the same cloud infrastructure. In these conditions, it is essential to protect data, not only in the cloud, but also during the upload and the download process (Zhang *et al.*, 2015). To sum up, data from the cloud should be accessed only by the authorized personnel, and the cloud service provider must have safeguards in place against access from unauthorized entities or in unauthorized ways, while maintaining full data availability for the authorized customers and their representatives.

Migrating the business processes to the cloud usually allows an organization important costs savings in the short term, mainly costs associated with expensive IT staff which, in many cases, cannot be utilized at full capacity. However, the organization should not oversee the fact that well-trained IT staff is also required for the design and the execution of the outsourced, cloud-based business processes. Companies must emphasize the idea that the migration of their own services and infrastructure to the cloud will allow the highly specialized IT staff to engage in providing strategic and tactical support for the existing business processes. For many organizations today, IT is a strategic component, and the repetitive maintenance and user support tasks prevent the highly qualified employees in the IT department to engage in strategic development and improve the manner their company does business (Mbuba and Wang, 2014).

A major issue that recurrently appears in the field literature is that, almost without exception, the customers of a cloud service provider have extremely limited access to information about the security policies thereof, about the incident alerts system, the processed information auditing, and the implemented security measures. Most cloud service providers consider that disclosure of such information to their customers is a security vulnerability in itself, paving the way for attacks on the managed cloud infrastructure. In such circumstances, it is crucial for each customer to fully exploit the available security information, to monitor application workload, to track and analyze each reported security incident, each and every gap in the system, so as to ensure own data confidentiality. The customer organization must try to continuously get an accurate picture of the state of the employed cloud applications and services (Ibrahim *et al.*, 2016). The cloud services providers may offer their customers some clear and effective information on these issues, but the customers should not limit their knowledge to the information received from the supplier. The customers should design and implement their own monitoring operations carried out in the cloud, and also to keep logs of their operations and backup copies of their data, so as it can be replicated in the case of a major incident.

Ibrahim *et al.* (2016) warns about the extremely limited control that customers have in relation to the security policies of the cloud service provider, and believe that every customer organization should include in their own security policy a set of control mechanisms able to assess and measure the effectiveness of the cloud supplier's security policies.

In most cases, the decision towards a migration to the cloud is based on the analysis of the pricing models offered by the potential providers of such services. The final decision for the migration should be taken only if the cloud migration process proves to be efficient in terms of cost (Lai *et al.*, 2012). In this context, it is of main importance that the organization is properly informed about the accepted payment methods (credit card, bank transfer, etc.), the time of payment (before or after the service is provided), and the granularity of the price calculation scheme for space storage, computing power, or data transfer over the network. The pricing algorithm should clearly specify the calculation base (such as the volume of transactions, unit time, or the number of users) and pricing model (the customer organization pays only for the services it consumes, or it pays a fixed monthly fee, or the fee is periodically adjusted to the market prices).

As the cloud environment is quite volatile, the potential customer should always bear in mind the possibility of transferring data or services from one cloud provider to another, as well as the possibility to return to an in-house solution, based on a traditional infrastructure. In this regard, it is of main importance the ability of the employed applications and services components to be freely moved and reused, regardless of vendor, platform, operating system, infrastructure, storage medium or data format (Wang *et al.*, 2016). The lack of such interoperability and portability capabilities can quickly lead to a situation of captivity for the customer, which becomes dependent on a sole supplier. From a legal perspective, the SLA contract should allow flexibility and the customer's right to renegotiate the terms of the agreement at some specified time intervals. The danger that a customer becomes dependent of the services of a single vendor may be also due to the lack of standards in the area (Elhozmari and Ettalbi, 2016). Changing the cloud service provider involves extracting data from the old provider’s cloud environment, and injecting them into the environment of the new provider. The service level agreements and other contracts a customer concludes with its cloud services suppliers must ensure that any own application that performs CRUD operations (create, retrieve, update, delete) over the customer data in the original provider’s cloud environment, will also be able to access that data in the environment of a possible new cloud service provider (Raouf *et al.*, 2016).

Aspects of the relationship between the cloud-based services and organizational performance are discussed with great interest in the specific literature. In the scope of the performance concept, a number of additional elements are included, such as reliability, energy efficiency, and scalability. The amount of time required to retrieve information from the cloud in the case of an incident, will massively affect cloud the service performance. The cloud supplier and the customer must agree on the bandwidth allocated to the organization before signing the service-level agreement. Overall system performance may be significantly reduced if the Internet or network bandwidth is insufficient for the needs of the customer (Shen & Li, 2016). A recent survey reveals that most organizations find out about bandwidth issues immediately after they sign the SLA contracts with the cloud service suppliers. Therefore, it is advisable that each customer organization objectively assesses the bandwidth which allows for an optimal use of the requested services, and only after this step engages in negotiating contracts with the suppliers (Alameddine *et al.*, 2016). Additionally, customers should discuss the geographical placement of the data center where their data will be stored and to express a preference or a request for the one that is closest or has the best and the most stable connection. Users that are very remote from their providers often face high latency and delay issues.

4. The case study

The paper provides as an example, the case of a small company, a medical office which intended to move all of its IT services and applications to a cloud-based services provider. Throughout the paper, the various stages of the process will be referred as a case study.

During the separation from a large medical clinic, which originally was a part of, and after having all staff reduced to only ten employees, the management of the medical office asked themselves a set of questions about the proper organization of the services in the field of IT, so as maximum efficiency should be achieved, in the context of an economically sustainable solution. The milestones of this process have been an analysis of the own business processes, together with a consistent work in the field of risk assessment.

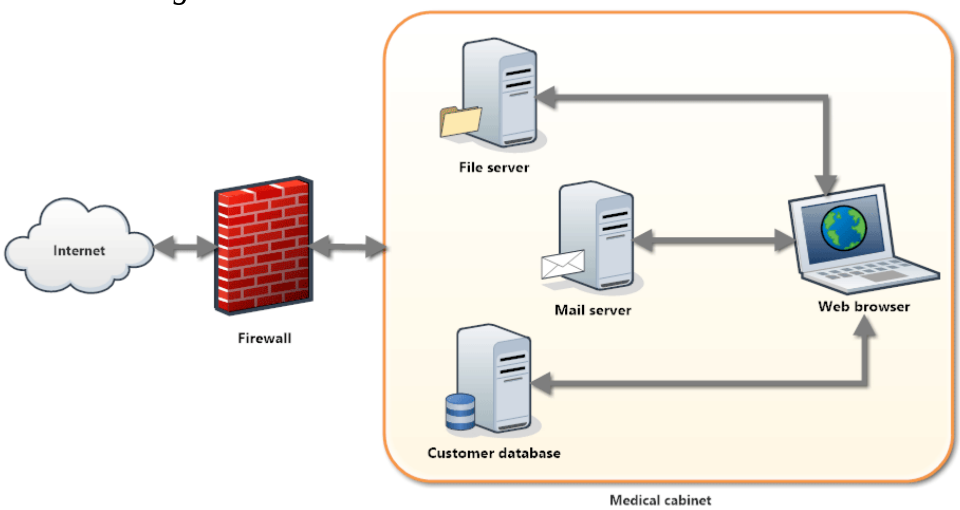
The first and the most important drawback identified was the almost total lack of IT skills of the doctors, together with a randomly shared use of the existing IT resources, which did not provide even the minimal level of privacy required by work in the medical field. From this point of view, the case study is relevant for the manner information is usually processed and distributed in SMEs: most of the IT skills are developed individually and privately by each employee, but they must be used in an environment where information integrity, availability and confidentiality are crucial. This is especially true in the medical field, where the business processes operate with private data belonging to people outside the organization, and towards which the organization has an obligation to ensure and enforce the confidentiality of information.

The main IT applications and services that the medical office uses are as follows:

- The management and the preservation in a coherent and consistent form of the database containing patients-related information;
- Communication services (email, instant messaging, social networking);
- Centralized telephone communication services;
- Telephone services;
- Office applications (word processing, spreadsheets, etc.);
- Internet access;
- Access to external databases containing medical cases and relevant regulations;
- Access to specific medical applications;
- File storage (including confidential or personal data).

The IT environment of the medical office is schematically represented in Figure 2:

Figure 2. **The Medical Office Cloud Environment**



(*Source:* Author's projection, 2017)

Before starting the migration process, an objective assessment of the real information processing needs was performed. The evaluation took as a starting point the business processes that a doctor performs, and determined the required IT support elements for each of the core and auxiliary processes. The next step was the mapping of each business process to the IT applications required for its execution, resulting in the identification of the essential IT applications for each business process, and also of the IT services needed to properly execute each application. Following the clear and unambiguous identification of the necessary applications and services for the proper functioning of the organization, three possible scenarios were taken into account for the management of the required IT resources:

- A complete transfer of all IT services and applications to a cloud-based service provider – which would completely relieve the organization from the task of managing the IT components, as none of the required IT services will be locally installed or managed, the available computers having only the role of access terminals employed to reach applications, services and datasets managed by the cloud-based services supplier.

- Keep the essential IT applications and services within the local infrastructure, and transferring the others to the cloud service provider – this approach would require the medical office an ability to fully manage the local infrastructure, together with some significant processing power.
- Keep all the existing applications and services within the local infrastructure and appeal to a local provider of IT services for the management of the required infrastructure – this version also requires local infrastructure management ability.

Separate from the technical evaluation of the IT requirements, a risk assessment process was carried out, based on the framework provided by the ISO 27001 standard (ISO/IEC 27001, 2013) and the BSI Base Protection methodology (BSI-Standard100-2, 2008). The assessment process was performed for each of the three available scenarios. Moreover, the medical office contacted a cloud service provider, requesting an offer for each of the first two scenarios.

In order to avoid becoming a captive client of the previously mentioned provider, the medical clinic has also developed two scenarios on how to terminate the relationship with the supplier, namely:

- A scenario for the return to the in-house management of all IT services and applications, based on the own staff and infrastructure;
- A scenario for the migration to another cloud services provider.

An emergency plan was added to the aforementioned scenarios, for the eventuality the cloud services provider refuses further cooperation.

The analysis of the designed scenarios and of the solutions for the cloud services provider switch opened a substantial debate about the requirements and terms that should be enforced by the future SLA contracts, and about the impact these contracts will have over the risk management process. Following the debate, a legal services firm was involved in the design of an SLA contract template including all the discussed elements: the clauses regarding the provided services, the terms of the legal actions in case of services unavailability, as well as associated costs, penalties and obligations of the two involved parties.

Before starting the migration process, a detailed test of the cloud environment provided by the supplier was performed, with real world use cases and data sets relevant for to the actual needs of the customer organization. Subsequently, the test results were subjected to a comprehensive assessment and review, with the involvement the organization’s legal representatives. The organization’s main business processes have been adapted and tested in the new environment, and where the need for new services or applications was observed, they were included in the original contractual terms.

The new cloud-based environment was configured and fully tested before the staff started to work in the new office. If the migration would have been conducted in real-time business conditions, it would have involved the design, test and implementation of an additional scenario for the migration process, including some roll-back procedures for each stage of the process.

After obtaining insurance regarding the proper running of the cloud-based version of the services and applications, a security policy was developed together with the legal assistants. Although the business process analysis raised no special issues, the risk analysis proved to be extremely complex. Since most of the data which the medical office operates with are particularly sensitive (information on the treated medical cases, customers' personal data, etc.), the implementation of a solid protection system was essential. Since a data leak could irreversibly compromise the medical office's reputation as well as public confidence, it has been resorted to a number of cryptography elements, in order to protect the data integrity and confidentiality.

In addition, it was decided that an annual audit of the cloud-based environment and the existing local solutions must be performed by an independent auditor or a certified expert, who will verify the functionality and security of IT-related tools and services and will propose measures to improve the quality and safety of services, identifying, where appropriate, ways to diminish IT spending.

The possibility of becoming a captive client of a cloud services provider is not only theoretical; instead, it can render disastrous consequences over the organization's reputation and business if SLA contracts did not provide explicit clauses to prevent such outcome. The medical office in this case study intends to adopt cloud-based services to outsource the data and workload to a cloud services provider. The supplier will provide the office with data storage and data processing services, as well as the platform and infrastructure for the development of applications, database management, etc. The provider will configure and optimize the applications in accordance to its own standards, protocols and policies. This configuration creates the risk of the client becoming trapped/captive or dependent on the current provider. The phenomenon occurs when the client cannot dispense of the provider's services, it cannot change the provider, because the change would require spending amounts of time and resources so big that it would jeopardize the organization's reputation or even its activity. The client may experience this issue if he wants to move the data and applications to another provider, or if he wants to withdraw from the cloud and to develop his own IT infrastructure. A recent article (Singh & Sidhu, 2017) identifies the concern to avoid such situations as being an effort just as important as the one to provide security for the applications and data confidentiality. In the case of the medical office, several potential reasons to drop the cloud services provider and return to a separate infrastructure were identified, such as:

- An unacceptable increase in the cost of used services and applications, at the contract re-negotiation time;
- The possibility to obtain equivalent services and applications at a lower price;
- If, for economic or legal reasons, the cloud-based service provider discontinues one or more of the offered services, without providing a reasonable plan to migrate data to another source;
- A legal dispute between the medical office and the cloud services supplier, serious enough to become incompatible with the trust relationship required for the continued use of the provided applications and services;

- A sudden and complete cessation of the cloud services provider's operations (insolvency, bankruptcy, new regulations etc.).

The lack of standards in cloud computing is another factor favoring customer captivity in relation to a particular vendor. The cloud-based ecosystem offered by each supplier is their intellectual property, and therefore, if a client develops applications based on a vendor's API, it will be extremely difficult transition to a new API offered for a different platform.

In these circumstances, the medical office management wonders "What can one do to avoid this?" Given that most of the data and support for their business processes is in the cloud, it would be good to obtain assurances that moving to another provider can be done, or that the option to quit the cloud and develop an in-house infrastructure still stands. As a result, during the planning stage of migration, the medical office must ensure that its core business processes and the underlying IT architecture will be to run on multiple platforms in the cloud, as well as that data can be transferred from one provider to another. For example, the Cloud Foundry platform, provided under an Apache 2.0 license is the most popular free solution for Platform as a Service, and provides a wide range of cloud-based infrastructure organization models, a set of conceptual frameworks for application development, together with already developed applications and services. Other PaaS offerings have massive limitations in terms of the supported programming languages and conceptual frameworks, which sets constraints for the customers, forcing them to develop their technology based on a single cloud model.

It can be seen that over the past five years, there have been a number of major research and development efforts at the IT industry level, in order to avoid the captivity of customers in relation to a certain provider. One of the most effective efforts in this direction is the development of open-source platforms. For example, TM Forum Cloud Services Initiative is an approach that aims to accelerate the adoption of cloud-based technologies by promoting among the service providers a common cloud terminology, the possibility of migration from one provider to another in conditions of complete transparency, a unified way of addressing the security issues, as well as the achievement of benchmarks capable of providing fair and accurate comparisons between the applications and services of competing suppliers.

According to the author, there will never be easy to determine the reliability of a cloud service provider, as the danger of becoming the captive client of a particular provider will never be completely avoided. However, the medical clinic was advised to take a series of measures able to decrease the likelihood of this situation:

- A careful analysis of the SLA contract draft received from the supplier. The analysis should include the definition of each offered service, the performance indicators proposed by the supplier, the management plan for sensitive data, the business continuity plan in case of a disaster, the termination clauses. The medical office should accept the SLA contract only as much as its terms are consistent with the office's own informational, organizational and business needs. The management team, or any other team responsible for the analysis of the SLA contract received from the supplier must be fully consulted on the terms of the contract, as well as the IT department and the legal representatives.

- Handing the supplier, a set of questions about the official way to act, the technical support and the applicable policies if the waiving of his services in favor of a competitor's services is desired.
- Selecting architecture and technology so that the business process support software can be run on multiple platforms and can be ported with reasonable effort from a cloud solution to another, or from a cloud solution to an in-house one.
- Request detailed information from the cloud-based service provider about the employed architecture, so that the customer will be able to assess the technical limitations of the proposed solution. If a significant part of the organization's activity will depend on a single supplier, it is highly recommended that the detailed application architecture diagrams are requested, even with contractual value.
- A firm request for the ability to keep within the organization a local updated copy of the dataset in the cloud, for the case the cloud version is compromised or not available.
- Questioning the provider on the use of certain standards that enable transparent migration between cloud service providers.
- A check of the cloud provider policies on supported programming languages – whether the provider ensures support for the widespread languages of the cloud (C ++, Java, Python), or a translation of the customer's applications and services will be required.

5. Discussion and conclusions

The migration of an organization's IT applications and systems to the cloud-based environment is a process with major consequences for the future evolution of that organization's reputation and business activity; therefore, it requires a complete and thorough planning of each step and detail of the process. Among the possible unintended consequences of such a migration, the possibility for the organization to become a captive client of a cloud service provider is extremely important and can yield ample negative effects if not proactively detected, before the signing of the contract with the cloud services provider and the initiation of the migration process. A cloud services customer's essential pressure points are the data security and confidentiality, as well as the acceptance of the fact that an important part of the risk management and control system will no longer be performed directly by the customer, being almost exclusively transferred to the cloud services provider. Furthermore, contrary to what it is usually advertised by marketing campaigns, the client organization will always need a core of highly qualified and well-trained IT staff, able to predict potential hazards regarding the organization's data, applications and services in the cloud, and to make timely suggestions regarding the remedies as early as possible, in order to avoid catastrophic effects. When deciding on a migration to the cloud based mainly on economic benefits, instead of technical or technological advantages, this aspect should be considered in all the efficiency calculations. Although the IT staff's status and responsibilities will undergo major changes in the case of re-orientation to the cloud, the IT component can never be completely removed from the company's organization chart.

Due to the continued threats of significant and increasing dependency on the cloud services provider after the migration to the cloud, the design and implementation of the measures able to eliminate or mitigate the negative effects of this phenomenon should be considered an element as important as any other in the migration process. A crucial part of the migration process is related to legal issues, which vary significantly depending on the supplier's and customer's geographical and cultural position. Although significant differences between the current legal systems make it impossible to provide general observations in this area, the author believes that in the overwhelming majority of cases it will be beneficial for the client organization if the cloud services provider and the data center that stores the client's data are subject to the same legal system. In such case, the premises are provided for the client organization to optimally acknowledge their rights, and to avoid that the legal services, such as advisory, consultancy and representation to have prohibitive prices.

It can be concluded that the main challenges regarding the cloud services can be found in the areas of security, network access, interoperability, and the ability to retain and continue to effectively use the IT know-how. This paper aimed to review the most important challenges in these areas and the manner they can be properly managed. Based on the conclusions of the current case study, the author aims to establish and test a five-steps model to plan and perform a successful migration to the cloud. The model is currently in the development phase, and will be the object of future research. Based on the requirements and legal situation of a cloud services client, the model will provide information on the main aspects to be taken under consideration when planning the transfer of IT services, data and data-processing applications to a cloud services provider.

References

Aazam, Mohammad, Huh, Eui-Nam, St-Hilaire, Marc, Lung, Chung-Horng & Lambadaris Ioannis (2016) "Cloud Customer's Historical Record Based Resource Pricing", *IEEE Transactions On Parallel and Distributed Systems*, vol. 27, no. 7:1929:1940

Alameddine, H.A., Ayoubi, S. & Assi, C. (2016) "Offering Resilient and Bandwidth Guaranteed Services in Multi-Tenant Cloud Networks: Harnessing the Sharing Opportunities", *2016 28th International Teletraffic Congress*, vol. 1, no. 1:1-9

Basu, S., Sengupta, A. & Mazumdar, C. (2016) "Modelling operations and security of cloud systems using Z-notation and Chinese Wall security policy", *Enterprise Information Systems*, vol. 10, no. 9:1024-1046

BSI-Standard100-1 (2008) "Information Security Management Systems (ISMS)", available on-line at *https://www.bsi.bund.de/SharedDocs/Downloads/EN/BSI/Publications/BSIStandards/standard_100-1_e_pdf.pdf? __blob=publicationFile&v=1*

BSI-Standard100-2 (2008) "IT-Grundschutz Methodology", available on-line at *https://www.bsi.bund.de/SharedDocs/Downloads/EN/BSI/Publications/BSIStandards/standard_100-2_e_pdf.pdf?__blob=publicationFile&v=1*

Cloud Security Alliance, The (2010), "Information Management and Data Security", available on-line at *https://cloudsecurityalliance.org/wp-content/uploads/2011/09/Domain-5.docx*

Elhozmari, M. & Ettalbi, A. (2016) "Towards a Cloud Service Standardization to ensure interoperability in heterogeneous Cloud based environment", *International Journal Of Computer Science And Network Security*, vol. 16, no. 7:60-70

Hashi, Y., Uchibayashi, T., Hidano, S., Kiyomoto, S., Rahim, A., Suganuma, T. & Hiji, M. (2016) "Data Protection for Cross-Border Live Migration in Multi-Cloud Environment", *Fourth International Symposium On Computing and Networking*, vol. 1, no. 1:681-685

Ibrahim, AAZA, Kliazovich, D. & Bouvry, P. (2016) "Service Level Agreement Assurance between Cloud Services Providers and Cloud Customers", *16th IEEE/ACM International Symposium On Cluster, Cloud and Grid Computing*, vol. 1, no. 1:588-591

ISO/IEC 27001 (2013) “Information technology -- Security techniques -- Information security management systems – Requirements”, available on-line at ***https://www.iso.org/ standard/54534.html***

ISO/IEC 27002 (2013) “Information technology -- Security techniques -- Code of practice for information security controls”, available on-line at ***https://www.iso.org/standard /54533.html***

ISO/IEC 13335-1 (2004) “Information technology -- Security techniques -- Management of information and communications technology security -- Part 1: Concepts and models for information and communications technology security management”, available on-line at ***https://www.iso.org/standard/39066.html***

ISO/IEC 17799 (2005) “Information technology -- Security techniques -- Code of practice for information security management”, available on-line at ***https://www.iso.org/standard/ 39612.html***

Kandira, M., Mtsweni, J. & Padayachee, K. (2013) “Cloud Security and Compliance Concerns: Demystifying Stakeholders' Roles and Responsibilities”, *8th International Conference for Internet Technology and Secured Transactions*, vol. 1, no. 1:653-658

Kumari, P.S. & Kamal, A.R.N.B., (2016) “Key Derivation Policy for Data Security and Data Integrity in Cloud Computing”, *Automatic Control and Computer Sciences*, vol. 50, no.3:165-178

Lai, W.K., Yang, K.T., Lin, Y.C. & Shieh, C.S. (2012) "Dual Migration for Improved Efficiency in Cloud Service", *Intelligent Information and Database Systems*, vol. 7198, no. 1:216-225

Li, J.G., Shi, Y.R. & Zhang, Y.C. (2017) “Searchable Cipher Text Policy Attribute-Based Encryption with Revocation in Cloud Storage”, *International Journal of Communication Systems*, vol. 30, no. 1:1-20

Massonet, P., Dupont, S., Michot, A., Levin, A. & Villari, M. (2016) “Enforcement of Global Security Policies in Federated Cloud Networks with Virtual Network Functions”, *15th IEEE International Symposium On Network Computing and Applications*, vol. 1, no. 1:81-84

Mbuba, F.H. & Wang, W.Y.C. (2014) “Software as a Service Adoption: Impact on IT Workers and Functions of IT Department”, *Journal of Internet Technology*, vol. 15, no. 1:103-113

Modi, C.N. & Acha, K. (2017) “Virtualization Layer Security Challenges and Intrusion Detection/Prevention Systems in Cloud Computing: A Comprehensive Review”, *Journal of Supercomputing*, vol. 73, no. 3:1192-1234

Pelzl, N., Helferich, A. & Herzwurm, G. (2014) *Business Models in Cloud Computing*, Wiesbaden: Springer Fachmedien

Raouf, A.E.A., Badr, N.L. & Tolba, M.F. (2016) "An Enhanced CRUD for Vertical Fragmentation Allocation and Replication Over the Cloud Environment", *International Conference On Informatics and Systems*, vol. 1, no. 1, 146-152

Shen, H.Y. & Li, Z.Z. (2016) "New Bandwidth Sharing and Pricing Policies to Achieve a Win-Win Situation for Cloud Provider and Tenants", *IEEE Transactions On Parallel and Distributed Systems*, vol. 27, no. 9:2682-2697

Singh, S. &Sidhu, J. (2017) "Compliance-based Multi-Dimensional Trust Evaluation System for Determining Trustworthiness of Cloud Service Providers", *Future Generation Computer Systems – The International Journal of E-Science*, vol. 67, no. 1:109-132

Talbi, J. & Haqiq, A. (2017) “A MAS-Based Cloud Service Brokering System to Respond Security Needs of Cloud Customers”, *International Journal of Interactive Multimedia and Artificial Intelligence*, vol. 4, no. SI:65-69

Wu, X.L., Fu, Z.J. & Sun, X.M., (2017) “Text-Based Searchable Encryption in Cloud: A Survey”, *Journal of Internet Technology*, vol. 18, no. 1:207-213

Wang, C., Zhou, J.H., Li, X., Wang, A.L. & Zhou, X.H. (2016) "Fair Play: Services Migration with Lock-free Mechanisms for Load Balancing in Cloud Architectures", *2016 IEEE International Conference on Web Services*, vol. 1, no. 1:163-170

Zhang, Y.H., Chen, X.F., Li, J., Wong, D.S., Li, H. & You, I. (2017) "Ensuring Attribute Privacy Protection and Fast Decryption for Outsourced Data Security in Mobile Cloud Computing", *Information Sciences*, vol. 379, no. 1:42-61

Zhang, B.W., Hwang, J.H., Ma, L.R. & Wood, T. (2015) "Towards Security-Aware Virtual Server Migration Optimization to the Cloud", *2015 IEEE International Conference On Autonomic Computing*, vol. 1, no.1:71-80

Emerging information technologies in accounting and related security risks

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Abstract: *This study investigates whether aspiring and professional accountants understand the benefits and security challenges brought by emerging technologies such as Big Data, data analytics, cloud computing and mobile technologies. 115 participants took part in a survey during January and February 2017, all having at least one year of practical experience in accounting or audit and 80% of them being affiliated with national or international accounting professional bodies. The research has three key findings: (1) Professional accountants and auditors are having in average a theoretical knowledge of the emerging technologies in the accounting field, but they still need to enhance their skills to exploit them efficiently. (2) Mobile technologies started to be adopted by the Romanian practitioners. (3) The profession has become aware of the security risks brought by emerging technologies in the digital accounting. The accounting profession is on the verge of change and the practitioners do not yet possess sufficient skills in regard of the analysed emerging technologies. As per this, the professional bodies and academic environment should reassess their curricula to enforce the necessarily changes for preparing the practitioners to successfully facing the future challenges and avoid their replacement by other professions better prepared.*

Keywords: *Cloud computing, mobile technologies, Big Data, data analytics, security threats.*

1. Introduction

Nowadays the business environment has become extremely dynamic due to the rapid changes in the information technology field, driven by competition and performance. New technologies are designed to cover the broad range of economic demands, such as Big Data, data analytics, mobile technologies and cloud computing platforms, all of these meant to offer flexibility, economies of scale, mobility and more accuracy.

The accounting field is subject to this new era of change; the IoE (Internet of Everything) era is reshaping the accounting profession in accordance with the current needs of the organizations. Artificial intelligence and process automation are taking over the redundant and repetitive tasks performed by the professionals, creating room for more complex activities, such as analysis and business advisory.

Researchers are emphasizing that some processes from the accounting field might be taken over by robotics (Frey and Osborne, 2013) and part of the accounting profession will disappear. Even so, along the time we have observed that technology is not meant

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to replace the professionals, but to create the necessarily means for practitioners to focus on activities that create more value for the organization (Richins ***et al.***, 2016).

The accountants need to develop new skills to work efficiently with emerging technologies such as cloud platforms, Big Data, data analytics and mobile technologies. As the academic environment represents the connection between the aspiring accountants and the profession, researchers emphasize that the universities should provide their students with a proper support in order to gain at least theoretical knowledge in the IT area (Stanciu and Bran, 2015).

According with the study conducted by ACCA and IMA (2015), new roles are emerging in the accounting profession that will focus not only on accounting and finance but also on information technologies. Moreover, accountants and auditors are expected to demonstrate sufficient skills for protecting sensitive information, by implementing and assessing controls involving systems and applications (Chorafas, 2008; PCAOB, 2010).

Besides the support given by professional bodies such as ACCA, ICAEW and IMA, Big 4 companies have realized the potential brought by the technological evolution as well as the associated risks. As per this, they started providing guidelines and even creating tools, like Secure Terrain and Terrain Intelligence, based on centralized platforms along with Big Data and data analytics, which help companies to assess and monitor their cyber-security risks (PwC, 2016).

The current economic context is driven by speed and increased volumes of data and in this regard, the real-time management and reporting are vital for companies in the decision-making process. Even so, Vasarhelyi ***et al.*** (2008) state that the profession is still progressing in the traditional way, instead of keeping pace with the businesses.

In order to understand the advantages and challenges for the accounting profession in regard to these emerging technologies and trends, the paper discusses the main characteristics of cloud computing, big data and analytics along with mobile technologies, with the purpose of better understanding the potential impact that these technologies might have in the accounting field, especially in regard to data security. The second part of the paper is focusing on the perception of aspiring and professional accountants and financial auditors concerning the benefits brought by the technological progress and on the related challenges, assessing if they are completely aware of the potential changes in the accounting profession.

2. Literature review. Information technologies and new challenges for the accounting profession

The digital evolution in the accounting field is not a new subject because the real digitalization process has started in the 90’s along with the development of accounting information systems, being then followed by the ERP systems, cloud computing platforms and Big Data. Now, from a technological point of view, the new aspect in the accounting field is represented by the usage of mobile technologies, followed by the need of analysing big volumes of data, using data mining and analysing techniques.

However, international professional bodies such as ACCA (2013a) and ICAEW (2015) consider cloud computing platforms as a technology that might yet influence and change the profession, along with Big Data, process automation, mobile and online technologies. Despite the fact that cloud computing platforms, Big Data and data analytics are not theoretically new concepts from a technological perspective, from the practical point of view these are still considered to be emergent, and currently their usage is mandatory as the volume of data is still increasing. As an example, in 2013, a study made by IBM has shown that 90% of all the available information has been created only in the last two years.

Until recently, cloud computing platforms and data analysis using data mining techniques have been used only by certain types of companies in particular industries. However, now we can notice the need of using these technologies in the accounting field and in this current digital context, migration is not anymore an option, but rather a necessity.

Cloud computing platforms have started to develop in the late 90's and the main idea of this new concept was "unlimited technological access to data", a concept mentioned for the first time in 1997 as the study by Giordanelli and Mastroianni (2010) states. Cloud computing platforms are mainly about storing the data outside the company, in a data storage center, without the need of installing additional pieces of equipment. Although the concept seems simple, this technology is still in the developing stage, due to the complexity of the applications and wide variety of platforms.

Cloud computing platforms bring a broad range of benefits, which have the potential of creating competitive advantages for companies. Some of the significant advantages in the accounting field are the economies of scale (Singh *et al*., 2004; Armbrust *et al*., 2009), continuous access to data (Ionescu *et al.*, 2013), an increased level of flexibility and mobility (Carroll *et al*., 2011). This technology represents the base for real-time reporting and analysis that has become undoubtedly crucial for this new era of speed.

Besides the variety of benefits given by the usage of cloud platforms, there is also a set of risks, including security, availability and data integrity, along with the long terms platforms viability (Shayan *et al*., 2014; Brandas *et al*., 2015). Even so, for some companies, the migration towards cloud platforms represented an increase in the data security (IBM, 2009), suggesting that information security depends on the architecture of the systems, even if we are talking about in-house systems or cloud platforms.

Another technology that will influence the accounting profession is Big Data, along with data analysis, which in most cases are used together with cloud platforms. As it has been presented before, the current speed of data creation is increasing with every second and in this regard, the analysis of information using the current techniques is not easily made and it doesn't adequately reflect the reality. Unlike modern ERP systems that contain mostly structured data with clear connections, Big Data offers the advantage of analysing unstructured or semi-structured data from the entire economic environment, which has the potential of changing our perception about certain economic trends.

To optimally analyse significant volumes of information, the Big Data technology shows an increased potential for the accounting profession. The main benefits are: quicker fraud identification, increased productivity, costs reduction, enhancing the degree of understanding the economic trends and increased accuracy (Russom, 2011; Stanciu, 2015). Nonetheless, it has the potential of becoming a key differentiator for companies (Mayer-Schönberger, 2013), enhancing financial forecasts and sensitive analyses Cokins (2013).

Other benefits associated with Big Data usage in the accounting and financial fields are related to the facilitation of the real-time reporting process (McKnight, 2015), providing in this way a more detailed support for the decision-making process and identifying the risks in real time. It also supports the vital role of the information for companies, which has become an important part of the value creation process, being even considered an asset (ACCA, 2013b).

As in the case of cloud platforms, Big Data and data mining techniques induce a set of challenges. These are focusing on the lack of competencies of the practitioners in this field of Big Data (ACCA, 2013a), the lack of proper technologies and optimal analysis techniques, data security and legal conformity (Ernst & Young, 2014).

The adoption of these technologies should not be considered anymore as optional, but rather as a necessity because the technological progress will never stop and the accounting profession should be prepared to face the all these challenges.

Another new and significant challenge to the accounting profession is represented by the mobile technologies, which succeed to enhance the quality of the services due to a higher degree of connectivity, crossing the geographical borders (ACCA, 2013b) and reducing the costs, when are used with cloud platforms (Brandas ***et al***., 2015).

Moreover, the usage of mobile technologies will improve the real-time reporting process (Trigo ***et al***., 2014) and the companies will have the opportunity to enhance their agility in response to the customers' demands. Their usage in the professional activity allows availability and analysis of the data in real-time, aspect that is essential for the persons responsible for the decision making process. Also, there is the possibility of creating applications for a more efficient analysis, data being instantly available (push notifications). In this regard, the researchers consider that this emerging technology increases the level of flexibility and productivity (Stieglitz and Brockmann, 2012) and improves the quality of collaboration between co-workers (Johns and Gratton, 2013). Nonetheless, mobile technologies can be used to input data or make payments, facilitating in this way the processes and the access to data. In many cases, these mobile technologies are associated with cloud platforms with the purpose of extending the availability of the information.

3. The impact of existing and emerging information technologies on data security in digital accounting

The technological progress brings obvious benefits for the companies and the development of the profession, helping to reduce the costs, increasing the productivity level and enhancing process automation. However, we must be aware that each of these new technologies has a common challenge, the security of sensitive data.

In this section of the paper, we will analyse data security from the perspective of these existing and emerging technologies that influence the accounting field, along with the exposure of the possible impact of security incidents.

The international accounting bodies emphasize the necessity to develop the appropriate skills for protecting the data and assuring confidentiality, integrity and availability of the information by using efficient controls. By adopting these technologies in the accounting field, the risk of sensitive data exposure increases and in this regard the practitioners need to understand the necessity of preventing security incidents, even more now as the largest amount of vulnerable data is produced by the accounting and financial departments.

The causes of security incidents are diverse, the primary source being the external attacks, followed then by the incorrect configuration of the systems, the lack of appropriate skills of the employees, excessive access rights, accidental exposure of sensitive data, weak or implicit passwords and the lack of effective preventive controls.

Aiming to analyse the way in which the information security is affected by the existing and emerging information technologies used in the accounting and audit field, firstly we should identify the main causes that affect the characteristics of data.

3.1. Cloud computing platforms and security threats

A cloud platform model can be defined based on the expectancies of the users, and in practice, these can be classified by two criteria: according to the delivery model of the service and by the implementation method (Buyya *et al*., 2010).

According to the delivery model, the base of any platform is represented by IaaS – Infrastructure as a Service, where the users have control over the entire cloud platform and in practice, the IaaS is used by system administrators and represents the base of the entire platforms. Due to this, any existing vulnerability in Iaas will influence the other models. The second type, PaaS (Platform as a Service) gives the users the right to manage the applications, but not the platform, being often used by the developers. The last model is represented by SaaS – Software as a Service being the most used type of model – everything that is available online is included in this category (Yahoo Mail, Gmail etc.). The SaaS users have restricted privileges that allow them only to use the applications without having the right to modify them – the accounting applications are available in this last model.

Another classification of cloud platforms is based on the method of implementations, which incorporates four models (Mell and Grance, 2009):

a. Public – is available for all internet users;
b. Private – is used by particular categories of users, presenting an increased level of data security compared with the public model;

c. Community – is quite similar to the private model in regard to information security and governance, offering at the same time the flexibility of the public model;
d. Hybrid – represents a combination of two models (private, public or community), being considered the most complex model.

In the case of cloud computing technologies, the security of data differs according to the way of usage. When the platforms are used strictly to store data, the risk associated with data exposure is equal to the risk generated by transmitting the information online, when the data is encrypted. However, taking into consideration the need to process and manage data, the usage of cloud platforms just for storing purposes does not bring significant benefits besides 24/7 access. On the other hand, in the case in which the platforms are used to manipulate data, the information has to be decrypted and this way an additional level of protection is needed to ensure data confidentiality and integrity.

Selecting a cloud provider is a decision that needs to be based on a detailed analysis of the safety offered, such as the type of data encryption, mainly on the type of algorithm used, the existence of a disaster recovery plan, the systems level of performance and the availability of information.

Analysing the taxonomy of cloud platforms presented above, we can notice that the financial and accounting applications are in the SaaS model, where the users cannot configure the application. Due to this, the users are not allowed to control the security measures implemented by the cloud provider, unless they will want to use all three models. In this case, the economies of scale benefits are not achievable anymore, this solution being equivalent to an in-house extended network that allows the access to internal and external users of the company.

When migrating to a cloud platform is mandatory to know and understand the basic principles of the developing model of the platform and accordingly to the implementation method, the optimal solution for the accounting field is represented by the private model due to security reasons.

The security incidents in the cloud are often caused by the lack of a good set of principles. The attack from 2014 against Apple proves how the shortage of a solid security framework regarding the safety of user's passwords and blocking access after a number of failed authentications can be anytime turned into a cyber-security attack. Although the company has been alerted previously that the users' data is not secured being susceptible to a brute force attack, the patching of the vulnerability has not been timely applied and as a result, private users' photos have been exposed, being a classic example of broken credentials. This incident demonstrated that security incidents could affect any company despite the size when proper detection and correction controls are not in place.

Migrating towards cloud computing platforms must comply not only with a good set of security practices and systems functionality, but also with the legal requirements. In 2016, at the European Union level there has been a change in the regulations regarding data protection as an effect of the technological progress and the member states must enforce these new laws until 2018. At this moment the law that is being applied is the EU Directive 95/46/EC Directive from 1995, which is not so restrictive with cloud providers as the new regulation.

3.2. Big data and security threats

The five characteristics that stand at the base of the Big Data concept are: volume, velocity, variety (Laney, 2001), variability and complexity (SAS, 2013) and each one of these characteristics generates risks regarding data security.

a. Volume – two main issues can be identified: often the cyber-attacks target big amounts of data, due to the diversity and possible benefits, while the second threat is generated by the storage in the cloud of a significant volume of data, a scenario that can create uncertainty regarding the security and confidentiality.
b. Velocity – the issue of time-sensitive data emerges, due to the higher level of associated risks.
c. Variety – is referring to the taxonomy of data stored, including here structured, semi-structured and unstructured data that can be linked to confidentiality issues due to the wide range of differences.
d. Variability – can influence the security especially when peaks of activity are recorded, the best solution being the migration to cloud to handle the increased volume of data, fact that can generate the issues regarding the security of the data in the cloud.
e. Complexity – it enhances the problem of security because the data is collected from multiple sources that might require different types of protection.

The leading solutions to prevent security incidents are access management, implementing preventive controls, monitoring data access and choosing an optimal infrastructure.

Moreover, in the case of using Big Data, data analytics and cloud technologies a solution to avoid data leakage or exposure is to use the appropriate encryption type. Currently, the best one is the 256-bits encryption as the previous encryption standard of 128-bits started to be faulty due to the exponential increase in capacity of the computers. Also, to prevent the creation of new vulnerabilities, the practitioners in the accounting and financial field should make sure that they are using and transmitting sensitive data through secured channels, without affecting the confidentiality of the information.

3.3. Mobile technologies and security threats

The mobile technologies also generate a higher risk of data exposure, due to improper access management, ineffective controls and the lack of security.

Concepts like BYOD (Bring Your Own Device) allowed employees to use their own mobile technologies in performing their activity and this has proven to be a way of increasing the productivity of employees and providing more flexibility at the same time (Deloitte, 2013; Bradley *et al.*, 2012).

However, this new concept increases the risk of data exposure and theft (Morrow, 2012), the real challenge being the physical security and access control to corporate sensitive data (Thielens, 2013), along with the lack of sufficient controls and policies that will prevent security incidents (Kearns, 2016).

By analysing the connectivity methods, the issue of Wi-Fi network security emerges, more precisely of the types of technologies used to transmit and encrypt data that due to the technological progress has become sensitive to cyber-attacks (Gold, 2011). Another important aspect of mobile technologies security is represented by the operating systems, which are frequently updated and even so there are recommendations to upgrade the devices to the newest software version (FBI, 2012), however there is the possibility of increasing the exposure risk due to zero-day vulnerabilities.

As an overall idea regarding mobile technologies, the practitioners that use mobile devices for business purposes must guard the security of the information by using passwords with an increased level of complexity and understanding the primary methods of broken credentials (e.g. phishing) along with applying methods to prevent security incidents.

As it can be noticed, the emerging technologies analysed present a series of risks regarding sensitive data exposure, the leading causes being incorrect configurations and security measures only partially implemented.

Taking into consideration the fact that the practitioners in the accounting field are responsible for the protection of the sensitive data used, it is mandatory for them to develop skills to safeguard the information. Competencies such as efficient use of access rights, ensuring data confidentiality and integrity when transmitted outside the company, developing suitable controls to monitor and prevent possible leakages and respecting the security framework of the organizations are meant to prevent security incidents.

We must be aware that the companies are responsible for protecting against data leakages and this can be done by ensuring that the employees are aware of the risks associated with sensitive data exposure and can protect the information. Moreover, a continuous management of the security systems must be in place as the cyber-attacks are growing at the same rate as the newest information technologies.

4. Research methodology

Worldwide the accounting profession is subject to change due to the evolution of computer science field. In this regard, this study focuses on analysing on one side the main information technologies that have the potential to change the profession by facilitating processes and requiring new skills from the accountants. On the other side, it assesses the perception of practitioners towards these technologies, by analysing their level of awareness and knowledge in regard to cloud computing platforms, Big Data, data analytics, mobile technologies as well as related security challenges.

This empirical research aims to reveal whether aspiring and professional accountants have a sufficient level of understanding emerging technologies along with the related benefits and challenges in the accounting field. For this purpose, we have designed a survey addressed to practitioners working in audit and accounting departments, conducted during January and February 2017, receiving 115 valid answers.

The questionnaire included 18 items focusing on their education, professional activity and perception towards emerging technologies and related information security risks. All participants have an experience of at least one year in the accounting or audit field. The majority is having between one and three years of experience (41.4%), followed by practitioners with more than 10 years of experience (27.6%) and between four and six years of activity (20.7%), the rest of the participants (10.3%) working between seven and 10 years in the field.

Regarding the area of business, 105 respondents, representing 90.5% of the total sample, are working in financial accounting departments, while 13 persons (11.2%) are operating in financial audit and the rest of participants (3.3%) are employed in internal audit departments.

By analysing their level of education, 64.7% of the respondents finalized their academic training after the master study programs, 28.4% graduated only from bachelor study programs and 4.3% have a PhD., while the rest of 2.6% has postgraduate studies.

Regarding the affiliation of the interviewees with professional bodies, the results showed that the majority (62 persons) is represented by aspiring professionals. 33 of them are enrolled in ACCA courses and 29 are attending CECCAR (Body of Expert and Licensed Accountants of Romania) and CAFR (Chamber of Financial Auditors of Romania) training programs for becoming certified accountants and auditors. 31% of the respondents are already members of national professional bodies, while only 3 participants are ACCA qualified practitioners. The rest of 20.4% have no affiliation with national or international professional organizations.

We have analysed the data to test the following hypotheses:

H1: The practitioners have at least a theoretical level of knowledge regarding emerging technologies.

This hypothesis is evaluated by verifying the correlations between the self-perceived level of proficiency and the actual usage of the specific technologies for work related purposes. As researchers have shown (Wallace and Clariana, 2005; Grant *et al*., 2009; Stanciu and Tinca, 2016) there are usually gaps between the self-assessed level of working capabilities and the actual reality, in the case of students and fresh graduates.

H2: Mobile technologies have already started to gain ground in the accounting and audit fields.

As mobile technologies have begun to gain ground worldwide, companies are now trying to give their employees the possibility of going mobile. In Romania, a significant number of enterprises are providing tablets or smart phones to their employees and in some cases, they have developed programs that allow their staff to work from home.

H3: Professional accountants and auditors are aware of the security risks brought by emerging technologies.

Studies conducted by the international accounting bodies (ACCA, 2016; ICAEW, 2013) concluded that in the last years there had been improvements in the level of awareness regarding cyber-security. We attempt to test whether the practitioners that took part in our study demonstrate the same degree of knowledge in the case of the security risks posed by the usage of the analysed emerging technologies.

5. Findings and discussions

As a starting point, the respondents have been asked to assess their level of knowledge regarding cloud computing, Big Data and data analytics as well as mobile technologies, using a 4 points Likert scale (1 – no experience at all, 2 – theoretical knowledge, 3 – average working capabilities and 4 – proficiency level).

The study's results emphasize that the participants consider they have an above average knowledge level regarding mobile devices, result that shows the respondents preferences for these technologies. Cloud computing skills are assessed as being below average, while the participants stated that they have on average only theoretical knowledge about Big Data and data analytics.

Regarding the self-assessed level of working capabilities with cloud computing platforms, the result is favourable as cloud computing are still considered an emerging technology in the accounting field. The fact that some of the respondents perceive themselves as having operational capacities with cloud platforms shows that they have already worked with this technology.

As Big Data and data analytics are not yet extremely used in the accounting field, the result cannot be seen as either negative or favourable. However, this emphasizes that professionals should focus more on these technologies because are considered to be a game changer for the accounting profession. The results of the data analysis are presented in the table below (table 1). As it can be observed, in the case of cloud computing platforms, the participants assessed themselves as having on average more than only theoretical knowledge, however, 22.61% of the persons surveyed don't have any kind of exposure to these technologies and only 11% consider they have proficient working capabilities.

The results obtained for Big Data and data analytics prove these technologies are less used in comparison with the others, as the majority of practitioners considers that they do not have any kind of exposure to these technologies, while only 5% of the group self-assessed the abilities as being advanced. The self-perceived working capabilities with mobile technologies are considered to be above average, the majority (60%) of the respondents estimated it has a proficiency level of knowledge.

Table 1. **Self-perceived knowledge level of emerging technologies**

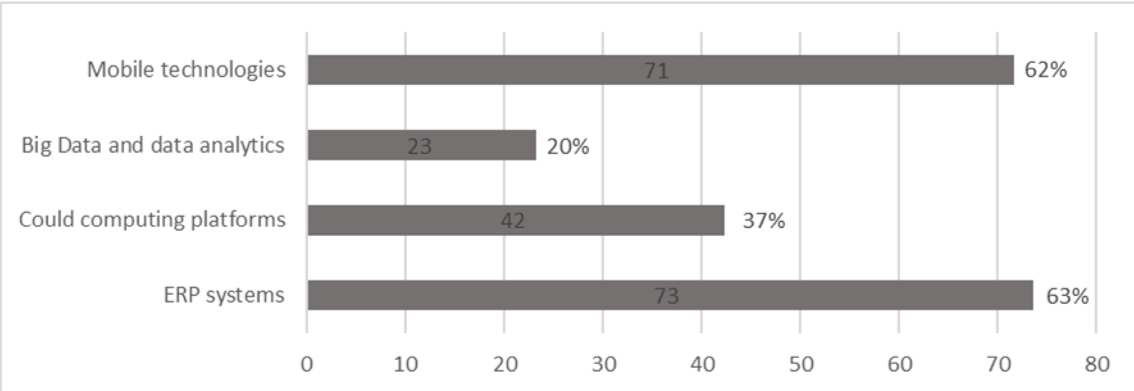
	Cloud computing platforms	Big Data and data analytics	Mobile technologies
AVERAGE	2.28	1.90	3.32
STDEV	0.94	0.86	0.82

MIN.	1	1	1
NO MIN.	26	43	3
FREQ. MIN.	22.61%	37.39%	2.61%
MAX.	4	4	4
NO MAX.	13	6	60
FREQ.MAX.	11%	5%	52%
MEDIAN	2	2	4
SKEW	0.25	0.68	-0.95

(*Source*: Author's processing)

In order to have a view of their working capabilities with accounting information systems and emerging technologies, the participants were asked to choose the technologies that they have used to perform their work-related duties, from the following: ERP systems, cloud computing platforms, Big Data and analytics and mobile technologies.

Graphic 1. **Technologies used by respondents**



(*Source*: Author's processing)

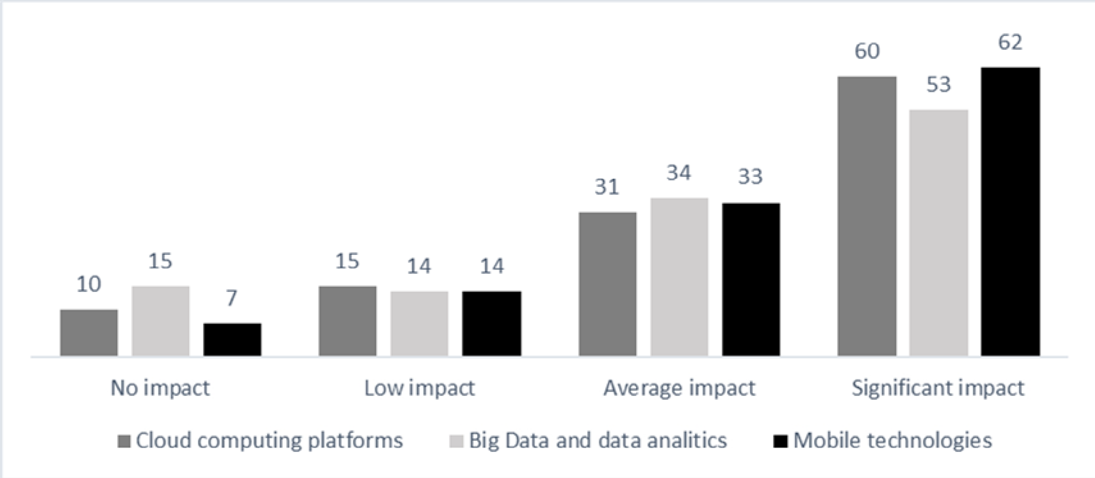
As it can be observed from the above chart, ERP systems and mobile technologies are used by more than 60% of the respondents, while only 37% of the group uses in professional activities cloud computing platforms.

Big Data and data analytics are less used by practitioners, only 20% of the participants working with these technologies. In the case of ERP systems the value is in line with the expectations as this technology has been used for more than 20 years by the professional accountants. The overall results are similar to the conclusions made by professional bodies and researchers and emphasize that emerging technologies like cloud computing and Big Data are not yet used by practitioners on a large scale. Nonetheless, this outcome also reflects that the adoption of mobile technologies has already started in the accounting field, at least in the case of Romania.

When asked about the impact of emerging technologies on the future of the accounting profession, more than half of the respondents considered that cloud computing platforms and mobile technologies will have a significant impact, while in the case of Big Data and analytics they stated that the impact would be above average (chart 2).

This outcome is in line with the forecast made by ACCA (2013c) in the studies conducted in the field of emerging technologies and proves that the professionals are aware of the shifting trends in the accounting field. By analysing the results from these two question in regards of Big Data and data analytics, we can state that overall the practitioners are aware of the impact that these technologies can have, despite the fact that the majority of the respondents do not possess excellent operational skills.

Graphic 2. **Perceived impact of emerging technologies in the accounting field**



(*Source*: Author's processing)

The next part of the survey has focused on assessing the benefits brought by the emerging technologies. As it was presented in the literature review, these technologies have common advantages, as real-time reporting possibility and 24/7 access to data, but they also have some specific benefits. The participants were asked to assess on 5 points Likert scales (1 – not significant, 5 – extremely significant), the importance of the advantages brought by these technologies. The centralized results regarding the benefits associated with the emerging technologies analysed are presented in the table below.

Table 2. **Assessed importance of emerging technologies benefits**

		AVERAGE	STDEV	MIN	NO MIN	FREQ MIN	MAX	NO MAX	FREQ MAX	MEDIAN	SKEW
Cloud computing platforms	Permanent access to data	4.38	1.00	1	2	1.74%	5	76	66.09%	5	-1.58
	Process improvement	4.06	1.02	1	3	2.61%	5	48	41.74%	4	-1.07
	Enhancing productivity	3.97	1.10	1	4	3.48%	5	48	41.74%	4	-0.92
	Process automation	4.03	1.12	1	4	3.48%	5	52	45.22%	4	-1.05
	Cost reduction	3.89	1.09	1	3	2.61%	5	40	34.78%	4	-0.84
	Real-time reporting	4.40	0.95	1	2	1.74%	5	72	62.61%	5	-1.76
Big Data and data analytics	Cost reduction	3.62	1.15	1	10	8.70%	5	28	24.35%	4	-0.75
	Fraud and errors identification	3.83	1.17	1	8	6.96%	5	40	34.78%	4	-0.94
	Real-time reporting	3.97	1.13	1	7	6.09%	5	45	39.13%	4	-1.15
	Improving the base for decisions	3.85	1.15	1	8	6.96%	5	41	35.65%	4	-0.95
Mobile technologies	Enhanced efficiency	3.81	1.13	1	5	4.35%	5	40	34.78%	4	-0.72
	Permanent access to data	4.27	1.02	1	2	1.74%	5	67	58.26%	5	-1.30
	Crossing geographic boundaries	4.26	0.98	1	3	2.61%	5	62	53.91%	5	-1.42
	Real-time reporting	4.26	1.05	1	3	2.61%	5	66	57.39%	5	-1.42

(*Source*: Author’s processing)

Analysing the assessment of advantages for cloud computing platforms, compared with in-house solutions for accounting purposes, over 60% of the respondents considered that real-time reporting possibilities and continuous access to data are significant advantages, followed by process automation, increased level of productivity and improvement of processes. The last item, economies of scale, was assessed as also having an above average importance. Overall, regarding these six benefits for cloud platforms, it can be stated that the participants are aware of their advantages and understand the need for real-time reporting, which as it was said previously, has become a crucial need for companies.

In the opinion of the respondents, the main advantage of Big Data and data analytics is represented by real-time reporting possibilities – 39.13% of the persons surveyed consider it is extremely significant, while 35.65% assess its importance as being above average. The second one is the capability of identifying frauds and errors more accurately in a shorter period, followed by a better support for the decision-making process, the last one being cost reduction. However, all four items are considered to have an above average significant, result that it is in line with the forecasts and researchers from the accounting domain.

Regarding the advantages related to mobile technologies, the most important item in the participants' opinion is the permanent access to data, followed then by two items with the same important impact: the real-time reporting options and the fact that these devices bring borderless connectivity. The increased efficiency was the last advantage in the rank as per the respondents. Nonetheless, as in the case of cloud computing platforms and Big Data and data analytics, all benefits have been graded as having an above average importance.

The participants have also been asked to assess the challenges associated with the analysed emerging technologies, in order to determine their level of awareness in regards to the potential risks. For each technology sets of particular threats have been given, most of them presented in the previous part of the paper. We have used 5 points Likert scales questions (1 – not important, 5 – extremely significant).

For cloud computing platforms, the respondents had to evaluate the following items: sensitive data exposure, unauthorized access, lack of access and physical security of data. As per the assessment made by the professionals, in their opinion the most significant issue is represented by sensitive data exposure, result that it is in line with the practical reality in the absence of proper security measures, like strong encryption algorithms, weak credentials and unmonitored access.

The second concern is represented by the unauthorized access and this is usually caused by incorrect access privileges allocation, weak credentials and the lack of a set of best practices for users. The physical security was the next in line concern for participants regarding the significance and their assessment is correct as usually in the case of cloud platforms, as the client doesn't have full visibility and access to the data warehouse. However, in accordance with the best practices of cloud providers all data must be protected against unauthorized physical access.

The last threat is the lack of access to data. This challenge, like the others three, has been assessed as having an above average importance. As 24/7 data availability was considered by the respondents as being the second most significant advantage, there is a slight deviation in the trend as security issues have replaced the importance of continuous access. This result was in line with our expectations, as security matters should always come first.

After analysing the assessments of possible cloud platforms vulnerabilities, it can be considered that the respondents understand and are aware of the potential impact that security risks might have, conclusion that is in line with the studies performed by professional bodies on cyber-security issues.

Big Data and data analytics challenges have been rated, as well, by the persons surveyed and as in the case of cloud platforms, sensitive data exposure is the first item of concern for professionals, followed by the lack of proper security measures that are vital in the case of big volumes of data. The third item, as per the assessment, was represented by technological restrictions, such as limited computer power and proper storage. The last risk was considered to be the lack of access, result that is in line with the cloud platforms risks presented above.

For mobile technologies, the greatest threat in the perception of the participants is the low-level security of mobile applications and this result proves that the professionals surveyed are aware not only of the benefits of mobile applications, but they understand as well the risks associated. This matter usually comes in the case of own devices usage that might not have additional security measures in place. The last two items have been assessed as equals: unauthorized access and physical security, both of which can be avoided by implementing multiple steps authentication (e.g. fingerprints and password), which can prevent data exposure if the mobile device is lost or stolen.

When asked if they are using a mobile device for performing their job-related tasks, 61.73% answered positively, an outcome that indubitably proves that mobile technologies have started to be utilized by the accounting and audit professionals for their job activities. From the total of 71 persons, 55 are using their own mobile devices, while the rest use devices provided by their organizations. This result shows that the BYOD concept is also applying in Romania, aspect that can be seen as positive, as long as proper security measures are implemented. However, at this question, 42 respondents declared that they had received a mobile device from the company, but as it can be observed above, only 16 persons are using that device for work-related tasks. In this case, there is the possibility that organizations are offering mobile devices to their employees not only for work-related purposes but also as a benefit in kind.

In H1 we assumed that accounting practitioners possess at least a theoretical level of knowledge regarding emerging technologies. To verify that their self-assessment is correctly reflecting the reality, we conducted a statistical analysis based on a Point Biserial Correlation in PASW Statistics 18, having as a dichotomous variable the usage or non-usage of a particular technology.

As the respondents were asked to self-assess their proficiency level in regards to the presented emerging technologies, those grades were used as X variables in the analysis performed.

Table 3. **Correlations between the self-assessed level of proficiency and actual usage**

Work-related experience / Self-perceived knowledge level		Cloud computing platforms	Big Data and data analytics	Mobile technologies
Cloud computing platforms	Pearson Correlation	0.526**	.037	.119
	Sig. (2-tailed)	.000	.694	.205
	N	115	115	115
Big Data and data analytics	Pearson Correlation	.147	0.357**	.016
	Sig. (2-tailed)	.118	.000	.862
	N	115	115	115
Mobile technologies	Pearson Correlation	.143	.042	0.244**
	Sig. (2-tailed)	.127	.652	.009
	N	115	115	115
**. Correlation is significant at the 0.01 level (2 tailed).				

(*Source*: Author's processing using PAWN Statistics 18)

As it can be observed from the statistical analysis presented above, there is a high positive correlation between the self-perceived knowledge level and actual usage in the case of cloud computing platforms, having a correlation coefficient of 0.526 with Sig. 2-tailed=0. This outcome shows that there are no significant gaps between the perception and reality of this aspect in matters of cloud computing technologies and indeed the knowledge level of the interviewees is more theoretical than operational.

When applying the same reasoning for Big Data and data analytics, the results obtained show a positive and above average correlation between the perceived and real working skills.

However, in the case of mobile technologies, the correlation is low, because the participants assessed their level of expertise as being above average, but they are not using these technologies for work-related activities, but rather for personal activities. Nonetheless, we must keep in mind the fact that overall the participants have proven at least a sufficient level of knowledge in regards to primary benefits and possible challenges as the results in table 2 are highlighting.

Taking this into consideration, we conclude that the H1 hypothesis is valid and the professional accountants and auditors possess at least a theoretical level of knowledge regarding emerging technologies.

The second hypothesis was meant to test whether companies started to adopt mobile technologies, especially in the accounting and audit field. The results obtained have proved that more than 60% of the respondents are using mobile devices for work-related purposes. To emphasize this matter, a t-test analysis was performed and the outcome is presented in table 4.

Table 4. **Actual usage of mobile devices for work related purposes**

	T	Df	Sig. (2-tailed)	Mean Difference	Test Value = 0 95% Confidence Interval of the Difference	
					Lower	Upper
Actual usage of mobile technologies at work	13.563	114	.000	.617	.53	.71

(*Source*: Author's processing using PAWN Statistics 18)

We have performed this analysis based on the answers provided by the respondents when questioned if there are using a mobile device for work-related activities, where the affirmative answer was graded to 1 and the negative response to 0, the variable being dichotomous. As per this outcome, we assess the second hypothesis as being valid as the answer yielded statistically significant positive.

The last hypothesis aimed to verify whether the practitioners are aware of the probable risks brought by the analysed emerging technologies. In the previous part, we have concluded that the majority of presented risks has been perceived as having an above average impact. Nonetheless, we considered it would be more relevant to confirm this matter statistically. In this regard, we have performed an independent samples t-test (table 5). We ran the test with a hypothesized average of 3, as all the questions regarding security challenges consisted in Likert scale 5 point questions (1 - lack of impact and 5 – significant impact).

As the results from the statistical analysis are highlighting, the participants demonstrated an above average level of awareness regarding the risks associated with the technologies presented.

To conclude with, following the outcomes given we accept H3 as being a valid hypothesis and consider that accounting and audit practitioners demonstrate an average theoretical level of awareness in regards to the risks associated with emerging technologies. However, we must keep in mind the fact that the professionals must not only have a theoretical knowledge of risks regarding data privacy, but it is expected from them to implement and assess controls to protect information security.

Table 5. **Perceived challenges emerging information technologies**

		Test Value = 3 t	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
						Lower	Upper
Cloud computing platforms	Sensitive data exposure	7.722	114	.000	.809	.60	1.02
	Unauthorized access	6.725	114	.000	.730	.52	.95
	Lack of access	2.243	114	.027	.252	.03	.47
	Physical security of data	3.905	114	.000	.461	.23	.69
Big Data and data analytics	Technological restrictions	3.349	113	.001	.307	.13	.49

	Sensitive data exposure	4.011	114	.000	.417	.21	.62
	Lack of access	2.492	114	.014	.243	.05	.44
	Lack of optimal level of security	3.796	114	.000	.400	.19	.61
	Unauthorized access	6.115	114	.000	.704	.48	.93
Mobile technologies	Physical security of data	6.722	114	.000	.704	.50	.91
	Low level security applications	6.999	114	.000	.748	.54	.96

(*Source*: Author's processing using PAWN Statistics 18)

After analysing the results of the survey and statistical analyses performed, we can state that these emerging technologies represent a challenge for professional accountants and auditors, especially in regards of Big Data, data analysis and cloud computing platforms. Despite this, we have noticed that the participants in the survey demonstrate better working skills with mobile technologies. The professional accountants and auditors show at least a theoretical level of knowledge, but to cope with the organizations' needs and current technical trends, they must also develop better working capabilities.

Nonetheless, the theoretical knowledge level has proven to represent a sufficient base for recognizing the benefits and the challenges brought by these emerging technologies. The participants also manifested an above expectations level of awareness in regards to security issues. This outcome demonstrates the general tendency of accounting practitioners of stepping outside of the current borders of the profession by developing new skills in the information technology field, following in this way the recommendations of the professional bodies.

6. Conclusions

Emerging technologies as cloud computing platforms, Big Data, data analytics and mobile technologies, as well as the need for real-time reporting, bring changes to the accounting profession and practitioners have to develop new skills to cope with the change.

Professional bodies and organizations emphasize that the future roles of the professionals will be somewhere between the border of accounting and information technologies expertise, in order to continue to create value in the digital era.

As presented in this paper, the emerging technologies, we focused on, bring significant benefits for both the accountant and organization, by decreasing the volume of simple repetitive activities and focusing more on core operations that create competitive advantages. However, along with the benefits, these technologies bring critical challenges that might affect the overall activities of the organization.

The empirical study has shown that aspiring and professional accountants and auditors are becoming familiar with these emerging technologies, but they are not fully mastering them. Despite this, their current level of knowledge has been proven to be sufficient in identifying the primary benefits and challenges. However, they still need to develop new skills and enhance their expertise to possess efficient working capabilities. As the security of data manipulated by using these technologies is the main challenge, the participants surveyed demonstrated an above average theoretical level of awareness by correctly identifying the main issues.

Regarding the actual adoption of cloud computing platforms, big data and data analytics in the accounting field, the received results point out that their usage is not extremely spread, in contrary with mobile technologies that have been accepted in a freer manner, probably because of their usage into day to day personal activities.

We conclude that even though the aspiring and professional accountants have an average knowledge level on these emerging technologies, a further enhancement of IT related skills must be made, as efficient working capabilities and data protection controls are vital in this new era of digitalization.

References

Armbrust, M., Fox, A., Griffith, R., Joseph, A.D., Katz, R.H., Konwinski, A., Lee, G., Patterson, D.A., Rabkin, A., Stoica, I. & Zaharia M. (2009) „Above the Clouds: A Berkeley View of cloud computing", University of California, Berkeley

Bradley, J., Loucks, J., Macaulay, J., Medcalf, R. & Buckalew, L. (2012) „BYOD: A Global Perspective, Harnessing Employee-Led Innovation.", available on-line at http://www.cisco.com/c/dam/en_us/about/ac79/docs/re/BYOD_Horizons-Global.pdf *(accessed 15 March 2017)*

Brandas, C., Megan, O. & Didraga, O. (2015) „Global perspectives on accounting information systems: mobile and cloud approach", *Procedia Economics and Finance*, 20, 88-93

Buyya, R., Broberg, J. & Goscinski, A. M. (2010), *Cloud computing: Principles and paradigms*, John Wiley & Sons

Carroll, M., Van der Merve, A. & Kotze, P. (2011) „Secure cloud computing: Benefits, risks and controls", *Information Security South Africa (ISSA)*: 1-9

Chorafas, D.N. (2008), *IT auditing and Sarbanes-Oxley compliance: key strategies for business improvement*, New York: CRC Press

Cokins, G. (2013) „Driving acceptance and adopting of business analytics", *Journal of Corporate Accounting and Finance*, vol. 24, no. 2: 69-74.

Deloitte (2013) „Understanding the bring-your-own-device landscape", available on-line at https://www2.deloitte.com/content/dam/Deloitte/uk/Documents/about-deloitte/deloitte-uk-understanding-the-bring-your-owndevice%20landscape.pdf *(accessed 30 November 2016)*

European Union (1995), Directive 95/46/EC of the European Parliament and of the Council on the Protection of Individuals with Regard to the Processing of Personal Data and on the Free Movement of Such Data, 24 October 1995, available on-line at: http://www.refworld.org/docid/3ddcc1c74.html *(accessed 15 March 2017)*

European Union (2016), Regulation 2016/679 of the European Parliament and of the Council of 27 April 2016 on the protection of natural persons with regard to the processing of personal data and on the free movement of such data, and repealing Directive 95/46/EC (General Data Protection Regulation) Official Journal of the European Union, Vol. L119/59, available on-line at http://eur-lex.europa.eu/eli/reg/2016/679/oj *(accessed 15 March 2017)*

Ernst & Young (2014) „Ready for takeoff? Overcoming the practical and legal difficulties in identifying and realizing the value of data", available on-line at http://performance.ey.com/2014/03/31/ready-takeoff/ *(accessed 30 November 2016)*

FBI (2012) „Smartphone Users Should Be Aware of Malware Targeting Mobile Devices and the Safety Measures to Help Avoid Compromise", available on-line at: https://archives.fbi.gov/archives/sandiego/press-releases/2012/smartphone-users-should-be-aware-of-malware-targeting-mobile-devices-and-the-safety-measures-to-help-avoid-compromise *(accessed 24 November 2016)*

Frey, C. & Osborne, M. (2013) „The Future of Employment: How susceptible are Jobs to Computerisation." *Oxford University Programme on the Impacts of Future Technology*

Giordanelli, R. & Mastroianni C. (2010) „The cloud computing paradigm: Characteristics, opportunities and research issues", *Istituto di Calcolo e Reti ad Alte Prestazioni (ICAR)*

Gizmodo (2014) „Report: Apple Knew of Security Problems Long Before iCloud Breach", available on-line at http://gizmodo.com/report-apple-knew-of-security-problems-long-before-icl-1638746390 *(accessed 26 November 2016)*

Gold, S. (2011) „Cracking wireless networks", *Network Security*, vol. 2011 no. 11: 14-18.

Grant, D.M., Malloy, A.D. & Murphy, M.C. (2009) „A comparison of student perceptions of their computer skills to their actual abilities", *Journal of Information Technology Education*, 8(1): 141-160

IBM (2009) „Public clouds, private clouds and your security", available on-line at https://www.ibm.com/ibm/files/Z702257B23536P19/15PPCLOUDCOMPUTING_116K B.pdf, *(accessed 15 October 2016)*

IBM (2013) „Bringing big data to the enterprise", available on-line at https://www-01.ibm.com/software/data/bigdata/what-is-big-data.html *(accessed 02 February 2017)*

ICAEW (2013) „Audit Insights: cybersecurity. Closing the cyber gap", available on-line at https://www.icaew.com/~/media/corporate/files/technical/audit%20and%20assurance/audit%20insights/icaew_audit_insights_cyber_security_web.ashx *(accessed 30 November 2016)*

ICAEW (2015) „Providing leadership in a digital world" available on-line at http://www.icaew.com/- /media/corporate/files/technical/information-technology/technology/providing-leadership-digital-full-report.ashx *(accessed 10 October 2016)*

Ionescu, B., Ionescu, I., Tudoran, L. & Bendovschi, A. (2013) „Traditional accounting vs. Cloud accounting", *Proceedings of the 8th International Conference Accounting and Management Information Systems*, 106-125

Johns, T. & Gratton, L. (2013), „The third wave of virtual work", *Harvard Business Review*, 91(1): 66-73.

Kearns, G. (2016) „Countering Mobile Device Threats: A Mobile Device Security Model", *Journal of Forensic & Investigative Accounting*, 8(1): 36-48

Laney, D. (2001) „3D data management: Controlling data volume, velocity and variety", *META Group Research Note*, 6: 70

Mayer-Schönberger, V. & Cukier, K. (2013) „Big data: A revolution that will transform how we live, work, and think", *Houghton Mifflin Harcourt*

McKnight, C. (2015) „Preliminary investigation of big data and implications for accounting curricula", *Auckland Regional Accounting Conference*

Mell, P. & Grance, T. (2009) „The NIST definition of cloud computing", *National Institute of Standards and Technology*, 53(6): 50.

Morrow, B. (2012) „BYOD security challenges: Control and protect your most sensitive data", *Network Security*, 2012, 5-8

PCAOB (2010) „Auditing Standard No. 12 - Identifying and Assessing Risks of Material Misstatement", available on-line at http://pcaobus.org/Standards/Auditing/Pages/Auditing_Standard_12.aspx *(accessed 15 February 2017)*

PwC (2016) „Toward new possibilities in threat management" available on-line at http://www.pwc.com/ee/et/publications/pub/gsiss-report-cybersecurity-privacy-possibilities.pdf *(accessed 02 March 2017)*

Richins, G., Stapleton, A., Stratopoulos, T. C. & Wong, C. (2016) „Data Analytics and Big Data: Opportunity or Threat for the Accounting Profession?", available on-line at https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2813817 *(accessed 28 November 2016)*

Russom, P. (2011) „Big data analytics", *TDWI Best Practices Report*, Fourth Quarter, 1-35

Sas.com. (2013) „Big Data: What it is and why it matters", available on-line at https://www.sas.com/en_us/insights/big-data/what-is-big-data.html *(accessed 26 November 2016)*

Shayan, J., Azarnik, A., Chuprat, S., Karamizadeh, S. & Alizadeh, M. (2013), „Identifying Benefits and risks associated with utilizing cloud computing.", *The International Journal of Soft Computing and Software Engineering [JSCSE]*, Vol. 3, No. 3: 416-421

Singh, C., Shelor, R., Jiang, J. & Klein, G. (2004) „Rental software valuation in IT investment decisions", *Decision Support Systems*, vol. 38(1):115-130

Stanciu, V. (2015) „Considerations Regarding Financial Audit in the Big Data Era", *Audit Financiar*, vol. 13, no. 128: 65-71

Stanciu, V. & Bran, F. P. (2015) „The accounting profession in the digital era", *Proceedings of the International Conference Ecological Performance in a* Competitive Economy, Supplement of Quality-Access to Success, Vol 16, S1: 546-550

Stanciu, V. & Tinca, A. (2016) „Students' awareness on information security between own perception and reality–an empirical study", *Journal of Accounting and Management Information Systems*, 15(1): 112-130

Stieglitz, S. & Brockmann, T. (2012), „Increasing organizational performance by transforming into a mobile enterprise", MIS Quarterly Executive, 11(4): 189–205.

The Association of Chartered Certified Accountants (2013a) „Digital Darwinism: thriving in the face of technology change", available on-line at http://www.accaglobal.com/content/dam/acca/global/PDF-technical/futures/pol-afa-tt2.pdf *(accessed 10 October 2016)*

The Association of Chartered Certified Accountants (2013b) „Big data: its power and perils", available on-line at http://www.accaglobal.com/bigdata *(accessed 24 November 2016)*

The Association of Chartered Certified Accountants (2013c) „Technology trends: their impact on the global accountancy profession" available on-line at http://www.accaglobal.com/content/dam/acca/global/PDF-technical/futures/pol-af-ttti.pdf *(accessed 24 November 2016)*

The Association of Chartered Certified Accountants (2016) „Cybersecurity - Fighting Crime's Enfant Terrible", available on-line at http://www.futuretoday.com/content/dam/IMA/pdf/T *(accessed 12 February 2016)*

The Association of Chartered Certified Accountants and Institute of Management Accountants (2015) „The Data Revolution" available on-line at http://www.futuretoday.com/technology/data/the-data-revolution.html (accessed 25 November 2016)

Thielens, J. (2013) „Why API are central to a BYOD security strategy", *Network Security*, 2013, 5-6

Trigo A., Belfo F. & Estébanez R.P. (2014) „Accounting Information Systems: The Challenge of the Real-time Reporting", *Procedia Technol* no.16:118–127

Vasarhelyi, M.A. & Alles, M.G. (2008) „The "now" economy and the traditional accounting reporting model: Opportunities and challenges for AIS research", *International Journal of Accounting Information Systems*, vol. 9, no. 4: 227-239.

Wallace, P. & Clariana, R. (2005) „Perception versus reality – Determining business students' computer literacy skills and need for instruction in information concepts and technology", *Journal of Information Technology Education*, 4: 141-151

Exploring cybercrime – realities and challenges

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Abstract: *Cybercrime is a global, transnational serious problem that needs strong technical and legal responses. The information represents an important asset that must be secured and properly used as it provides the support for value creation and sustainable development. Being a valuable asset, the information is exposed to continuous and virulent attacks conducted by cybercrime groups and significant financial and human resources have to be allocated to the cybercrime limitation. The purpose of authors' research was to get more knowledge about cybercrime and attacker's behaviour and to develop a discussion on the cyber security and the means of its improvement. The research results attempt to provide useful recommendations on countermeasures against cybercrime and raise the awareness of companies' senior management and governments' representatives on cyber criminality.*

Keywords: *Information security, cybercrime, organized crime, cybercrime prevention*

1. Introduction

Information security is no longer a problem keeping in alert just the security specialists. The companies' high dependence on IT makes the board members more concerned in security information issues as this potential threat can negatively impact the business and financial objectives achievement. Public institutions' heads, as well as the entire society, recognize the same concern. Information technology immerged in the individuals, companies, public institutions and society life and we are all exposed to a very diverse set of information security incidents caused by more and more complex attacks. The society itself is exposed to security incidents through its entities that could be targeted as for example military entities, security agencies, nuclear plants etc. In a digital global society there are not borders and the cyber-attacks could focus on any target wherever it is located. Economic chains linking different companies characterize the global economy making the companies, in many cases, dependent one to another. The cyber-attacks affecting one of the companies in this chain could affect entire business in the economic group.

Cyber-attacks are increasing in frequency and impact. Cyber criminals are permanently developing new and ingenious methods to hack into the systems. In this respect, the IT security specialists have to prove a proactive and preventive approach in increasing the security level of their systems. As the cyber security assaults are more and more sophisticated, the companies' reaction consists in increased investments in information security solutions based on a prioritization scheme and a cost-benefit analysis. The success driver seems to be the proactive thinking of the

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security experts and the continuous increase of the financial effort in security solutions.

The purpose of this research is to get more knowledge about cybercrime and attacker's behaviour and to develop a discussion on the cyber security and the means of its improvement. The authors conducted their research based on a detailed literature review and documentation on cyber criminality and taking part in information security audit teams, this experience providing useful insights for their study. The research results attempt to provide useful recommendations on countermeasures against cybercrime and raise the awareness on cyber criminality between companies' senior management and governments' representatives. Cyber criminality is one of the most sensitive and concerning problems of nowadays. Even so, the Romanian researches and information dissemination on the topic are not reflecting the expected interest. The authors' research conclusions can provide a useful insight for the Romanian IT specialists, given the shortage of Romanian literature on this topic.

2. Methodology

The authors performed a systematic literature review on cybercrime and information security. The authors focused on researches performed worldwide in regard with the IT security and cybercrime, synthesized the main problems emphasized by the scientific researches and analysed surveys performed by prestigious international organizations, regarding the evolution of cyber criminality. Investigating the scientists and academics' research on the topic the authors retained their opinions and concerns that were synthetized in the following chapters. The research imposed an investigation in regard with the Romanian IT security specialists' concerns imposing interviews (14 interviews were performed with CIOs – Chief Information Officers, operating in banking industry -2, and private companies -12) on cyber-criminal topic. Applying the consensual-inductive approach the authors succeeded to synthetize valuable points of view that revealed the real dimension and concern for the cyber-crime phenomena.

The present research is part of a wider research project initiated several years ago aiming at tracking the evolution of cyber security and cyber-attacks techniques and provide recommendations for strengthen the information systems' security.

3. Literature review

Cybercrime represents "a single event from the perspective of the victim or on-going series of events, involving repeated interactions with the target" (Arora, 2016). In the new context characterized by the wide spread use of computers, mobile devices, and network system cybercrime became very attractive and provides unlimited means of action to the attackers (Konradt *et al.*, 2016). We are now part of a global digital society in which "individuals, organizations and governments alike are increasingly exposed to the risk and threats of the cybercriminals" (Hunton, 2012). Hunton (2012) invites us to a deeper analysis of the cyber security concept and reveals some of its dark and compromising means of manifestation as for example cyber terrorism, cyber warfare, disinformation, espionage, political attack etc. (idem)

Speaking about cyber-crime we have to approach the sensitive problem of the underground digital economy that emerged in the last years. The immense amount of critical data, stolen in the cyber-attacks, (most of them representing personal identity details and banking clients' credentials) represents precious "merchandise" providing financial gains to the cyber criminals. We are facing organized digital criminal markets facilitating the sale, distribution and illicit use of stolen data that will determine a multiplication of the attacks, waves of attacks, over the same targets.

Companies continue to be exposed to "traditional threats" as for example insider threats, malware, loss of mobile devices, social engineering etc. One of the major causes of these "traditional threats" stays in the users' behaviour (not observing of procedures and training issues). In the same time the IT security specialists are struggling with non-traditional sophisticated attacks which are characterized by an exponential virulence determined by the technical means, the scenarios used and the organized crime groups being behind the attacks.

The surveys emphasize the shortage of skilled IT security specialists. This issue has a significant impact over the entities (companies, public institutions, government alike). The effectiveness of the IT security solutions stays not only in the security specialist expertize and certification but also in his/hers understanding of the business and industry's particularities. To approach the risk in the most appropriate manner the information security specialist has to prioritize the issues and focus on the most critical ones from the business perspective. In this regard, its knowledge in the business's industry characteristics is essential.

The hacker is always exploiting the weakness link in the security chain. In fact, the level of security of an information system is not provided by the most sophisticated solutions implemented but by the weakest point in the global security architecture and policy. There still exist vulnerabilities, exposing the companies' information security, which, normally should be solved for long as for example default passwords and inadequate secured or configured systems being known the numerous flag alert issued on the topic by the security frameworks. Nevertheless, these kind of vulnerabilities still exists and as consequence it is let opened the path for attacks. Nowadays, the hackers' high expertize and the techniques they use make some top security solutions already implemented to be ineffective.

Another issue reflected by the global surveys consists in the demarcation between the business management and the IT managers, problem which continues to exist in spite of numerous flag alert signalled during the years. As the international studies emphasize, most of the chief information officers (CIOs) continue to report through the IT business line. Just 30% of the ISACA 2015 survey's respondents declare that are reporting to the board. This "traditional" reporting line is not beneficial for the company as long as the business dependence on IT is so critical today and reflects the technical perspective manifested by the business executives in regard with IT. Nowadays, when business is highly dependent of IT systems, business management express its awareness and concern in regard with IT importance for the business and the need to better monitor IT risks in a global approach as business risks. In spite of all of this management still promote inadequate reporting lines for IT function. This new understanding of the IT role and significance for the business is not reflected in the companies' board structure as long as the IT heads are not members of the board.

Exception makes the big companies in which the IT head is member in the board and, from this position, is part of the decision making process. Unfortunately, if IT heads consider that IT functions is proving this pro-active role, the business executives still appreciate that IT continues to have a more reactive role (ISACA and ITGI, 2011). This different perception about IT pro-active vs. reactive role reflects the high expectations of business executives and the important existing room for a better communication between IT and business executives.

4. Snapshots on current cybercrime state

The global surveys emphasize as the most powerful types of attacks the followings: phishing, malware, social engineering, hacking, loss of mobile devices, insider theft, SQL injections, watering hole, man-in-the middle attack. So the extent of attacks is very diverse as also the techniques used. This makes their detection more difficult. Nowadays one of the most critical security issues is the attacks detection. The reported attacks and the international surveys show that in many cases, there is a high delay between time to compromise and time to discovery the attack. This reflects the attackers' ability and knowledge in systems penetration and hiding the penetration traces.

Today, it is obvious that the attacks present a stronger economic motivation and are orchestrated by criminal organized groups. Verizon emphasized in its report on 2016 that "89% breaches have a financial or espionage motive" (Verizon, 2016). In 2014, the annual average cost of cybercrime registered per retail US company was up to $8.6 million (Ponemon Institute, 2014). The four primary external consequences emphasized by the Ponemon study are: business disruption, equipment damage, information loss and revenue loss (idem). Kaspersky bulletin on security for 2015 reflects very clear that these attacks focus on financial illegal gains: 1.966.324 registered notification regarding attempted malware infection aimed at stealing money via online access to bank accounts (Kaspersky, 2015a). Online banking attacks are now more oriented via mobile devices. Two Trojan mobile banking, Faketoken and Marcher, developed to steal payment details, are on the top for Android devices attacks. Perpetrators seem to be also focus on ransomware attacks. In 2015, 753.684 computers of unique users were targets for ransomware attacks most of them being conducted by DDoS techniques (Kaspersky, 2015a).

Nowadays, money is present in different formats: traditional metal coins and banknote, account money (non-cash money) and e-money. If "traditional money" cannot be subject of cyber-attacks, banking accounts and e-money are. We have already presented the concerning consequences of the attacks on companies and banking accounts. E-money is also a tempting target, cryptocurrency wallet services being important targets for cybercriminals. Coinkite announced that e-wallet service will be shut down one of the most important causes being the constant attacks (DDoS attacks mostly). Kaspersky labs issued the Q2 2016 report regarding DDoS attacks alerting on the virulence of these attacks. In Q2 2016 the "longest DDoS attack lasted for 291 hours" (Kaspersky, 2016b).

Verizon report on 2016 considers that "63% of confirmed data breaches involved weak, default or stolen password" (Verizon, 2016). This is a concerning finding if we take into consideration the impact and this vulnerability: weak policy in regard with passwords! The good practice in regard with password is so well known, easy to access on professional sites and implement. Why we are not following it? This issue on weak and default passwords is emphasized year by year in the international analysis.

“The companies that have an awareness program in place actually have a higher rate of human-dependent incidents such as social engineering, phishing and loss of mobile devices” states the ISACA report on 2015 (ISACA, 2015). The ISACA survey performed in 2015 emphasize that only 55% of the respondents’ enterprises restrict USB access and 42% restrict access to social media (idem). It is like letting the door opened and remained amazed finding strangers into your house!

The 2016 Symantec Internet Security Threat Report emphasizes that there are over one million web attacks against people each day in 2015, and a new zero-day vulnerability is found every week. The same report underlines the recrudescence of ransomware attacks the new targets being represented by smartphones, Mac and Linux systems (Symantec, 2016).

In this landscape, we briefly introduce the most important and consequential cyber-incidents of 2016:

- Emails were stolen from the Democratic National Committee in the United States and leaked on-line; the attack cannot be attributed with certainty although it is believed state actors are behind the breach (Greene, 2016);
- Yahoo announced that half a billion accounts were compromised starting with 2014, making it the largest compromise of user accounts so far.
- In the Panama Papers incident, data was stolen from a law firm, exposing financial information on international political figures. The hack was attributed to software, which was not up to date, and weak security controls (Greene, 2016).
- As-yet unidentified hackers transferred 81 million dollars from the Central Bank of Bangladesh, by initiating transfers in the bank’s SWIFT system. The hackers used stolen credentials and the incident was blamed on weak security such as the absence of a firewall (Quadir, 2016).
- Bitfinex, a bitcoin platform, was hacked resulting in a loss of 70 million dollars. The loss was ultimately supported by the platform’s users, who took a 36% loss on their holdings (Kaminska, 2016).
- Tesco Bank clients lost 4,5 million dollars in a hack targeting mobile applications with weak security. The bank, which “ignored repeated warnings” on the weak security of its mobile applications, had to reimburse its clients for the lost amounts and undergo investigation by the National Crime Agency in the UK (Arnold, 2016).

The international surveys (Kaspersky, 2015b) place Romania in the group registering medium risk for online infection. Even so, the Cert Report issued in 2016 is concerning (CERT, 2016):

- In 2015, CERT-RO has analysed 68.206.856 cyber alerts each cyber alert representing a signal related to an IP address or web domain (URL) regarding a possible security incident or a security incident that implied or could imply Romanian information systems own by companies or individuals.

- 26% of the IPs allocated in the Romanian cyberspace were subject of at least one investigation performed by CERT-RO.
- 78% (5.3 millions) of the analysed alerts were related to unsecured information systems (inadequate secured or configured). Hackers used parts of those vulnerable systems to initiate attacks on other systems (in Romania or outside Romania).
- 20.78% (14 million) of the analysed alerts were generated by malicious software, mainly botnet type.

5. Analysis of the most prominent incident types

In the following section, we describe the most prominent attack types, their impact and possible mitigation techniques.

5.1. Denial of Service

In a *denial of service* (DoS) incident, the attackers send many fake requests to a target server, attempting to overwhelm the server's capacity to respond. Typically, the targeted server cannot distinguish between legitimate requests made by real clients and the large quantity of fake requests sent by the attackers. Thus, the real clients will not be able to access the server, resulting in a service outage. The impact can be considerable for businesses who rely on on-line services to serve their clients, and especially for banks, where a service outage can greatly damage the client's trust in the bank's ability to safeguard a client's funds and offer timely access or financial entities as for example financial markets.

To amplify the size of the attack and the amount of traffic sent to the target, hackers will attempt to use many computers as sources for their fake requests. An attack launched from a large number of computers is called a *Distributed Denial of Service* (DDoS) attack. Defence against this type of attack is very difficult because the offending traffic originates from a large pool of IP addresses and the fake requests cannot be easily identified and filtered.

Aiming to take control over computers, hackers infect devices connected to the Internet with malware, using different delivery methods, such as worms or phishing. The malware installs on the host and attempts to stay undetected, employing anti-virus evasion techniques; more advanced malware also attempts to spread to other computers in the network, increasing the number of machines under the attacker's control. Such a network of infected computers is called a *botnet*. The attackers control the botnet by issuing commands from a central control server, indicating the IP address of the target, timing details of the attack etc. More sophisticated communication methods employ encryption, so that commands evade detection.

DDoS attacks are not new, but they constantly increase both in number, size, and the methods of attacks employed. The most important DDoS incident so far took place in October 2016 and involved "tens of millions of infected computers, including a network made of 'internet of things' devices" (Kuchler, 2016).

Unlike previous incidents, the attackers used a botnet made up of IoT devices—webcams, video recorders and routers, connected to the internet. These types of devices have grown in usage in recent years, but their security is weak. Also, their owners cannot easily observe unusual behaviour patterns, because often these devices do not have monitors and keyboards making interaction and configuration difficult. Most of the users just connect them to the Internet, without changing the default password, and hackers who infected tens of millions of devices used this vulnerability.

The attack was also innovative in its choice of the target, by flooding a crucial service on which other users rely to connect to the Internet. The attackers flooded the servers of Dyn, one of the major DNS (domain name service) providers, who translate web addresses into IP addresses. Users connecting to the Internet rely on this service to connect to other sites, and because of the outage, a large part of the Internet was disrupted. Major sites such as Twitter, Spotify and Airbnb were unreachable. The manufacturers of the affected devices who chose to take responsibility also felt the impact and issue software updates or even recalls the equipment. Telecommunication companies affected by the flooding also incurred costs related to upgrading their infrastructure to better respond to such incidents.

This incident highlighted several important security issues, which are difficult to address. First, the attackers took over webcams and other devices with low intrinsic "value" in themselves, as opposed to a high-value targets (such as a server holding credit card data). But because of the sheer number of devices, the effects were greatly amplified. Second, the manufacturers of these "Internet of Things" devices pay little attention to security, because of cost issues and due to a lack of experience. Also, given the many different types of devices (connected TV's, cameras, medical equipment) it is very difficult to enforce meaningful regulation across different types of industries (Kuchler, 2016a).

By simultaneously affecting so many high-profile sites, the attack also highlighted a weakness pertaining to the architecture of the Internet. The DNS was devised during the 1980's when security was not a concern, and scenarios such as these were not envisioned. It is forecasted that denial of service attacks involving Internet of Things devices will affect 25% of companies, but only 10% of budgets are allocated for protection against this kind of attacks (Kuchler, 2016).

5.2. Ransomware

Ransomware is a type of malware which denies a user's access to computer resources, by locking access to the computer itself or to important files on computer. After taking control of the computer, the ransomware usually displays a message asking money from the user in order to restore access to the computer. The main infection mechanisms are via e-mail, when the user opens an attachment, or by drive-by-download, when the user visits a web site with malicious content that automatically downloads on the user's computer. After the infection, users typically have three choices: try to restore the system from backup, pay the ransom and get access to the data, or lose the data (Sittig, 2016).

Ransomware attacks have grown significantly during the last years, with an estimated 2.3 million users being affected in 2016, compared to 1.9 million in 2015, representing a 17.7% increase. In the same period, mobile ransomware (affecting mainly Android devices) has grown 400% (Kaspersky, 2016b). During 2015, the cost from ransomware attacks was $24 million, while the cost for the first three months of 2016 was $209 million (Finkle, 2016).

There are two main types of ransomware: locker ransomware and crypto ransomware, both with different methods of extorting money from the users. In the case of locker ransomware, access to the computer is blocked, and the user is asked to buy vouchers or call a pay-line to redeem access. This type of infection is relatively easy to remove using an anti-virus, which recognizes the malware, but advanced users can recover files by bypassing the operating system and accessing files directly on the disk (Savage, 2015).

Crypto ransomware is the more destructive variant of ransomware, with more sophisticated strains causing increased damage recently. After installation, the malware searches for the user's documents on the computer (text files, images, spreadsheets) and encrypts them with a secret key. Antivirus programs could defeat the first versions of crypto ransomware, as the malware often used symmetrical algorithms and left the encryption keys on the infected machine. However, modern variants implement industrial-strength encryption—such as RSA, 3DES and AES—use strong procedures to make sure the users cannot get around paying the ransom (Savage, 2016). Thus, depending on the strength of the encryption methods used, files might be impossible to recover, if the malware properly implements an asymmetric key encryption scheme. In such a case, a public key is used to encrypt the user's files, and recovering the public key does not help decrypt the files. The corresponding private key (which can decrypt the files) is held on the attacker's server, and is only sent to the "victim" after the ransom has been paid. Examples of Trojans that implement strong encryption and key management include CryptoLocker and Cryptowall, which accrued an estimated $18 million by June 2015 (FBI report, 2015).

While locker ransomware asks the user to buy vouchers, crypto ransomware usually asks for a ransom to be paid in bitcoins, as the computer is still functional (only access to the files is blocked) and the user is expected to make the payment through the computer. Bitcoin payments offer anonymity and are hard to track, and hackers are known to use multiple layers of "laundering", making it even more difficult for authorities to pursue ransom payments back to the hackers (Shulman, 2016).

The amount of the ransom varies depending on the targets chosen by the hackers. When malware is distributed indiscriminately in so-called "blanket attacks", then the usual amount varies from $300 to $700, depending on the country where the "victim" is located. But hackers are also mounting targeted attacks, using specially crafted e-mails to target organizations such as "financial firms, Internet service providers and organizations holding sensitive personal information such as healthcare bodies" (Everett, 2016).

In targeted attacks, hackers choose organizations which don't have very strong security defenses, and for whom data loss would have a major negative impact, affecting their business relation with the clients. Many such cases are not publicized, since the organizations fear losing confidence with their clients, but several high-profile cases are:

- The attack on the Hollywood Presbyterian Medical Center (February 2016) in which all patient and medical records were encrypted. The hospital's computer network and other computer-dependent functions such as computer tomography scans, laboratories and pharmaceutical records were taken off-line for a week. Despite the involvement of security experts, the hospital finally payed a ransom of 40 bitcoins (equivalent of $17,000) and recovered access to its computer resources. In the same period, other hospitals were hit by ransomware (Tuttle, 2016).
- In October 2016, a hospital in Lincolnshire, United Kingdom, had to cancel all scheduled surgery operations and divert new emergency cases to nearby locations (Krebs, 2016). The hospital had been targeted with ransomware, which then spread across the network to affect the whole IT infrastructure. The hospital called a "major incident" chose to shut down most its system to deal with the attack. It is estimated that during 2016, 30% of the hospitals in the UK have been infected by ransomware (Leyden, 2017).
- In February 2017, the Licking County in Ohio, US, had its servers and approximately 1000 workstations locked down by ransomware, which was delivered by an infected email (Biggs, 2017). The government offices and police force were shut down, and telephone access to emergency lines was restricted and had to be operated manually.

As the number and severity related to ransomware attacks is growing, so are the evasion techniques employed by the malware creators. These involve partial download of the malicious code, and detecting whether the malware runs on a "real" computer, as opposed to a virtual machine. Antivirus companies analyse malware inside virtual machines, to contain potential damage and control the analysis process. But malware creators have become adept at detecting when their software is running inside simulated environments, using advanced techniques such as detecting the entropy of the filenames and their distribution on the hard disk (Kharaz, 2016).

As it is very difficult to recover from a crypto-ransomware attack, the best technique is to prevent and mitigate the effects of possible attacks. Users should (Pathak, 2016):

- Make regular backups of program files and data. Given that malware often infects network shares, it is important to store the backups off-line, separate from the network where an infection could spread from a workstation;
- Use a reputable antivirus program and keep it updated;
- Keep all installed software up-to date, to prevent infection with malware which exploits vulnerabilities;
- Educate the users to be cautious with opening unknown email attachments, as malware often arrives via phishing e-mails.

5.3. Zero-day attacks

Zero-day attacks refer to exploits which affect vulnerabilities unknown to the developers. Thus, since there are no known remedies or patches, this type of attack has a very high chance of spreading quickly, since the usual defences, such as firewalls and anti-virus solutions are ineffective. However, zero-day vulnerabilities are hard to discover, and those who eventually discover them have some typical options, according to their intentions (Ablon, 2017). Security advocates and white-hat hackers maintain that vulnerabilities should be disclosed to the manufacturer of the software, so that a patch that fixes the vulnerability can be issued. Black-hat hackers can create exploits to take advantage of the vulnerabilities, infecting systems and causing damage. But the discussion is more nuanced for national governments, who invest heavily in cyber security and are actively searching for zero-day exploits. Thus, national governments can choose to disclose the zero-day vulnerabilities, but they lose the advantage over their adversaries once the vulnerabilities are patched. The other choice is not to disclose the vulnerabilities and create exploits for later use—thus effectively creating cyber-weapons. Yet another category is represented by companies who sell zero-day vulnerabilities, with prices ranging from tens of thousands of dollars up to several hundred thousand for vulnerabilities in operating systems considered harder to break, such as Apple's iOS (Ablon, 2017).

Vulnerabilities exist in all layers of the software stack, from operating systems, middleware up to the application layer—putting every company, as well as individual users at risk. So how can IT professionals defend against such attacks, especially when no known remedies are available? According to a study published by the SANS institute, the best practice is to implement a defence-in-depth strategy, organizing security in layers (Hammarberg, 2017). At the outside, the network must be protected by firewalls with tight rule management, implementing strict controls over the data moved to and from the network. Inside, the network should be monitored for suspicious activity. This is usually achieved with a network monitoring system, which recognizes known patterns of attack—for example hosts from within the network sending spam or participating in a DDoS attacks, or trying repeatedly to contact other hosts in the network, which can be the sign of malware trying to spread. Most notably, transfers of atypical sizes are to be watched, as they can signal that a malicious actor is moving data outside the network.

The last technical defence is the firewall and anti-virus implemented at host level, coupled with other physical security measures, such as USB and network port restrictions. Even if zero-day exploits take advantage of unknown vulnerabilities—and thus are not contained in anti-virus databases—current anti-virus solutions implement advanced detection mechanisms, using statistics and behaviour analysis techniques to identify malicious activities. At the same time, hackers expend great efforts to stay undetected, using techniques such as polymorphism to change the appearance of the malware code, in order to avoid signature-based detection.

But often the "weakest link" in the security chain is the human element. Sooner or later, we are likely to click on malicious links and open e-mails regardless of our level of training and awareness. At that point, the entire chain of defence-in-depth elements and processes must work together to detect and prevent the exploitation of vulnerabilities.

However efficient, the concept of defence in depth is expensive to implement because it involves many technologies and processes. Smaller organizations, with limited security budgets and personnel will find it more difficult to implement a security policy coordinated across multiple elements and processes. Larger organizations have more available resources, and even if the per-user cost is lower than in small organizations, the overall amount is the largest. Most notably, these companies adhere to written policies, implement separation of duties and only grant the privileges necessary for each user to do their job (Hammarberg, 2017).

6. Conclusions

Cybercrime is a global, transnational serious problem that needs strong technical and legal responses. It is obvious that the attacks orchestrated by criminal organized groups are characterized by a stronger economic motivation. The tremendous increase of criminal attacks and their impact, financial inclusively, are concerning being registered an ascendant spiral that seems to break the most secured systems and networks. Even if the present security picture is not anxious we should recognize that it is not reflecting the complete scene of cyber criminality many of the attacks being unreported.

Aiming at increasing information security it should be promoted a pro-active attitude from IT heads and senior management alike. IT risk is no longer just a technical risk in CIOs responsibility but also a business risk that should be managed in an integrated approach next to all significant risks.

The divers and virulent attacks show us the need for a permanent improvement of the information security architecture. A risk based-approach meaning a permanent risk monitor and assessment, risk response prioritization in a cost-benefit approach should characterize this ongoing process. “Traditional vulnerabilities”, most of them involving human behaviour and actions, continue to expose companies to tremendous risks. In this regard, risk culture improvement and continuous employees’ training should provide the needed risk awareness. New IT threats should be treated by CIOs in a more pro-active approach based on critical business analysis and risk response strategy.

References

Ablon, L. & Bogart, A. (2017) “Zero Days, Thousands of Nights”. RAND Corporation. Available on-line at http://www.rand.org/content/dam/rand/pubs/research_reports/RR1700/RR1751/RAND_RR1751.pdf . Accessed on March 2017.

Arnold, M. (2016) “Tesco Bank ‘ignored warnings’ about cyber-weakness”. Financial Times, November 13, 2016. Availabile on-line at: https://www.ft.com/content/ec81f30a-a82b-11e6-8b69-02899e8bd9d1. Accessed on March 2017.

Arora, B. (2016) “Exploring and analyzing Internet crimes and their behavior”, Perspectives in Science (2016), 8:540-542.

Biggs, J. (2017) “Ransomware completely shuts down Ohio town government”. Techcrunch.com, 2rd of Febebruary 2017. Available on-line at https://techcrunch.com/2017/02/02/ransomware-completely-shuts-down-ohio-town-government/. Accessed on March 2017.

Federal Bureau of Investigation Report (2015) “Criminals continue to defraud and extort funds from victims using Cryptowall ransomware schemes”. June 23, 2015, available on-line at https://www.ic3.gov/media/2015/150623.aspx. Accessed on December 2016.

Evertt, C. (2016) “Ransom note—pay or don’t pay? Ransomware on the rise”. Diginomica.com, February 16, 2016. Available on-line at:

http://diginomica.com/2016/02/16/ransom-note-pay-or-dont-pay-ransomware-on-the-rise/. Accessed on December 2016.

Finkle, J. (2016) "Ransomware: Extortionist hackers borrow customer-service tactics". Reuters, 12 April 2016. Available on-line at http://www.reuters.com/article/us-usa-cyber-ransomware-idUSKCN0X917X. Accessed on December 2016.

Greene, T. (2016) "Lessons learned from the 7 major cyber security incidents of 2016", available on-line at http://www.networkworld.com/article/3150075/security/lessons-learned-from-the-7-major-cyber-security-incidents-of-2016.html. Accessed on February 2017.

Hammarberg, D. (2014) "The Best Defenses Against Zero-Days Exploits for Various-sized Organizations". SANS Institute. Report available on-line at https://www.sans.org/reading-room/whitepapers/bestprac/defenses-zero-day-exploits-various-sized-organizations-35562

Hunton, P. (2012) "Data attack of cybercriminal: Investigating the digital currency of crime". Computer Law & Security Review, 28 (2012): 201-207.

Kaminska, I. (2016). "Bitfinex and a 36% charge from the school of life". Financial Times, August 9, 2016. Available on-line at https://ftalphaville.ft.com/2016/08/09/2172299/bitfinex-and-a-36-per-cent-charge-from-the-school-of-life/. Accessed on March 2017.

Kaspersky (2016b) "KSN Report: Ransomware in 2014-2016". Kaspersky Labs. June 2016, available on-line at https://securelist.com/files/2016/06/KSN_Report_Ransomware_2014-2016_final_ENG.pdf. Accessed on January 2017.

Kaspersky (2016b) "Kaspersky DDoS Intelligence Report for Q2 2016", Kaspersky Labs. available on-line at http://AO Kaspersky Lab. Accessed on February 2017.

Kaspersky (2015a) "Kaspersky Security Bulletin 2015. Overall Statistics for 2015", Kaspersky Labs, available online at http://AO Kaspersky Lab. Accessed on February, 2017.

Kharaz, A., Arshad, S., Robertson, W. & Kirda, E. (2016) "UNVEIL: A Large-Scale, Automated Approach to Detecting Ransomware". Proceedings of the 255th USENIX Security Symposium, August 10-12, 2016, Austin, Texas. Available on-line at https://www.usenix.org/system/files/conference /usenixsecurity16/sec16_paper_kharraz.pdf . Accessed on March 2017.

Konradt, C., Schilling, A. & Werners, B. (2016) "Phishing: An economic analysis of cybercrime perpetrators", Computer and Security, 58 (2016): 39-46.

Krebs (2016) "Computer Virus Crillpes UK Hospital System", October 2016. Available on-line at https://krebsonsecurity.com/2016/11/computer-virus-cripples-uk-hospital-system/ Accessed on December 2016.

Kuchler, H. (2016) "Internet of Things was mobilized for internet outage, says Dyn", Financial Times, October 23, 2016. Accessed on March 2017.

Kuchler, H. (2016) "Connected devices create millions of security weak spots", Financial Times, October 23, 2016. Accessed on February 2017.

ISACA (2015) "State of Cybersecurity: Implications for 2015. An ISACA and RSA Conference Survey", available on-line at https://www.isaca.org/cyber/documents/State-of_Cybersecurity_Res_Eng_0415.pdf. Accessed on February 2017.

ISACA, ITGI (2011) "Global Status Report on the Governance of Enterprise IT (GEIT – 2011)". Available on line at www.isaca.org/Knowledge-Center. Accessed January 2017.

Leyden, J. (2017) "Ransomware brutes smacked 1 in 3 NHS trusts last year", The Register, 17 January 2017. Available on-line at: https://www.theregister.co.uk/2017/01/17/nhs_ransomware/. Accessed on March 2017.

Ponemon Institute (2014) "Cost of Cyber Crime Study", Traverse City, MI, 2014, available on-line at http://www.ponemon.org/glog/2014-global-report-on-the-cost-of-cyber-crime. Accessed on December 2016.

Quadir, S. (2016) “Bangladesh Bank exosed to hackers by cheap switches, no firewall: police”. Reuters, April 22, 2016. Available on-line at http://www.reuters.com/article/us-usa-fed-bangladesh-idUSKCN0XI1UO

Savage, K., Coogan, P. & Lau, H. (2015) “The evolution of ransomware”. August 6, 2015. Report available on-line at http://www.symantec.com/content/en/us/enterprise/media/security_response/whitepapers/the-evolution-of-ransomware.pdf. Accessed on October 2016.

Shulman, A. & Patel, D. (2016) “CryptoWall ransomware attacks are carried out by a small set of attackers”. February 9, 2016. Available on-line at https://www.imperva.com/blog/2016/ 02/cryptowall/. Accessed on December 2016.

Symantec (2016) “2016 Internet Security Thereat Report”, available on-line at www.symsntec.com. Accessed on February 2017.

Sittig, D. & Singh, H. (2016) “A Socio-Technical Approach to Preventing, Mitigating, and Recovering from Ransomware Attacks”. Applied Clinical Informatics, Volume 7(2), 2016. Available on-line at https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4941865/. Accessed on January 2017.

Tuttle, H. (2016) “Ransomware Attacks Pose Growing Threat”. Risk Management Magazine, May 2, 2016. Available on-line at http://www.rmmagazine.com/2016/05/02/ransomware-attacks-pose-growing-threat/. Accessed on December 2016.

Verizon (2016) “2016 Data Breach Investigation Report”, available on-line at http://www.verizonentreprise.com/resources/reports/rp_DBIR_2016_Report_en_xg.pdf. Accessed February 2017.

PS7 LAW 2

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Unsettling trends in collective bargaining today
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Unsettling trends in collective bargaining today

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Abstract: *Today, there is virtually no legal system that does not enshrine collective bargaining – as the foundation of a balance of forces in the labour market. At each level it is conducted (international - European - national - sector - local - unit), it determines the way labour relations are regulated and gives workers the opportunity to express themselves, through solidarity, with a unique voice.*
Through collective bargaining, employees have the opportunity, by uniting their bargaining power to counter-balance the superior power of the employer, to determine the acceptance of (some of) the demands and the contractual regulation of fair wages and working conditions, in relation to the possibilities and needs of each party.
Currently, one cannot but notice that collective bargaining has indeed its limits, some circumstantial, others permanent. Collective bargaining takes place increasingly more timid and in rather marginal areas, its results covering a smaller number of employees. As traditional expression of the solidarity between workers, collective bargaining – while this solidarity displays signs of dissolution – has diminished its strength and shows a centrifugal, decentralising tendency.
The paper presents some of the circumstances that can be considered responsible for the tendency to compress collective bargaining at all levels. Certain causes are therefore analysed: globalization, detailed legalization, the competitive relationship between employees, the consumers' pressure or the opposition of the individual employee.

Keywords: *Labour law, collective bargaining, European Union, collective agreement*

1. Preliminary considerations

Sometimes called "industrial relations law", collective labour law deals with that component of labour law governing relationships – alternating cooperation and conflict – between the social partners, including their rights and obligations regarding information and mutual consultation, collective bargaining as well as the pressure tools that are available to workers during the course of these negotiations. In principle, such a component of labour law allows workers to use the various freedoms (freedom of association, freedom to strike, freedom of expression etc.) to outsource divergences beyond the workplace itself.

Some authors operate a certain distinction between "collective labour law" and "the collective dimension of labour law" (Hendrickx, 2010: 65), but in all approaches the essential component of collective labour law is collective bargaining.

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Indeed, since early twentieth century collective bargaining has been the cornerstone of labour law. Labour law is inextricably linked to collective bargaining. In France, for example, its birth was marked by the process by which, alongside flourishing state interventionism, collective autonomy gradually absorbed individual autonomy, the union substituting itself to the individual employee as interlocutor for the employer, collective bargaining supplementing and strengthening the individual one (Adam, 2005: 136).

But the role of pioneer in the field of collective bargaining belongs to Germany. This is due – among other things – to a particular feature of national competition law. Germany did not know anti-competition legislation which was dominating trade, for example, in Anglo-Saxon countries. Monopolistic restrictions were recognized as legal and cartel type practices were not considered anticompetitive, but just expressions of the freedom of contract. In this context, unionization and collective bargaining had been accepted more easily (Däubler in Rigaux *et al.*, 2014: 60). They did not collide (as in the United States, for example) with a legislation that qualified them as practices undermining free competition. In Germany, legislation for the protection of free competition was only adopted after the Second World War, when the labour movement was already well articulated.

Today, there is virtually no legal system that does not enshrine collective bargaining – as the foundation of a balance of forces in the labour market. At each level it is conducted (international - European - national - sector - local - unit), it determines the way labour relations are regulated and gives workers the opportunity to express themselves, through solidarity, with a unique voice. Thus, for example, in our law, according to art. 51 para. (5) of the Constitution, "the right to collective bargaining in labour matters and the binding nature of collective agreements shall be guaranteed". By this provision, Romania meets its obligations arising from the ratification of International Labour Organization Conventions (especially Convention no. 87/1948 on Freedom of Association and Protection of the Right to Organise and Convention no. 98/1949 concerning the Right to Organize and Collective Bargaining).

How is collective bargaining regulated? In essence, through collective bargaining itself. For example, collective agreements will also include rules on the next collective bargaining, which gives the system its autopoietic character. The system should be capable of self-generation.

Through collective bargaining, employees have the opportunity, by uniting their bargaining power to counter-balance the superior power of the employer, to determine the acceptance of (some of) the demands and the contractual regulation of fair wages and working conditions, in relation to the possibilities and needs of each party.

Beyond these premises, however, there is a whole universe of shades. In theory, the European neoliberal discourse began to question the social value of collective bargaining itself, considering it rather as a hindrance to economic development.

Currently, one cannot but notice that collective bargaining has indeed its limits, some circumstantial, others permanent. Collective bargaining takes place increasingly more timid and in rather marginal areas, its results covering a smaller number of employees. As traditional expression of the solidarity between workers, collective bargaining – while this solidarity displays signs of dissolution – has diminished its strength and shows a centrifugal, decentralising tendency.

The regulatory scope reserved for collective labour agreements tends to shrink; they are being used mostly (as "defensive tools") to supplement the rights granted by law. The Romanian example is illustrative in this regard: the Social Dialogue Law no. 62/2011 eliminated the collective labour agreement at national level and reduced the role of collective bargaining agreements in general.

The effects are devastating. For example, during the economic crisis, the share of wages has declined, and the gross operating surplus increased, which leads directly to the conclusion that, in fact, the crisis was absorbed mainly by employees (Chivu *et al.*, 2013: 37). Where was collective bargaining found in this process? Once the balance has been shaken, the trend is towards more pronounced imbalance.

The contraction of collective bargaining does not manifest itself only in terms of categories of workers represented in the negotiations, but also in terms of the topics of negotiation. As regards our legal system, the limitations to negotiation are obvious, especially in the public sector, where the main topic – wages and other pay rights – is expressly excluded from negotiation.

And, indeed, the scope of collective bargaining tends to narrow, to the benefit of individual negotiation. This places the worker isolated in front of the employer, isolation sometimes determined by specific interests (which are not always the same with those of his colleagues), and other times by the legal impossibility of solidary action.
It is not that it would not be useful, as useful as ever for employees, but it is the fact that certain social developments have obstructive effects on collective bargaining. And centrifugal and contracting tendencies on collective bargaining may jeopardize the very branch of labour law as a whole.

Here, below, are some of the circumstances that can be considered responsible for the contracting tendency of collective bargaining.

2. Globalization

Globalization has a significant impact on collective bargaining. Relocation of large industries in other countries has (in addition to the loss of jobs) the consequence of leaving an important gap in the trade union movement (Stone and Cummings, 2013: 275). Moreover, employers can resist union pressure much better in conditions of globalization, as they can easily relocate businesses in other regions of the world. And even when they do not follow on this threat, remaining in the original country, the very existence of this possibility at any time distorts the conduct of collective bargaining. Confronted with the threat of relocation, unions are sometimes reluctant to impose their demands, something that reinforces the public perception of their inefficiency. I have dealt more extensively on this elsewhere (Dimitriu, 2016: 270).

3. Detailed legalization

When social partners diminish their force, one of the first social reactions is (over) legalization. If employees and their unions do not have enough power to directly impose the recognition of certain interests on the employer, the law can do that directly. The more detailed regulations are, the less room is left for collective bargaining, especially in a system that does not allow derogation from the law unless it benefits the employees.

And, naturally, employees are voters. In this capacity, they may become interesting for those in power, who may confer certain rights directly (bypassing collective bargaining) by means of normative acts. Moreover, it thus becomes more lucrative for trade union leaders to engage in political struggle than in collective labour relations, as it may be easier to discuss with the government than with one's employer.

But there is also a catch here: the politicization of the trade union movement sooner or later leads to its being discredited. Association with one political party or another can be fruitful only on short-term. Participation of trade unions in the political arena, be it manifest or covert, the numerous compromises without mandate from the workers and a certain general perception regarding their rather anti-reformist position led to a permanent decline in popularity of trade union organizations.

However, legalization cannot achieve ***de plano*** the nuances of a collective agreement specifically adapted to the interests of those who have negotiated it. Moreover, the inclusion in the law of the rules of a collective agreement is most likely incomplete (and the most significant example for Romania is the national collective labour agreement the clauses of which were only taken up in part by the legislation at the time when it was abolished by the Social Dialogue Law).

In this context, a particular characteristic of collective agreements concluded here may also be mentioned: it has been noted that the instrument of collective bargaining was not always exploited creatively; many collective agreements at branch/sector level ended up reproducing the provisions of the law, of the National unique collective agreement, when it was in force, or perpetuating older contractual arrangements. Collective bargaining confines itself to extension of periods, adding paid leave days, superior rights, but on the exact same architecture already proposed by law, by higher level collective agreements or by older collective agreements. The consequence is that certain clauses, otherwise useful and easy to be accepted by employers, are missing from most collective agreements. They might concern, to give just one example, providing a dismissal notice which varies depending on the length of service in the unit (and therefore loyalty to it), or emphasizing the obligation of vocational training of employees at the expense of the employer.

Although, in theory, labour law is also the result of a process of negotiation and it should involve wide consultations with the social partners, in fact it is the expression of political choices, often disconnected from any form of social dialogue.

4. Competitive relations between workers

In the traditional landscape of labour relations, employees are working shoulder to shoulder, pursuing interests that even if they are individual, they nonetheless share common features, working together for the good of the company and, ultimately, for their own benefit. And, indeed, it can be said that competition rules cannot be (fully) implemented in the sphere of employment, because since labour is not a commodity, workers cannot be regarded as sellers of their workforce, who would compete with each other to get the price (wage) offered by the buyer (employer). Moreover, after conclusion of the employment contract, the role of labour law is not only to distort market rules, by protecting the worker, but sometimes even to completely remove these rules. In other words, even if the selection of the applicants for employment has a certain competitive character, the competition can no longer continue after the conclusion of employment; workers could not be in competition with their colleagues, with people looking for a job or workers in precarious or seasonal jobs.

But in reality, this is exactly what is happening. The new management of human resources has an impact on the relations between workers who often perceive themselves as competitors. The consequence is that industrial relations get atomized while collective bargaining becomes impossible because internal competition undermines solidarity and therefore the inclination for joint action.

On the transnational level – the relation based on competition is even more evident. The internationalization of the labour market expands and amplifies the intensity of the competition. "Work is not a commodity" - is the assertion that is linked to the genesis of labour law. Today, however, it seems equally appropriate to say "labour law is not a commodity" (Conachan *et al.,* 2005: XXVII), since globalization and the economic crisis often cause legal systems to lower the standards of protection of employees, as competitive advantage.

In the European Union, for example, subsidies, tax breaks and other fiscal incentives to attract investment are in principle prohibited. European regulations prevent almost any instrument of this type. What can be done then to increase the level of attractiveness for investors? Just one thing: lowering protection standards for workers in places where the intervention the union legislator is much more restricted.

The very concept of "social dumping" used in European labour law to support the need to impose certain standards of social protection for all workers - is reminiscent of competition.

And internationally, beyond the borders of Europe, the practice of reducing labour law standards to create a competitive advantage becomes ever more present.

This development has led some authors to consider that labour law tends to turn in reality into "social competition law" (Schubert, 2014: 29), putting the worker in a competitive position in relation to other workers, just like a company is in a position to compete against other companies. Which obviously affects solidarity and the possibility of collective bargaining; competitive relationships are not conductive to solidarity, which is seen as weakened not only at the international or national levels, but even at the level of a single establishment.

Competition characterizes not only relations between employees, but also those between unions, which often act as entities competing in attracting members. And this has a certain impact on the trade union movement as a whole and on collective bargaining at higher levels – such as sector level.

Therefore, competitive relationships lead to the dissolution of solidarity between workers and, consequently, limit collective bargaining. But, as in a vicious circle, even where collective bargaining does take place, it can lead back to relationships that are even more competitive. Indeed, sometimes, collective bargaining, instead of directing towards reinforcing solidarity between workers, it has the effect of weakening it. Because what employees obtain by collective bargaining is not always a "victory" over the employer but over other employees. Collective bargaining is not always a regulator of relations between labour and capital, but it is often a means of redistributing resources among workers.

An example: imposing social criteria for selecting employees in case of collective dismissals. Such a provision contained in the collective labour agreement would not diminish the number of employees laid off, but would just favour some employees to keep their jobs, with priority over others. Thus the distribution among workers of a certain disadvantage is negotiated, protecting some and exposing others; the employer may not bear any direct disadvantage.

Thus, during collective bargaining, instead of the classic question "Who will win - the workers or the employer?" we have to deal with another question: "Who will win and who will lose among workers?"

The reality on which collective labour law was built is uniformity of interests at the workplace. Nevertheless, along with the diversification of employment and types of contracts this uniformity tends to end. There is a "hard core" of stable employees, surrounded by a mass of precarious, marginal workers not fully benefiting from the results of negotiation and therefore, they are neither interested in it (many not having proper employment contracts, but a variety of contractual arrangements of an uncertain legal nature).

Collective bargaining, therefore, no longer contains all workers in the company since an important part of them have their own interests, different or even impossible to reconcile with those of their colleagues (which, amid the dissolution of solidarity that I mentioned previously they often do not even perceive them as "colleagues").

Indeed, workers are no longer found in divergent relationships only with the employer, but also (and sometimes even primarily) with other workers, belonging to the same state or to other Member States of the European Union. The free movement of persons and the freedom of the provision of services determines workers not only be able to perform work in the territory of a Member State, but in the territory of any other Member State, and when the number of jobs is limited and the unemployment increasing, each worker is in fierce competition with any European worker. If some employees working for the same employer often perceive themselves as competitors, such positioning is even more pronounced when it comes to employees of other employers, operating under different legal systems, possibly subject to another legislation. The lack of solidarity that generated the Laval case (Case C-341/05) did not stop at the borders of trade union law or the practice of labour relations, but also penetrated into the very theory of labour law, separating ideologists, separating approaches and even forcing theorists to take sides.

The Laval case is emblematic for the depth of the differences between the interests of workers in the old or the new Member States constituting (at a time when the European Union was still not facing the major dilemmas of today) a first alarm signalling that, under the appearance of a united Europe based on solidarity and mutual assistance lay hidden differences of interests, complex and perhaps even a certain amount of contempt.

On another level, multiplication of hiring options and categories of workers (employees hired with atypical contracts, economically dependent workers, self-employed etc.) amplified competitive relations among workers and shifted the centre of gravity of union activity.

Could the extension of collective bargaining be a solution? A broader negotiation that would involve not only employees, but also non-employees, raising their standards of protection and reducing this "negative" competition?

Indeed, many European systems of law began to allow unionisation of other categories of workers than employees, for example economically dependent workers: Austria, Denmark, Germany, Ireland, Italy, Lithuania, the Netherlands, Sweden and the UK. And some systems have gone even further than that, for example in Spain, the journalists' right to collective bargaining is recognized, even if they do not have employee status.

Similarly, in Germany, the law expressly provides the right of collective bargaining not only for employees, but also for "quasi-employees", i.e. formally self-employed but economically dependent workers.

However, collective bargaining of non-employees encounters a number of obstacles in principle, starting with the representativeness of those who would negotiate on behalf of workers whose legal relationship is marked by its very uniqueness. In addition, significantly, collective bargaining could not cover workers who are legally and economically independent, as the Court of Justice of the European Union held in Case C-413/13, since otherwise it would affect art. 101 para. (1) of the Treaty on the functioning of the European Union.

5. The consumers' pressure

When trade union demands concern all employees of the establishment, so that the benefits that some of them get are not to the detriment of others, the employees claiming – and getting – superior rights applicable to all, at first glance it would seem that it is the employer who will have to pay the price of the concession made during collective bargaining.

But even in these cases, the costs of accepting the demands will likely be paid by consumers (who might be also workers that are equally disadvantaged economically like the ones for whom it was negotiated) rather than by the employer. Thus, some results of the collective bargaining perceived by workers as success stories may be viewed with reticence by consumers, customers, the general public; they will be compelled to buy more expensive products. Workers are also consumers; the price shall be carried on by the latter and the advantage of the former will only be apparent.

If the negotiation fails, a collective dispute is triggered which is generally seen as generating costs. Although any interruption of production is obviously harmful, often to both sides, one should bear in mind that reaching an agreement is not without costs either. While a strike will affect not only the parties in the collective dispute but also third parties (customers, consumers, beneficiaries, etc.), similarly, reaching a compromise and concluding a collective agreement could have repercussions on production costs and further on prices, thus affecting consumers.

6. The opposition of employee-individual

Collective bargaining, even if successful, results in the conclusion of a collective agreement, which will be applicable ***erga omnes*** at unit level and with relative applicability at higher levels. From the provisions of this collective agreement, employees may not derogate, during negotiation of the individual employment contract except for higher rights; derogation ***in pejus*** is prohibited in Romania (as in most other European systems of law). The collective labour agreement has on individual employment contracts concluded within its scope – a normative effect.

In other words, collective contractual freedom is confined by the limits imposed by law; likewise, individual contractual freedom is confined by the limits imposed by the collective bargaining agreement.

The possibility to derogate from the law ***in pejus*** by the collective agreement and from the provisions of the collective agreement by the individual contract is called "opting out" and constitutes an explicit consecration of the contractual freedom. In our law, this possibility is recognized on one single occasion, namely regarding the reference period in relation to which the maximum limit of 48 hours per week is determined. Thus, art. 114 para. (3) and (4) of the Labour Code sets out the right, through collective bargaining, to provide a reference period longer than the legal one (derogating therefore to the disadvantage of the employees). This capacity recognized to collective bargaining is singular in our law, and it was possible as the effect of the transposition of Directive 2003/88 concerning certain aspects of the organization of working time.

With this one exception, the derogation to the disadvantage of employees is prohibited in our law. There are, however, situations where this ban could still be regarded with reservations, for example:

- When individual interests do not overlap perfectly over collective ones. Thus, it is possible that an employee, at the individual level, may not be interested in a job security clause negotiated by the union in exchange for a lower level of wages than what employees would otherwise have been expected. A particular employee might not be interested in job security over a predetermined period of time, but he might be interested in getting a higher salary. Individually, he could ask for a higher salary, but even if he wanted to give up the security clause, it is applicable anyway. Likewise, the social selection criteria collectively bargained in the eventuality of collective redundancies may not meet the interests of a particular employee who does not meet those social criteria;

- When a clause in the collective labour agreement is bilateral in nature, providing rights for both parties. For example, when the employer makes some concession to the employees in return for a corresponding concession on their part. In French law, such clauses are considered indivisible, therefore they shall be considered together as more favourable or less favourable to the employee, in relation to all constituents (P. Adam, 2005: 319). In our law, the analysis is not global, but on each component, each renunciation or concession in part coming from employees – is void, without this nullity necessarily attracting nullity of the reciprocal concession from the employer. Naturally, this approach is reflected on collective bargaining itself, which will take place in a narrower margin of freedom.

The legislator thus seeks to privilege collective bargaining in relation to the individual one, a legitimate objective considering the general profile of labour law. And also in a legitimate manner, the collective labour agreement treats workers as members of the community, absorbing their identity; it is not aimed at individual expectations, but is related to the community, which regards the worker in more abstract terms.

The employee-individual might be inclined to manifest resistance against this system. Indeed, on the altar of the "trade union struggle," workers have traditionally been taught to sacrifice their individual interests against those of the majority, thus subjecting themselves to a union democracy which usually does not preserve the identity of sub-groups and does not protect minorities. With time, this divergent relation between the union interest and the individual has undermined some of the force of the union, leading to some frustration among members, who saw their own personal interests (often more important to anyone than those of the group) under-represented or completely ignored.

And the result can be the lack of involvement itself of the employee-individual in support of collective bargaining, with effects that can be multiplied in cascade.

7. Diminishing European collective bargaining

From the foregoing analysis we have seen that there is a tendency to compress collective bargaining at all levels, decentralizing and narrowing it down to the individual employer. We can ask ourselves further if the European Union as an entity ontologically oriented toward solidarity, found formulas to counter this phenomenon, to support collective bargaining beyond the borders of each Member State.

First, it should be noted that the formal framework exists. The European Union recognizes the freedom of association and the right to collective bargaining as fundamental rights. Moreover, art. 154 of the Treaty on the functioning of the European Union provides the European Commission's task of promoting consultation of the social partners at EU level and adopting any relevant measure to facilitate their dialogue by ensuring a balanced support for the parties (Voiculescu and Neagu, 2016: 93 -95).

Following the acquisition of representativeness, the European social partners have the right to be consulted by the European Commission and may decide to negotiate binding agreements. The legal basis for this type of social dialogue is found in the Treaty on the functioning of the European Union. Indeed, if the partners negotiate and conclude agreements at EU level, they are enforced by virtue of art. 155 para. (2) of the Treaty on the functioning of the European Union, in accordance with the procedures and practices of their own and those of the Member States (for comments on art. 154-155 of the Treaty on the functioning of the European UnionGeiger *et al*., 2015: 646-649). In some areas, the agreement of the European social partners may result in a directive, which gives legal value at European level.

The social partners participate, besides consultations on relevant legislative proposals, at a biannual macroeconomic dialogue, as well as at discussions held twice a year at the high level Tripartite Social Summit.

Conceptually, cross-border collective bargaining can take place:

- at the level of an enterprise of European dimensions, leading to the adoption of collective agreements at the level of the enterprise (mega-employers, which employ at least 1,000 employees in the Member States and, in at least two different Member States, at least 150 employees in each of them, are considered here);
- at branch level, with application in production units in the same industry but in several Member States, through trade union members of the same European confederations, or employers' organizations that belong to the same confederation, respectively;
- at EU level, with a view to concluding collective labour agreements between representative social partners at European level (Dimitriu *et al*., 2009: 31).

Annually over 200 European transnational company agreements are concluded in the EU, which would indicate that labour relations within large transnational companies in Europe have some degree of integration. Some transnational company agreements provided answers formulated at European level regarding the challenges posed by the crisis and have created mechanisms for managing change. Transnational company agreements already cover more than 10 million employees. Noteworthy in this context is the adoption of social partner agreements generally applicable in the European Union, such as the Agreement on the development of lifelong skills and qualifications (2002) or the Tele-Work Agreement (2002). Unlike previous agreements, which had been enforced by means of directives, these agreements had a direct and autonomous implementation.

Collective bargaining is even supported by a number of (embryonic) cross-border collective actions, including letters of support for trade union actions in a country by the trade unions formed in other countries or even solidarity strikes (or, more broadly, secondary collective actions). The Committee of Experts of the International Labour Organisation has repeatedly criticized the legal systems which do not allow the organisation of such actions, which they consider necessary in a globalized economy and relocation of industrial centres (Jaspers, in Dorssemont *et al*., 2007: 45). The right to take collective action and to conclude collective agreements constitute fundamental rights that are part of the general principles of European labour law.

Indeed, cross-border collective action is considered the corollary of European social dialogue. This was defined as:

(1) collective action involving or bearing on employees of two or more Member States or
(2) collective action carried out within a Member State, with reference to the employment relationships of employees in another Member State – in a spirit of cross-border solidarity (Bercusson, in Dorssemont ***et al.***, 2007: 8).

Cross-border social dialogue is also supported beyond the territory of the European Union through the actions of the International Labour Organisation.

In the light of these prospects, it would have seemed natural that the next step should be the multiplication of collective labour agreements at transnational level and even the creation of a European collective labour law, based on generally applicable collective agreements. And yet, such a perspective is much more remote than it would seem.

The reasons for scepticism as regards a future European negotiation can be identified in different directions:

- A large proportion of the provisions on labour relations exceed the regulatory power of the European Union. Against the background of a similar general vision of Member States, one encounters substantial differences, differing regulatory frameworks resulting from both objective factors (such as the relative novelty of European Union concerns in social matters) and the deliberate exclusion of certain topics from the preoccupations of the European Union (such as remuneration, the right of association, the right to strike or the right to impose lock-outs, remaining the exclusive competence of each Member State). The relatively small number of Directives and Regulations adopted in the field of labour law is indeed proof that we are in an area where internal self-regulation is used to a greater extent than in other branches of law, the intervention of the European legislator being rather discreet;
- Negotiation at European level is not sufficiently supported through European mechanisms involving the social partners, who in turn have an incipient character. Thus, "although the role of the social partners was institutionalized at European level, analyses show that they were not properly integrated into the decision-making process" (Szyszczak, 2006: 499). The reference to the social partners in the Treaty on the functioning of the European Union was considered as "rather vague" (Rodhes, 2005: 295), and their participation in the European Employment Strategy has been generally acknowledged as "its weakest part" (Rodhes, 2005: 299);
- Some institutions of representation, such as the Works Council, exist in some Member States (France, Germany), still missing in other Member States (including Romania);
- The social partners themselves have evolved differently, have "internationalized" asymmetrically. In fact, there is a profound mismatch between the systematic internationalization of the capital and the

predominantly national character of trade union organizations (Conachan *et al.*, 2005: 381);

- The instrument correlative to the strike, namely the lock-out, is allowed in some Member States and not in others. On the contrary, the strike, although permitted everywhere, can be organised in the most varied ways and according to the most diverse terms. As a result, even if the negotiation of collective agreements at European level were allowed, their failure to be finalized would not be able to lead simultaneously and in a similar way to collective action taken in different Member States;
- As mentioned previously, there is a relationship of competition between workers, which acts as an agent undermining solidarity, evidently at national level, but even more pronounced at European level. Such a relationship of competition among employees makes things more complicated and removes the possibility of effective collective bargaining agreements;
- One of the main objectives of the trade unions in old Member States is anti-dumping policy, taking into account the practices of the workers from new Member States having penetrated the western labour market. Therefore, the interests of western unions seem to collide with those of the workers from Central and Eastern Europe;
- Even if such collective agreements at European level could actually be concluded, their effective implementation would be a substantial problem. Agreements reached so far by the European social partners were then implemented in their own countries by means of internal instruments (legislative initiative and collective labour agreements).

Maybe for the reasons stated above, the European social dialogue, recognized as being part of the European Social Model, is conducted rather shyly and mainly results in the adoption of documents without direct legally binding force (the so-called *soft-law*). Even in conditions of globalization, it is stated firmly that even in the most developed economic regions of the world, the legal regime of collective labour relations is essentially national (Engels and Weiss (eds.), 1998: 146-147).

The traditional relation, alternating conflict and consensus, between employer and employees, internally but also at European level, is coupled with a new type of relation, in turn consensual and conflictual: between workers belonging to different Member States. They are competing for a limited number of jobs. It may be a theme for reflection for unions as well, since the objective of European trade union solidarity seems more distant than ever.

Here's one example: manifestations against austerity policies, even though they had a common background and were generated by the same decisions taken at European level, remained circumscribed to national territories. Even when such policies have directly addressed employment relations (leading for example to wage cuts) they could not generate transnational union movements or strikes, among other things because the legal regime for resolution of collective disputes is so different from state to state. Solidarity is not only difficult psychologically and socially, but also restricted legally. The transnational strike still remains a theoretical possibility.

Collective labour law remains – alas! – deeply rooted in the national sphere and almost insensitive to the phenomenon of European integration.

8. Conclusions

The particularity of labour law compared to other branches of law is that, along with legal sources, it has negotiated sources. The latter is not the result of the manifestation of the will of the legislator, but of collective bargaining meant to lead to an agreement of wills between the social partners. It is about contracts and collective agreements – contractual sources of collective labour law – as results of collective bargaining. The dual nature of the source of labour law is the one which always shaped the identity of this branch of law. It would seem, however, that we are witnessing a return of labour law to the "individual", an abandonment of the collective (and collectivist) underpinning of labour law with a direct and unfortunate impact on collective bargaining.

Thus, the issue of collective bargaining is high on the agenda throughout the European and American literature on labour law. It is thus noted that collective bargaining is constantly focused on pay and redundancies, rarely having regard to other interests, such as the human need for self-affirmation, respect and dignity at work (Collins, in Wilthagen (eds.), 1998: 117). These interests remain problems managed by individual negotiation or, worse off, left entirely to the management. Against this background, the fundamental legitimacy of the collective bargaining seems to be questioned.

In this context, in turn, globalization, digitalization, competitive relations between workers, pressure from consumers, the increasingly significant image deficit experienced by unions (traditional exponents of employees in collective bargaining), the dissolution of solidarity between workers at national but also European level – led to a contraction (collapse) of collective bargaining to disturbing levels.

References

Adam, P. (2005), *L'individualisation du droit du travail*, Librairie Générale de Droit et de Jurisprudence, Paris

Bercusson, B., (2007) "Restoring Balance of Economic Power in Europe", in F. Dorssemont, T. Jaspers, A. Van Hoek (eds.), *Cross-Border Collective Actions in Europe: A Legal Chalenge*, Ed. Intersentia, Antwerpen-Oxford

Chivu L., Ciutacu C., Dimitriu R. & Ţiclea T., (2013), *The Impact of Legislative Reforms on Industrial Relations in Romania*, ILO, Decent Work Technical Support Team and Country office for Central and eastern Europein IndustriaL and employment Relations DepaRTmenT (DiaLogue)

Collins, H., (1998), *Flexibility and Empowerment*, in T. Wilthagen (coord.), "Advancing Theory in Labour Law and Industrial Relations in a Global Context", Royal Netherland Academy of Arts and Science, Amsterdam

Conachan, J., Fischl, R.M. & Klare K. (coord.), (2005) *Labour Law in an Era of Globalization. Transformative Practices & Possibilities*, Oxford University Press

Däubler, W., (2014), "Labour Law and Competition", in Rigaux, M., Buelens, J., Latinne, A., (eds), *From Labour Law to Social Competition Law?* Ed. Intersentia

Dimitriu R., (2016), *Dreptul muncii. Anxietăţi ale prezentului,* Ed. Rentrop şi Straton, București

Dimitriu, R. & Vartolomei, B., Vidat, A., (2009) *Negocierea colectivă şi protecţia lucrătorilor migranţi în cadrul Uniunii Europene*, Romanian Review of Labour Law, no. 5, p. 24-35

Engels, C. & Weiss, M., (eds), (1998), "Labour Law and Industrial Relations at the Turn of the Century", Deventer – Boston, Kluwer Law International

Geiger, R., Khan, D-E & Kotzur M. (coord.), 2015, "European Union Treaties", CH Beck, Hart, Germany

Hendrickx, F., (2010), *The future of collective labour law in Europe*, "European Labour Law Journal", nr. 1, p. 59-79

Jaspers, A., (2007) "The right to collective action in European Law", in F. Dorssemont, T. Jaspers, A. Van Hoek (eds.), *Cross-Border Collective Actions in Europe: A Legal Chalenge*, Ed. Intersentia, Antwerpen-Oxford

Rodhes, M., (2005)., *Employment Policy: Between Efficacy and Experimentation*, in H. Wallace, W. Wallace and M. Pollack (editori), "Policy-Making in the European Union", Fifth Edition, Oxford: Oxford University Press

Schubert, J.M., (2014), *Instruments of Labour Law*, in Rigaux, M., Buelens, J., Latinne, A., (eds), *From Labour Law to Social Competition Law?* Ed. Intersentia

Stone, K. & Cummings, S., (2013), *Labour Activism in Local Politics*, în "The Idea of Labour Law", coord: G. Davidov, B. Langille, Oxford University Press

Szyszczak, E., (2006), *Experimental Governance: The Open Method of Coordination*, în "European Law Journal", Vol. 12, No. 4.

Ştefănescu, I.T. (2014), *Tratat teoretic şi practic de drept al muncii*, Ed. Universul Juridic, Bucureşti.

Voiculescu, N. & Neagu, (2016,), V., *Protecția drepturilor lucrătorilor în dreptul internațional și european*, Ed. Universitară, p. 93-95.

Positive and negative implications entailed by fixed-term employment contracts

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Abstract*: Generally, fixed-term employment contracts are seen as a stepping stone to permanent employment; they have become popular among the flexible forms of work contracts, and are the object of an increasing number of debates and assessments, investigating both the respective legislation and the specific consequences on the parties concluding a fixed-term employment contract. Despite the positive aspects of temporary employment – a positive effect on the rate of employment, and the common perception of such contracts as a preliminary step to permanent employment, as well as the flexibility they bring to the labor market – one cannot ignore the negative implications of fixed-term contracts on the nature of the employment relationship, the system of social protection, the working conditions, the economic security, and the job stability.*

Based on these considerations, the present paper investigates the advantages and disadvantages of the individual fixed-term employment contract from the standpoints of both employers and employees. Obviously, this approach aims to explore the usefulness and importance of these contract types, as means for balancing the needs of employers and employees on the labor market, and for identifying concrete instances that justify the liberalization of fixed-term employment, despite all the inherent risks entailed by any type of non-standard work: lack of job security; reduced social protection and security for those concluding such a contract.

Keywords*: Fixed-term contract; flexible employment; atypical work*

1. Introduction

Fixed-term (temporary) employment contracts are among the most common[i] forms of employment that depart from the standard type. In many member states of the European Union, this type of employment has become a key characteristic of the labour market. In 2014, more than 15% of the employed individuals across Europe had temporary work contracts. The proportion, however, can reach much higher levels – for instance, 28.4% in the case of Poland, which has the greatest number of fixed-term employment contracts in Europe[ii]. Generally, fixed-term employment contracts are seen as a stepping stone to permanent employment[iii]; they have become popular among the flexible forms of work contracts, and are the object of an increasing number of debates and assessments, investigating both the respective legislation and the specific consequences on the parties concluding a fixed-term employment contract. Despite the positive aspects of temporary employment – a positive effect on the rate of employment, and the common perception of such contracts as a preliminary step to permanent employment[iv], as well as the flexibility they bring to the labour market – one cannot ignore the negative implications of fixed-term

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contracts on the nature of the employment relationship, the system of social protection, the working conditions, the economic security, and the job stability. The workers having concluded such atypical contracts, are considered „vulnerable workforce" from the standpoint of labour law, because of poor jobs offering low payment and scarce benefits, limited social protection, low training and skills, and lack of opportunities for promotion. Also, the insufficient stability of jobs and income, the insecurity concerning the future prospects for the workers on this type of employment contract – most of the times, entrapped in temporary jobs undertaken repeatedly or even leading to unemployment, rather than resulting in permanent employment on a steady position[v] - are aspects that increase the vulnerability of temporary employees with fixed-term contracts. Based on these considerations, the present paper investigates the advantages and disadvantages of the individual fixed-term employment contract from the standpoints of both employers and employees. Obviously, this approach aims to explore the usefulness and importance of these contract types, as means for balancing the needs of employers and employees on the labour market, and for identifying concrete instances that justify the liberalization of fixed-term employment, despite all the inherent risks entailed by any type of non-standard work: lack of job security; reduced social protection and security for those concluding such a contract.

2. Benefits from the employers' standpoint

Beside the increased flexibility ensured by this specific type of work relationship, the individual fixed-term (temporary) employment contract is very important for the strategy chosen by employer companies in order to cut down on their expenses. For instance, by employing temporary workers, businesses attempt to avoid the uncertainties caused by too high economic risks, adapting their own particular economic situation to the unpredictable fluctuations of the marketplace or market trends. Research into the benefits of this type of employment reveals lower costs for dismissal, compared to the dismissal of employees with steady jobs and permanent employment contracts. The more flexible regulations and lower costs involved by the termination of fixed-term contracts push employers to seek this alternative, which is much cheaper and more attractive than regular employment contracts. Actually, the rigid regulations concerning permanent employment – which normally require employers to comply with strict and expensive stipulations that regulate the dismissal of employees, or even oblige them to offer severance pay if the job is suppressed[vi], are one of the major reasons why employers turn to temporary workers. In their case, the fixed-term employment contract simply expires at the end of the period it covers, without obliging the employer to any legal procedure or obligation. Another advantage for employers, and possibly the most important one, is the fact that fixed-term contracts also involve lower social security costs, such as the contributions to pension funds (retirement funds) or health insurance. Specialized labor law literature[vii] has noted that all these advantages enjoyed by employers are actually as many disadvantages to their employees. For instance, the fact that an individual fixed-term contract is terminated at the end of the period it covers, actually points to an important issue: the low security and stability of that job for the respective category of employees who sign such a contract. Also, cutting the costs related to the social security system – an advantage from the employer's standpoint – becomes a disadvantage for the temporary employee, who is deprived of this package of social benefits (health insurance and pension). This certainly aggravates the economic and social instability faced by fixed-term employees, and may entail a number of negative consequences – not only regarding their income and social security, but also regarding their families, as it affects their decisions on starting a family or the number of children they might have[viii]. However, more can be said about the possible benefits brought to the employer by this flexible type of work. This type of employment contract can be used in order to bypass the complexity of some staff recruitment processes, and especially to test new types of business, for which it is hard to predict the necessary number of employees. Thus employers find it much more convenient to start by hiring people with individual fixed-term employment contracts, and later transfer them – if necessary – to steady positions by concluding permanent individual employment contracts[ix], also benefitting from the experience these workers have gained in that line of work. Consequently, this atypical form of employment is convenient not only because employers obtain reduced costs and become more competitive, but also because it provides them with an opportunity to evaluate the professional qualities of their employees, before engaging in a standard relationship[x]. A fixed-term employment contract can be used as an extended probation period, which offers increased safety and benefits for the employers as it enables them to appraise the performance of an employee so that permanent contracts can be offered only to skilled and tested workers[xi]. This is an additional positive aspect of fixed-term employment contracts, from the standpoint of the employers.

Like other atypical work arrangements, the proliferation of fixed-term employment – a working tool that increases the flexibility of labor market – is also motivated by the general perception of this type of contract, as a means to reduce unemployment thus having a positive influence on the level of employment[xii]. Specialized literature[xiii] has pointed out that by resorting to individual fixed-term contracts, the labor market „can increase the turnover of the workforce, shifting from unemployment to employment and vice-versa, and it can also influence the probability of leaving unemployment”[xiv]. The increase in the number of fixed-term contracts, is seen as directly proportional to the increase in the general level of employment during the expansion stage of the business cycle (economic cycle), a level that may become lower during the recession stage of the business (economic) cycle. We also note that this assumption is rather theoretical, and it is not yet certain – not an established fact, at least so far – that the proliferation of fixed-term employment contracts actually triggers an increase in the employment level, finally resulting in a lower level of unemployment. Literature provides evidence of this[xv]. For example, the legislation of Poland, which until recently allowed fixed-term contracts to be concluded freely, had a particular regulatory mechanism. The (excessive) liberalization of this type of contract on the Polish labor market, by dropping any restrictive regulations – such regulations could be implemented at will by the parties, which did not have to motivate their options – has generated the greatest number of fixed-term employment contracts in Europe (for instance in 2014, 28% of the employment contracts were fixed-term). This, however, did not lead to lower levels of unemployment than the European average. We may also mention the cases of Spain and Portugal, where one out of five employees has concluded such a contract, but the level of unemployment has not changed significantly. Can we, then, justify the use of fixed-term contracts in the fight against unemployment, when the surveys produce pessimistic results? Especially since, as we shall see, this specific type of employment contract entails many negative effects for the workers, effects which ought to be compensated – at least partially – by this expected increase in the level of employment.

3. Benefits from the employees' standpoint

Work on fixed-term contracts is often regarded by employees as inferior to work carried out on a standard employment contract. However, according to the European views, this contractual form significantly boosts the chances of workers to obtain permanent employment[xvi] or find a job that suits their needs. In other words, due to various life circumstances, certain categories of workers are unable or unwilling to work on a permanent basis, and thus the fixed-term contract is the predilection choice for joining the labour market. This category includes, for instance, young students who want to earn some money, but are available only during holidays, as well as persons in the rural areas, who seek employment only in winter[xvii]. For other groups of workers, the fixed-term contract marks the so-called „stepping stone" or the transition to permanent employment[xviii], as well as an opportunity to gain experience and benefits concerning the training and professional development, if they are inexperienced in that type of work[xix]. However, there are categories of persons who are greatly affected by this type of employment: mainly young people (aged between 15 and 29), women, as well as persons without higher education and less skilled professionally. A survey conducted on this subject has revealed that the probability to hold a fixed-term contract is inversely proportional to the level of education, that is, the highly educated employees are less likely to have a fixed-term employment contract than the less educated, less skilled persons. The latter have a 3.2% lower chance for permanent employment.[xx] In other words, for these categories of workers, fixed-term contractual arrangements are not normally a voluntary choice, but rather an alternative to unemployment[xxi]. For this reason, we think that for the labour market, this specific type of employment is useful only up to a certain point, that is, the moment when the option of a worker signing such a fixed-term employment contract is no longer a free choice, but is the result of some constraints (for example, the lack of opportunities for permanent employment), and on the other hand, the undesirable situation where temporary jobs, obtained by fixed-term individual employment contracts, fail to lead to permanent employment[xxii], but rather tend to lead to more temporary jobs or unemployment, at the end of the duration covered by the contract[xxiii]. As we shall demonstrate below, beyond this point the fixed-term workers have increasingly vulnerable positions, entailed by the temporary character of the employment contract; this vulnerability is increased by the succession of temporary jobs, because of the lack of other options. Fixed-term contracts offer higher job satisfaction and ensure the work-life balance only for certain categories of workers, for whom this type of employment is justified; however, for the vast majority of workers, this non-standard contractual arrangement is merely an alternative for unemployment or a way of joining the labor market, which is not based on a voluntary option of the respective persons. Many investigations have been conducted to reveal the employees' level of satisfaction with this type of contract. They found that indeed, job satisfaction is significantly lower among the fixed-term workers. Interestingly, the key element influencing the satisfaction level is not necessarily the type of contract, but rather, the perception of job security it entails[xxiv]. This means that a generous social welfare system, providing high unemployment benefits (also called unemployment insurance, or unemployment compensation) can increase the job satisfaction of fixed-term workers, which may thus match the satisfaction level of permanent employees with steady jobs, thus leading to a win-win situation for all parties involved in the employment contract.

4. Disadvantages from the employees' standpoint

The increased flexibility of labour market, brought by fixed-term employment contracts, also has negative effects. They are manifest especially in the many vulnerabilities challenging this category of workers (actually, all workers engaged in non-standard employment). The temporary character of the fixed-term contracts renders these workers vulnerable, and places them on a special, disadvantageous position compared to standard workers. We shall dwell on the special vulnerabilities later, considering all elements which define this specific type of employment: the economic, social, social welfare factors as well as the professional development and training of those who sign such a contract. For now, it is important to understand that despite the credit given to fixed-term contracts as an attractive alternative to unemployment, there is this significant disadvantage: they increase the insecurity of fixed-term labour, which is precisely one of the causes of vulnerabilities. Specialized literature provides many investigations into the negative consequences entailed by fixed-term employment: disparities in income, working and employment conditions, social welfare rights between the fixed-term employees and those holding a standard employment contract, respectively. These surveys have revealed that the labour market is divided, between the workers with permanent, steady jobs (the so-called *insiders)* and those with a fixed-term employment contract (the *outsiders*). According to this *insider/outsider* pattern, the former have stable, well-paid employment and a high level of social protection and security, while the fixed-term workers hold a significant part of secondary economy, which provides unstable, unprotected jobs with low social rights and benefits; moreover, they can be easily dismissed in the event of economic crises[xxv]. It has been found that these circumstances defining the „*outsiders'*" sphere entail higher risks of unemployment in the future for these workers. Indeed, on the one hand the jobs taken by fixed-term workers are less skilled and easier to find, thus generating shorter unemployment periods; but on the other hand, these jobs are also more easily lost and consequently increase the risk of unemployment for the future[xxvi].

This is why the fixed-term employment contracts are associated with great potential precarity, expressed as follows:

4.1. Regarding the job instability and the protection granted to the employees on a fixed-term employment contract

The job instability entailed by this type of employment, caused by the uncertainty concerning the future of a worker on fixed-term contract[xxvii], is probably the greatest of all vulnerabilities. The legislation regulating fixed-term employment contracts does not provide the same level of job security as traditional employment does. These significant disparities in the legislative provisions governing the protection offered to permanent employment versus fixed-term employment contracts, is mainly reflected by the perceived dimension of the risk of dismissal for the two categories of employees. Juridical literature has pointed out that the standard model (permanent employment) continues to guarantee greater protection and job security, because the perceived risk of job loss and consequently unemployment is lower among the employees on a permanent employment contract, compared with their counterparts on non-standard contracts[xxviii]. In this context, we mention that there are legal systems that are acknowledged for their efforts undertaken in order to diminish the precarity level characteristic to this specific category of workers, by strengthening the specific protection granted to those who sign such contracts. This is achieved by imposing strict rules that regulate the dismissal of the employees on fixed-term contracts – usually, not before the contract has expired. The most edifying examples are provided by the legal provisions in **Finland, Germany, Italy,** which aim to increase as much as possible the specific protection for fixed-term employees, in order to reduce the risk of abuse in this type of employment. For instance, in **Finland,** a fixed-term employee can be dismissed only for disciplinary reasons. It is also forbidden to suppress a job for reasons independent from the person of the employee; if the employee is dismissed, however, the employer has to pay them the due salary until the contract expires[xxix]. In the same spirit the legislation of **Germany** dictates that a fixed-term employment contract cannot normally be terminated before its term has expired, or the project that makes the object of the contract has been completed, unless a clause has been inserted in the employment contract to this effect[xxx]. Moreover, the fact that the provisions of the „Protection Against Unfair Dismissal Act" ***(Kündigungsschutzgesetz***) – including the circumstances of contract termination – equally apply to permanent employees and temporary employees, is in fact a guarantee for the job protection offered to the workers on fixed-term contracts[xxxi]. In the same context, a pleasant surprise is provided by the legal system of the **Netherlands**, where *The Flexibility and Security Act* of 1999 aimed to increase the flexibility of labour market in the benefit of employers, by relaxing the conditions for hiring and dismissing, but also strengthening employees' protection through equal protection rights granted to permanent workers, on the one hand, and fixed-term workers, on the other. Similarly, an advantageous solution was offered to the employees on a fixed-term contract, by stipulating that the fixed-term contract will automatically become a permanent employment contract, if maximum three consecutive fixed-term contracts (without interruptions longer than 3 months between them) have been concluded, and the successive fixed-term contracts have covered maximum 3 years[xxxii].

A different perspective on legal regulations can be found, for instance, in **Poland**, where the fixed-term employment contract can be terminated at any time through a notice given by the employer, without any obligation incumbent on the latter to justify this option, as is the case for a permanent employment contract. There are a few exceptions to this rule, concerning the contracts concluded with those categories of employees who are protected by law against dismissal (those on maternity/paternity leave, those on childcare leave, as well as those employees with less than 4 years to go until they reach the age of retirement). Another factor that widens the gap between the job security level, for the two types of employment contracts – fixed-term and standard, respectively – concerns the employer's obligation to consult the union to which the employee is affiliated, announcing his intention to notify the employee of the termination of the contract, an obligation that applies only for permanent employment contracts. This means that the workers on a fixed-term contract cannot protest against the wrongful termination of his contract for lack of well-founded reasons (as a standard employee could), but only for illegal termination or unacceptable termination ***ex lege***[xxxiii].

Although as we have seen, in countries such as Finland, Germany, Italy, job protection has known a particular evolution, based on the individual fixed-term employment contract, however job security is still not similar for temporary workers and standard, permanent workers, respectively. The situation is even more worrisome in Poland, where there is a great disproportion between the protection of fixed-term employment and permanent employment, in the favour of the latter. We may even assert that this protection is virtually missing in the case of fixed-term employees, under this legal system.

4.2. Regarding the inequality of training and promotion opportunities

The employee's vulnerabilities, generated by this type of employment, also have consequences on the hiring and working conditions. In the context of our analysis, we mention the empirical data recorded by specialized literature[xxxiv], revealing a major discrepancy between the employers' investments in the professional development and training of temporary workers versus permanent workers. This fact is seen as strongly influenced by the cost-benefit ratio from the standpoint of the employer. More precisely, if the period while the employer will derive profit from such investments into the professional development of fixed-term workers is short, then the interest of employers in providing training for the development of this workforce segment is low[xxxv]. This explains employers' preference for the professional development and training of permanent workers, perceived as „their own"[xxxvi], versus their significantly lower interest in temporary workers[xxxvii], generally hired in order to satisfy some temporary need for labour force. We note that this low interest from the part of employers in the opportunities for professional development and training of this category of employees, has negative influence on their chances to gain the technical skills and knowledge required in the respective companies; fixed-term workers will be less skilled than standard ones. On the other hand, the drawback caused by the unequal distribution of training opportunities between the two categories of employees, creates a major competitive disadvantage for the fixed-term workers, with negative implications on the chances for professional development and promotion. Under such circumstances, a fixed-term worker's opportunities to have his/her contract renewed are diminished and, consequently, the risk of future unemployment increases[xxxviii]. The inequality in the opportunities for professional development and training offered to temporary workers, also has economic implications: there is a tendency to ascribe this discrepancy to the unfavourable financial circumstances. In other words, if the financial resources of a business, intended for the employees' professional development and training, are limited, then it is very likely that the temporary workers (known as ***outsiders)*** will be affected by cuts. For this reason, indeed, the more frequently fixed-term contracts are used – as a predilect means for cutting production expenses and dealing with temporary needs of employers, and not so much as a means for assessing the productivity of a possible permanent worker –, the more acutely will fixed-term workers feel this discrepancy in the opportunities for professional development and training, during times of economic crisis[xxxix]. An example confirming this hypothesis is **Spain,** where the disadvantageous economic circumstances of 2008 seemed to aggravate this problem, resulting in a segmentation of labour market and the proliferation of temporary employment contracts to the detriment of the permanent employment ones. There are several reasons in the particular case of this legal system. Firstly, the legislation concerning the fixed-term employment contracts strongly influenced the vulnerable position of temporary workers on the labour market, leading to contractual segregation between temporary and permanent employees. The former category was associated with the satisfying of transitory needs of companies, unlike the latter category of standard workers[xl]. Secondly, the increased mobility of temporary workers on the labour market – on the one hand, as a result of frequent employment of this class of workers on short-term temporary contracts, usually no longer than 3 months, and on the other hand, as a result of employers' resorting to fixed-term contracts as a predilect means for dealing with transitory needs, without any interest in turning these workers into steady employees – greatly contributed to the lack of skilled labour force occurring in Spain[xli], with a significant impact especially on the young population.

4.3. Regarding the lower pay than permanent employees' remuneration

This category of workers also has a special position generated by the economic effects of fixed-term contracts, from the standpoint of employees. Numerous surveys have demonstrated that, although law consecrates the principle of payment parity for fixed-term workers and permanent workers, respectively, actually the former category earns less than the employees holding permanent, steady positions. Specialized juridical literature[xlii] has shown, for instance, that in **Spain** there is a 12% difference in pay scale, between the remunerations of fixed-term workers and permanent workers. This gap widens if we consider other characteristics of the employees in the two categories we compare: the average difference in hourly wages amounts to 15% between the fixed-term employees and their counterparts with similar tasks, but holding permanent jobs. Similarly, **the UK** report such pay differentials in the case of the two groups of workers – temporary/permanent – which encompasses the gender differences. Thus, male workers employed on fixed-term contracts have an hourly income that is 16% smaller than the income of their male counterparts, who hold a permanent employment contract, while the women with fixed-term contracts earn 13% less than their male counterparts holding permanent employment contracts[xliii]. Clearly, this „penalty" imposed on fixed-term workers' salaries impacts their pension and social welfare rights, and also affects their ability to obtain bank loans[xliv] or even start a family. As shown in the previous subchapter, a great asymmetry between the spheres of temporary and standard workers, respectively, also includes the access of the former category to the professional development and training programs. Therefore, a key element in maintaining this discrepancy in the remuneration levels, lies in the unequal skills of these two categories of employees, which has polarized the fixed-term workers in the underpaid sectors of economy. Under these circumstances, we think it useful for states to seek to adopt regulations that might reduce these vulnerabilities challenging temporary employees, in order to prevent abuse in exercising the fixed-term employment contracts.

4.4. The social welfare measures

The situation is again not in the favour of temporary employees. Eligibility criteria for social welfare payments are more complex in the case of fixed-term workers, than in the case of permanent-contract workers. Usually, the social security systems envisage the „standard employees", and affiliation to the systems of social protection and security is a criterion linked to the standard individual employment contract[xlv]. For example, **in Germany**, the unemployment insurance system provides unemployment benefits (social welfare payments) on condition that there is a *waiting period* of at least 12 months, and the beneficiaries pay the mandatory contributions to the unemployment insurance system. The unemployment benefits amount to 60-67% of the average net salary calculated for the last 52 working weeks, and the benefits can be paid for 6 -18 months, depending on the type of employment contract held previously, and the age of the unemployed person. Usually, the provision imposing a 12 months' waiting period, prevents young persons' access to this scheme, so they are provided welfare allowances granted by the state. Moreover, the unemployment insurance (compensation) system in Germany provides training programs for the unemployed, winter allowances for the workers in the constructions industry, as well as measures aimed to integrate disabled persons[xlvi]. Similarly, the temporary employees' access to the occupational pension schemes **in the UK**, as stipulated by the *Fixed-Term Employees Regulation*, obliges employers to allow their access to the occupational pension schemes to the same extent as the permanent employees. However, there can be exceptions to this rule in the case of fixed-term employment contracts covering a shorter duration than the period stipulated as a condition to gain the rights to the pension scheme (*vesting period*). In this situation, the employer could find an objective justification to exclude temporary workers from the pension scheme available to permanent employees, if including temporary workers entails disproportionate costs or brings no benefits to the employee. In order to strengthen the protection of temporary workers, this legal provision stipulates that if the employer fails to provide access to a pension scheme for temporary workers in compliance with the law, then the employer must offer to the temporary employee, in compensation, an increased salary, equivalent to the contribution to the pension system paid for a permanent worker[xlvii].

5. Conclusions

We easily find that it is hard to identify mutual advantages, from the standpoint of both parties, concerning the fixed-term employment contract. We may assert that a major criticism of this type of employment addresses the numerous disadvantages affecting temporary workers, in contrast with the many benefits enjoyed by the employer. The temporary character of this type of employment, the sense of great instability and low protection for those working on such contracts, the scarce opportunities for professional development and training, the limited rights and social benefits, all these are significant difficulties faced by this category of employees. Also, these difficulties met by fixed-term workers are as many constant challenges faced by the legislative bodies of EU member states, and reveal the need to adjust the stipulations regulating fixed-term employment contracts. They should pursue a reconcilement of interests of both parties involved in the fixed-term contract – both employers and employees. As our investigation indicates, the relevant legislation is still insufficient and more or less causes the instability of employment on fixed-term contracts (see: Germany, Spain, but especially Poland), as it fails to provide equal security to temporary and permanent employees. These flaws of legal systems actually result in the segmentation of labour market, divided between standard employees and temporary ones, respectively, and increasing the risk of unemployment for this specific category of workers[xlviii].

References

Babos, P. (2014), *Step or trap? Transition from fixed-term contracts in Central Eastern Europe*, in Post-Communist Economies, Taylor & Francis, vol. 26, no. 1.

Blanpain, R.; Nakakubo, H. & Araki, T. (2010), *Regulation of Fixed-Term Employment Contracts*, in Bulletin of Comparative Labour Relations, 76, Ed. Wolters Kluwer.

Burgoon, B. & Dekker, F. (2010), *Flexible employment, economic insecurity and social policy preferences in Europe*, in Journal of European Social Policy, vol. 20, no. 2.

Camas Roda, F. (2013), *Standard and non-standard work in Spain*, in J. Buelens, J. Person, *Standard work: ananachronism?* Intersentia Publishing Ltd., Cambridge.

Cutuli, G. & Guetto, R. (2013), *Fixed-Term Contracts, Economic Conjuncture and Training Opportunities: A comparative Analysis Across European Labour Markets,* in European Sociological Review, vol. 29, no. 3.

Dimitriu, R. (2016), *Dreptul muncii. Anxietăți ale prezentului*, Ed. Rentrop & Straton.

Jahn, E. J., Riphahn, R.T. & Schnabel, C. (2012), *Feature: Flexible forms of employment: boon and bane,* p. F115, in The Economic Journal, 122 (August).

Karime Abadía Alvarado, L. (2014), *The effects of fixed-term contracts on workers in Colombia*, p. 423, in Cuadernos de Economia, vol. 33, no. 63.

Kothe, W.; Rosendahl, C. (2013), *Standard and non-standard work in Germany*, in J. Buelens, J. Person, *Standard work: ananachronism?* Intersentia Publishing Ltd., Cambridge.

Koukiadaki, A. (2010), *The Regulation of Fixed-Term Work in Britain*, - Blanpain, R., Nakakubo, H. & Araki, T., *Regulation of Fixed-Term Employment Contracts – A Comparative Overview*, Ed. Wolters Kluwer.

Ludera-Ruszel, A. (2016), *„Typical" or „Atypical"? Reflections on the atypical forms of employment illustrated with the example of a fixed-term employment contract - a comparative study of selected European countries,* in Comparative Labour Law & Policy Journal, vol. 37, no. 2.

Mooi-Reci, I. & Dekker, R. (2015), *Fixed-Term Contracts: Short-term Blessings or Long-Term Scars? Empirical Findings from the Netherlands 1980-2000,* in British Journal of Industrial Relations, vol. 53, March.

Vettori, S. (2008), *Fixed term employment contracts: the permanence of the temporary*, pp. 189-208, in Stellenbosch Law Review, vol. 19, no. 2.

https://www.cariereonline.ro/antreprenor/strategie/munca-temporara-romania-un-avantaj-pentru-angajator-dar-si-pentru-angajat

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[i] Alongside part-time employment, which is the best developed form of atypical employment on the labor markets.

[ii] Countries with a well-established fixed-term employment tradition are also: Spain, Portugal, the Netherlands, where the percentage of workers on this type of contract amounts to approximately 25% of the total workforce employed. On the other hand, lower numbers of such contracts were concluded, for the same period, in Italy and Germany, with 14% and 13.2%, respectively. (See Agata Ludera-Ruszel, *„Typical" or „Atypical"? Reflections on the atypical forms of employment illustrated with the example of a fixed-term employment contract - a comparative study of selected European countries,* pp. 408-409, in Comparative Labour Law & Policy Journal, 2016, vol. 37 (2), pp. 407-445).

[iii] Pavol Babos, *Step or trap? Transition from fixed-term contracts in Central Eastern Europe,* în Post-Communist Economies, Taylor & Francis, vol. 26, no. 1, 2014, p. 40.

[iv] Brian Burgoon and Fabian Dekker, *Flexible employment, economic insecurity and social policy preferences in Europe*, in Journal of European Social Policy, vol. 20, no. 2May 2010, p. 126.

[v] It has been found that only 40% of the temporary employees gain a permanent position at the end of their first fixed-term contract. (Pavol Babos, *op. cit.,* în Post-Communist Economies, Taylor & Francis, vol. 26, no. 1, 2014, p. 47).

[vi] Raluca Dimitriu, *Dreptul muncii. Anxietăți ale prezentului*, Rentrop & Straton, 2016, p. 105.

[vii] Stella Vettori, *Fixed term employment contracts: the permanence of the temporary*, pp. 189-208, in Stellenbosch Law Review, vol. 19(2), 2008, p. 189.

[viii] For instance, in Spain, the women working on a fixed-term contract delay maternity, compared with women on a standard (permanent) employment contract. This has had a negative impact on the fertility rate for this category of employees. (Luz Karime Abadía Alvarado, *The effects of fixed-term contracts on workers in Colombia*, p. 423, in Cuadernos de Economia, 33 (63), 2014, pp. 421-439).

[ix] Luz Karime Abadía Alvarado, *op. cit.,* p. 423, in Cuadernos de Economia, 33 (63), 2014, pp. 421-439).

[x] Elke J. Jahn, Regina T. Riphahn and Claus Schnabel, *Feature: Flexible forms of employment: boon and bane,* p. F115, in The Economic Journal, 122 (August), 2012, pp. F115-F124.

[xi] This argument contributing to the mobility of employment has been substantiated in states such as the Netherlands, which have reported an increase in the number of workers transferred to permanent positions after a fixed-term employment period. (See Irma Mooi-Reci and Ronald Dekker, *Fixed-Term Contracts: Short-term Blessings or Long-Term Scars? Empirical Findings from the Netherlands 1980-2000,* p. 116, in British Journal of Industrial Relations, March 2015, vol. 53, pp. 112-135).

[xii] Regarding the importance of fixed-term employment contracts for the increase in the general level of employment, the specialized literature has put forth another hypothesis. According to it, the lower labor costs entailed by fixed-term employment – due to the easy dismissal process – could encourage employers to create more new jobs. (See Agata Ludera-Ruszel, *op.cit.,* pp. 408-409, in Comparative Labour Law & Policy Journal, 2016, vol. 37 (2), pp. 407-445).

[xiii] Luz Karime Abadía Alvarado, *op. cit.,* p. 424, in Cuadernos de Economia, 33 (63), 2014, pp. 421-439).

[xiv] In Spain, surveys have shown that fixed-term employment has actually influenced the distribution of unemployment duration: this duration has increased for long-term unemployed persons, and has decreased for short-term unemployed persons, because the latter are preferred by employers. (Luz Karime Abadía Alvarado, *op. cit.,* p. 424, in Cuadernos de Economia, 33 (63), 2014, pp. 421-439).

[xv] Raluca Dimitriu, *op. cit.*, p. 106.

[xvi] Literature terms it a „stepping stone”, that is, a step to permanent employment.

[xvii] See: https://www.cariereonline.ro/antreprenor/strategie/munca-temporara-romania-un-avantaj-pentru-angajator-dar-si-pentru-angajat, accessed on 10.03.2017.

[xviii] Pavol Babos, *op. cit.,* p. 40, in Post-Communist Economies, Taylor & Francis, vol. 26, no. 1, 2014, pp. 39-52. In the UK, the average duration of fixed-term employment contracts before they turn into permanent employment, is 3 years for women and 3.5 years for men.

[xix] A survey conducted in the UK has revealed that for 17% of jobs based on a fixed-term employment contract, the main reason is gaining professional skills and abilities, while for 16% it is a way of ascertaining the productive potential of a worker, with a view to considering him/her for a permanent position (See Roger Blanpain, Hiroya Nakakubo and Takashi Araki, *Regulation of Fixed-Term Employment Contracts,* in Bulletin of Comparative Labour Relations, 76, 2010, Ed. Wolters Kluwer, pp. 29-30).

[xx] Luz Karime Abadía Alvarado, *op. cit.,* p. 435, in Cuadernos de Economia, 33 (63), 2014, pp. 421-439.

[xxi] Agata Ludera-Ruszel, *op. cit.,* p. 411, in Comparative Labour Law & Policy Journal, vol. 37 (2), 2016, pp. 407-445.

[xxii] Unfortunately, this situation reflects reality: the conclusion reached is that only 40% of employess on such positions succeeded in securing a permanent job. However, there are states with a higher percentage, such as Estonia and Slovakia, with 62.14% and 67.99%, respectively, a situation accounted for by the different ways in which the labor market institutions regulate this transition. For instance, a legal system with strict rules that apply to the dismissal procedure has a negative influence on the opportunities for gaining permanent employment. (See Pavol Babos, *op. cit.,* p. 47, in Post-Communist Economies, Taylor & Francis, vol. 26, no. 1, 2014, pp. 39-52).

[xxiii] Conclusion reached, for instance, in Germany and the UK. (See Luz Karime Abadía Alvarado, *op. cit.,* p. 424, in Cuadernos de Economia, 33 (63), 2014, pp. 421-439).

[xxiv] Elke J. Jahn, Regina T. Riphahn and Claus Schnabel, *op. cit.,* p. F116, in The Economic Journal, 122 (August), 2012, pp. F115-F124.

[xxv] Irma Mooi-Reci and Ronald Dekker, *op. cit.,* p. 116, in British Journal of Industrial Relations, vol. 53, March 2015, pp. 112-135.

[xxvi] Irma Mooi-Reci and Ronald Dekker, *op. cit.,* p. 116, in British Journal of Industrial Relations, vol. 53, March 2015, pp. 112-135.

[xxvii] Who most of the times, cannot know whether his/her fixed-term employment contract can be renewed or, on the contrary, he/she risks becoming unemployed.

[xxviii] Agata Ludera-Ruszel, *op. cit.,* p. 443, in Comparative Labour Law & Policy Journal, vol. 37 (2), 2016, pp. 407-445).

[xxix] Raluca Dimitriu, *op. cit.*, p. 107.

[xxx] Wolfhard Kothe, Cathleen Rosendahl, *Standard and non-standard work in Germany*, in J. Buelens, J. Person *Standard work: ananachronism?*, Intersentia Publishing Ltd., Cambridge, 2013, p. 85.

[xxxi] Protection is also supported by the national legal systems, which have decreed that terminating a fixed-term employment contract is illegal if it does not have „important reasons” or „social justification”, in accordance with the „Protection Against Unfair Dismissal Act” ***(Kündigungsschutzgesetz***) – in which case the fixed-term employment contract continues to be in effect, and the employee is entitled to retrospective payment for the entire period. (See Agata Ludera-Ruszel, *op. cit.,* p. 443, in Comparative Labour Law & Policy Journal, vol. 37 (2), 2016, pp. 407-445).

[xxxii] Irma Mooi-Reci and Ronald Dekker, *op. cit.,* pp. 114-115, in British Journal of Industrial Relations, Vol. 53, March 2015, pp. 112-135.

[xxxiii] Agata Ludera-Ruszel, *op. cit*., p. 441, in Comparative Labour Law & Policy Journal, vol. 37 (2), 2016, pp. 407-44.

[xxxiv] Irma Mooi-Reci and Ronald Dekker, *op. cit.,* p. 116, in British Journal of Industrial Relations, vol. 53, , March 2015, pp. 112-135 and Giorgio Cutuli and Raffaele Guetto, *Fixed-Term Contracts, Economic Conjuncture and Training Opportunities: A comparative Analysis Across European Labour Markets,* p. 618, in European Sociological Review, Vol. 29, No. 3, 2013, pp. 616-629.

[xxxv] Giorgio Cutuli and Raffaele Guetto, *op. cit.,* p. 618, in European Sociological Review, vol. 29, No. 3, 2013, pp. 616-629.
[xxxvi] See Raluca Dimitriu, *op. cit.*, p. 107.
[xxxvii] Actually, this low attachment can be mutual or reversed – from the fixed-term employee to the employer – which can also provide low motivation for the employee to invest his specific human capital into the company. This also has a negative impact on the productivity of both company and worker. (See Elke J. Jahn, Regina T. Riphahn and Claus Schnabel, *op. cit.,* p. F116, in The Economic Journal, 122 (August), 2012, pp. F115-F124).
[xxxviii] Irma Mooi-Reci and Ronald Dekker, *op. cit.,* p. 116, in British Journal of Industrial Relations, vol. 53, March 2015, pp. 112-135.
The same author has identified an additional element which increases the risk of future unemployment for fixed-term workers: the ***stigma effects***. According to this theory, what employer is mainly interested in the history of a worker's previous jobs, or the latest employment contract; these serve as „screening device" in the recruitment process. More exactly, the nature of the previous employment contract will have a positive or negative influence on the hiring. In the case of a worker who previously held a fixed-term contract, the risk of future unemployment is greater than in the case of a standard employment contract. Workers on previous fixed-term contracts can be perceived as „underskilled and less career-oriented, which makes the job less secure and increases the probability of reiterated unemployment for the future".
[xxxix] Giorgio Cutuli and Raffaele Guetto, *op. cit.,* p. 618-619, in European Sociological Review, Vol. 29, No. 3, 2013, pp. 616-629.
[xl] Ferran Camas Roda, *Standard and non-standard work in Spain*, in J. Buelens, J. Person, *Standard work: ananachronism?*, Intersentia Publishing Ltd., Cambridge, 2013, p. 155 și p. 170.
[xli] In Spain in 2006, more than half of the population aged 15 – 64 were unskilled (51.9%) and less than a quarter of the labor force (22.5%) were semi-skilled. (See Ferran Camas Roda, *op. cit.*, in J. Buelens, J. Person, *Standard work: ananachronism?*, Intersentia Publishing Ltd., Cambridge, 2013, p. 170).
[xlii] See Luz Karime Abadía Alvarado, *op. cit.,* p. 438, in Cuadernos de Economia, 33 (63), 2014, pp. 421-439).
[xliii] We mention that job precarity entailed by work on fixed-term contracts is greater in states such as Germany or Poland, where the difference in the payment of fixed-term and permanent employees, respectively, can even reach 43% in the latter case. (See Luz Karime Abadía Alvarado, *op. cit.,* p. 438, in Cuadernos de Economia, 33 (63), 2014, pp. 421-439).
[xliv] Raluca Dimitriu, *op. cit.,* p. 107.
[xlv] Wolfhard Kothe, Cathleen Rosendahl, *op. cit.*, p. 74
[xlvi] Wolfhard Kothe, Cathleen Rosendahl, *op. cit.*, p. 75.
[xlvii] Aristea Koukiadaki, *The Regulation of Fixed-Term Work in Britain*, - Roger Blanpain, Hiroya Nakakubo and Takashi Araki *Regulation of Fixed-Term Employment Contracts – A Comparative Overview,* Ed. Wolters Kluwer, 2010, pp. 45-46.
[xlviii] Agata Ludera-Ruszel, *op.cit.,* p. 444, în Comparative Labour Law & Policy Journal, 2016, Vol. 37 (2), pp. 407-445.

Human rights against discrimination. Limits of notification right

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Abstract: *Discrimination is the way in which differences are introduced regarding the legal treatment of individuals, resulting in impaired use of their fundamental rights and freedoms. On the criteria applicable to discrimination, the law does not specify them exhaustively, leaving open the possibility of appreciating them, while respecting the principle involving legal equality. As a result, the apparently neutral practice unsubstantiated on expressly provided criteria in the law can be considered discriminatory if it concerns the limitation, elimination of recognition, enjoyment or exercise of fundamental human rights and freedoms.*
At one hand, the article discusses the legal means to protect the rights of individuals against discrimination, namely their ability to notice the National Council for Combating Discrimination or the competent courts in the event of facts in this respect. On the other hand, the existence of discriminatory provisions in regulations does not allow the use of the aforementioned means, but the exception of unconstitutionality procedure of such provisions is still open, as highlighted in the article through a case study.

Keywords: *Discrimination, right, notification, limits, unconstitutionality exception*

1. Introduction

Acts and facts of discrimination causes situations of legal inequality when people are in a comparable situation. But the lack of legal equality can be found in the opposite situation of identical treatment of persons in different situations, which by law should receive different treatment, except aspects of positive discrimination provided for in the law imperative.

The effects of facts of discrimination are directed toward a common goal, namely the limitation or total or partial exclusion of acquired rights, effects that can be found both for individuals in comparable situations or those in different situations, but treated similarly.

Initially, the international regulations included limiting criteria regarding discrimination, mainly reported under the effect of those rules object, in particular race, nationality, ethnicity, language, religion, social status, beliefs, sex, sexual orientation, age, disability, illness, membership in a certain disadvantaged group, etc.

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Later it was allowed the expansion of criteria applicable to those facts being allowed the enforcement of exclusion norms of discrimination when there is certainty to produce effects in this regard, the appearance of discrimination is sufficient when the aim of the author regarded the restriction of individuals' rights and the principle of legal equality.

The legal foundation of the discrimination concept, on the other hand, involves the intervention of the legislature in order to protect human rights and fundamental liberties and all the rights recognized by law, with reference to the political, economic, social and cultural and other fields relevant to the public life.

2. Discrimination forms

According to the law, discrimination can be defined as a set of acts or actions taken by a person who causes a situation of distinction, exclusion, restriction or preference on human rights and freedoms, for categories or groups of persons in comparable situations, due to the application of different treatments.

The concept of discrimination does not extend, however, if an objective and reasonable justification of the facts is involved. Thus, if the discrimination involves different and favourable treatment applied to a specific person to another who is in a comparable situation, objective and reasonable justification implies the absence of arbitrariness, as permitted by law.

In terms of forms of discrimination, international law and national law define mainly direct discrimination and indirect discrimination.

As regards direct discrimination, it is defined as manner to apply the less favourable treatment of a person applying the criteria of discrimination distinctly referred in law, aimed to refuse, restrict or eliminate recognition, enjoyment or exercise some rights, to the existence of a situation comparable to another person.

As a result, direct discrimination includes acts or facts related to objective criteria of discrimination (Țiclea, 2015: 22), involving direct intention of the author, in the provocation of a situation causing exclusion, distinction, restriction or preference.

On the other hand, indirect discrimination is to follow a similar purpose by performing acts or facts of discrimination, but by simulating the application of criteria other than those expressly provided in the applicable law.

The classification of these forms of discrimination can be found in Community law by Council Directive 2002/73/EC, which defines direct discrimination as a situation where a person applies a less favourable treatment based on sex, than another person in a comparable situation and by Council Directive 2002/73/EC relating to indirect discrimination as a form through which a neutral provision, criterion or practice, not directly related to a specific ground of discrimination provided for in the law, causes an effect similar to direct discrimination.

However, it constitutes indirect discrimination and active or passive behaviour applied to persons in similar situation (Muscalu, 2015:17) for the purpose of unjustified favouring or disfavouring and by submitting a person to an unjust or degrading treatment.

3. Indirect discrimination. Discriminatory provisions

GD no. 137/2000 on preventing and sanctioning all forms of discrimination is the general regulation of discrimination that includes in national legislation the regulations contained in Directive 2000/43/EC aimed at promoting the principle of equal treatment between persons irrespective of racial or ethnic origin and Directive 2000/78/EC requiring equal treatment in employment of labour force.

Legal basis of the ordinance is to ensure supreme values like human dignity, free development of personality, rights and freedoms, respect for the principle of equality among citizens, and exclusion of privileges and discrimination.

Regulation subject of the ordinance is included in Article 1 (2) letter e, respectively guaranteeing the right to work (Țiclea, 2015:56), to free choice of employment, to just and favourable conditions of work, to protection against unemployment, to equal pay for equal work, to just and favourable remuneration and social security.

According to the ordinance, indirect discrimination presupposes the existence of any apparently neutral provision, criterion or practice of the author, that have the effect of creating a legal situation disadvantaging some people compared to others in similar situations, with the specification of the non-limiting nature of these criteria.

In this case, indirect discrimination requires additional conditions to be applied to civil servants who are transferred on request to those in case of transfer in service benefit.

Thus, the provisions of article 5 letter b of Law No. 188/1999 on Civil Service Statute stipulates the obligation of public authorities or institutions, to develop policies and internal tools of management and human resource planning by applying the principles of equal opportunities and motivation to civil servants.

Thus, in terms of transfer means, Law no. 188/1999 stipulates in Article 90 (1) letters *a* and *b* both transferred in the benefit of the job, and at the request of the civil servant, both with the fulfilment of specified conditions provisioned in the job description. However, according to Article 90 (4) the transfer in the job benefit shall be done in a public function of the same category, and the class and professional degree with the public position held by the civil servant or in a public position of lower level without limiting categories of public authorities between he/her will operate, namely only between the respective public authorities or institutions of central public administration, between autonomous administrative authorities or, as applicable, between the public authorities or institutions of local public administration.

The discriminatory condition is found in section (5) of Article 90 of Law no.188/1999 and aims the conditions of transfer on request. Thus, after maintaining the requirements similar to the transfer for the benefit of job, namely in a public position of the same category, class and professional degree or a public position of lower level enters a discriminatory condition establishing that, the case of transfer at request can have place only between public authorities or institutions of central public administration, between autonomous administrative authorities or, as applicable, between the public authorities or institutions of local public administration, against the principles underlying exercise of public function (Dorneanu, 2012:16).

Thus we notice in the case, discriminatory condition concerns the failure of provisions contained in Article 1 (2) letter e of GEO no.137/2000, namely guaranteeing the right to work, to free choice of employment and to fair working and satisfactory conditions.

4. Limiting the powers of the National Council for Combating Discrimination and legal courts

According to Government Ordinance no. 137/2000 on preventing and sanctioning all forms of discrimination, the possibility of the person who considered affected by an act of discrimination to protect the rights is regulated by intimation institution to the National Council for Combating Discrimination in non-contentious procedure or to the competent legal court in the contentious procedure.

Regarding to the Council's powers to issue a judgment must also be considered the Constitutional Court Decision no. 997 of 7 October 2008 regarding the exception of unconstitutionality of disposition of Article 20 of Government Ordinance no. 137/2000 on preventing and sanctioning all forms of discrimination, the Constitutional Court Decision. 818 of 3 July 2008 regarding the exception of unconstitutionality provisioned in Article 1, Article 2 para. (3), Article 27 para. 1 of the Constitutional Court Decision no. 819 of 3 July 2008 regarding the exception of unconstitutionality of Article 1, Article 2 para. (1) - (3), Article 6 and Article 27 para. (1) provisioned in the Constitutional Court Decision no. 820 of 3 July 2008 regarding the exception of unconstitutionality of Article 1, Article 2 para. (3) and Article 27 para. (1) of the Government Ordinance no. 137/2000 and Constitutional Court Decision no. 821 of 3 July 2008 regarding the exception of unconstitutionality of Article 1, Article 2 para. (1), (3) and (11) and Article 27, where it was identified that cannot be awarded to the National Council for Combating Discrimination powers related to cancellation or refusal of the laws application in light of the fact that they are discriminatory and neither powers replacing them with rules created judicially or with other provisions found in other texts.

Likewise, by the Constitutional Court Decision no. 818 of 3 July 2008 regarding the exception of unconstitutionality of Article 1, Article 2 para. (3), and Article 27 of Government Ordinance no. 137/2000 on preventing and sanctioning all forms of discrimination the invoked articles were considered unconstitutional in so far as they are interpreted as a competence of the legal courts to cancel, refuse the application or substitute other rules created by judicial means or with provisions in other normative acts, acts with force of law on the grounds that they are discriminatory.

Also, there was subsequently issued the Constitutional Court Decision no 819 of 3 July 2008 regarding the exception of unconstitutionality of Article 1, Article 2 para. (1) - (3), Article 6 and Article 27 para. (1) of the Government Ordinance no. 137/2000 on preventing and sanctioning all forms of discrimination, the Constitutional Court

Decision no. 820 of 3 July 2008 regarding the exception of unconstitutionality of Article 1, Article 2 para. (3), and Article 27 para. (1) of the same ordinance, the Constitutional Court Decision no. 821 of 3 July 2008 regarding the exception of unconstitutionality of Article 1, Article 2 para. (1), (3) and (11) and Article 27, the Constitutional Court Decision no. 997 of 7 October 2008 regarding the exception of unconstitutionality of Article 20 of Government Ordinance no. 137/2000.

Thus, one can easily ascertain that existence of discriminatory conditions in the normative documents does not entitle CNCD or legal courts to cancel, refuse application or substitute other rules created by judicial means or with provisions in other laws, thus provisions of Article 27 (1) of 137/2000 becoming ineffective, that the discrimination victim may request the legal court by application for redress, restore to the situation previous to the discrimination, and cancelation of the situation created by the discrimination, regardless of culpability (Ghimpu and Ţiclea, 2000: 562).

5. Cancelling the situation of discrimination by the means of unconstitutionality exception

Unconstitutionality exception is the means of defence of the parties to the dispute, by invoking the unconstitutionality of the provisions of a law or ordinance. This is a procedural mean of intimation to the Constitutional Court, under the conditions specified by law, related to the disparities between the laws objecting the exception and the Constitution provisions.

In resolving the exception of unconstitutionality, the provisions applicable regulation belongs to the provisions of Article 146 letter d of the Constitution and Articles 29-33 of Law no.47/1992.

Constitutional Court intimated by the legal court before which the exception was raised by closing decides on the unconstitutionality of laws and ordinances or the unconstitutional provisions contained therein. Interlocutory must include submissions of the parties, the legal court's opinion before which the exception was raised and the lodged evidence.

The need to protect the rights of victims of discrimination by the use of exception of unconstitutionality, it is apparent from the legal provisions providing for limitation of the powers of the National Council for Combating Discrimination related to the cancellation or refusal of the application of laws in light of the fact that discriminatory provisions are also considered in the legal courts situation, namely when cancelling, replacing or refusing to apply these rules.

In this case, on the grounds of the Board of Directors Decision of the central public administration decentralized service was issued the announcement on employment by transfer at request of public execution function vacant in own apparatus, in accordance with Law no. 188/1999 regarding the Statute of Civil Servants (r2), following the amending and supplementation of GD no. 611/2008 approving the Norms regarding the organization and development of civil servants' career.

Later, a request was registered at the institution regarding the announcement of transfer at request and, reasoned that there were no other calls the application for transfer was approved with respect to the provisions of Article 149 of GD no. 611/2008 approving the Norms regarding the organization and development of civil servants' career, with subsequent amendments and Article 90 para. (5), and (7) of Law no. 188/1999 regarding the Statute of Civil Servants (r2). As a result, it was communicated to the applicant's employer, in this case the local territorial administrative unit (ATU) the start of the work in this new job, which issued a disposition to transfer the applicant to the new institution upon her request.

Respecting to the exact transfer procedure stipulated by Law no. 188/1999, Article 90, para. (5) and (7), and GD no. 611/2008 – Article 149, the executive director of the central public administration decentralized service where the transfer was done on request issued a disposition, by which the applicant began to work (Dimitriu, 2005: 327) within this structure.

In this case, although the transfer at request was made in a transparent manner, National Agency of Civil Servants (NACS) has brought to the court seeking the annulment of both the decision issued by the ATU, as well as those issued by the employing institution where the transfer was made, requesting their cancellation and reinstatement the parties in the previous situation. On the merits (Volonciu, 1999: 25) the applicant requested to the court, through union (Ţinca, 2004: 3), preventing the cancellation of the administrative act, linked (Deleanu, 2013: 372) to lack of culpability.

NACS motivation was founded by the provision of Article 90 paragraph 5 of Law no.188 /1999 in conformity to which a transfer of the defendant cannot operate on a public function from a local territorial administrative unit, former employer, on a public territorial within a decentralized service of the central public administration, in this case new employing institution.

The first instance, the Court granted the application for annulment of the aforementioned administrative acts introduced by the NACS applicant, the dispositions involving the transfer provisions issued on request were cancelled and disposed for the parties to return to the previous situation.

In reaction to the findings of the court of first instance on that cannot operate this transfer request from a public office within a local territorial public administrative unit belonging to a decentralized service of central public administration and considering the discriminatory legal provision, the parties appealed, raising the constitutionality exception of the provisions of Article 90 paragraph 5 of Law no.188/1999, based on the provisions of Article 90 paragraph 4 of the same law, since it contravenes the provisions of article 16, paragraph 1, Article 41 paragraph 1 and article 53 of the Constitution of 21 November 1991 (republished in 2003).

Regarding the discriminatory condition, if in accordance with Article 90, paragraph 4 the transfer in the benefit of the job shall be done in a public function for the same category, class and professional degree with the public position held by the civil servant or a lower level public function, paragraph 5 of Article 90 provisions that the transfer at request in a public function for the same category, class and professional degree or in a lower level public function can only take place between authorities or public institutions of central public administration, between autonomous administrative authorities or, where appropriate, between public authorities or institutions of local public administration, something that is not taxed in the first case.

More than that, from the documents of the fund file it resulted that such transfers between public authorities of central and local administration have been validated by NACS, but only if the transfer was in the job benefit.

The discriminatory condition provided above also assumes the infringement of the application goal (Iorgovan, 2005: 361) of legal provisions on freedom of mobility and career of civil servants provided within Law no.188/1999, which supports the validity and legality of the transfer at request under the same conditions with the benefit of service.

6. Conclusions

As regards the provisions of GD no. 137/2000 on preventing and sanctioning all forms of discrimination, applicable in the case, the rights of persons' protection against acts of discrimination, when such acts were performed, requires notification from the victim mainly of the National Council for Combating Discrimination as state authority that guarantees compliance and enforcement of non-discrimination, implied in the process of investigating, finding and disciplining them. The cause will be examined in non-contentious procedure; the Council may require removal of the consequences of discriminatory acts and restore to the previous situation before discrimination.

On the other hand, the introduction of intimation to the Council's role by the person that considers discriminated does not eliminate the possibility of intimation to Court, according to article 27 (1) of the Ordinance, the request of the person who considers himself/herself discriminated assuming the cancellation of the situation created by discrimination and restore to the previous situation, and compensation.

As for the discriminatory provisions of the normative acts according to these Constitutional Court decisions may not be object of CNCD intimation or to the courts, but the way is open to lifting of unconstitutionality exception by the person that considers to be discriminated.

For the purposes stated above, the categorization of acts of discrimination provisions of the ordinance restricts what items are needed for the difference in treatment in terms that they will not constitute discrimination within the meaning of the law when the context in which it founds is a genuine and determinative professional requirement, provided the identification of a legitimate aim in question and a proportional requirement. Therefore, in accordance with the provisions of Article 2 of the Ordinance does not constitute discrimination the measures undertaken by public authorities or private legal persons, if aim at achieving effective equal opportunities for the application of such positive measures.

As in the exposed present case the motivation of the unconstitutionality exception is related to the provisions of Article 4 of Law No. 188/1999 letters c and e, on the

Statute of Civil Servants, namely equality of chances, the principle that in the development of career of civil servants, the institutions and authorities have the obligation to identify and support initiatives and their individual professional development, but also the provisions of Article 27 (2) of Government Decision no. 611/2008 approving the rules on the organization and development of career of civil servants that prohibits any discrimination between civil servants, we can certainly see that provision of the law establishing the requirements to vary according to the type of transfer cannot be included in the category of positive measures, having discriminatory nature.

References

Ţiclea, A. (2015), *Tratat de dreptul muncii*, Ed. Universul juridic, Bucureşti

Ghimpu S, Ţiclea A. (2000), *Dreptul muncii*, Ed. All Beck, Bucureşti

Dorneanu, V. (2012), *Dreptul muncii. Partea generală*., Ed. Universul juridic, Bucureşti

Iorgovan. A. (2005), *Tratat de drept administrativ*, Ed. All Beck, Bucureşti

Ţiclea A, *Codul muncii*, Ed. Universul juridic, Bucureşti, 2015

Muscalu, L.M. (2015), *Discriminarea în relaţiile de muncă*, Ed. Hamangiu, Bucureşti

Dimitriu, R. (2005), *Contractul individual de muncă, prezent şi perspective*, Ed. Tribuna Economică

Deleanu, I. (2013), *Tratat de procedură civilă*, Ed. Universul Juridic, Bucureşti

Volonciu, M. (1999), *Negocierea contractului colectiv de muncă*, Ed. Omnia Uni SAST, Braşov

Ţinca O. (2004), *Dreptul muncii. Relaţiile colective*, Ed. Lumina Lex, Bucureşti

PS8 SMES REPORTING IN CENTRAL AND EASTERN EUROPE (SPECIAL ISSUE JAMIS)

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Does simplified accounting limit small and micro companies' access to bank financing?

Halina Waniak-Michalak

Does simplified accounting limit small and micro companies' access to bank financing?

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Abstract: *Enterprises that use simplified accounting can provide less information to lenders, thereby possibly hampering risk analysis. In this paper I investigate whether simplified accounting is a barrier for Polish Small and Medium-sized Entities (SMEs) enterprises to access financing resources, or makes funding more expensive for them. Telephone interviews with managers of banks and a review of statistical data are used to show that simplified accounting methods may influence the cost of capital of Polish SMEs, but it does not create a barrier to accessing external sources of financing.*

Keywords: *Small and medium enterprise, finance, banks, barriers, simplified accounting*

1. Introduction

The problem of difficult access for small and micro enterprises to external capital, especially to commercial sources of funding, is presented in many publications (Nassr and Wehinger, 2015, Duan; Han and Yang, 2009; Biernat and Planutis, 2013; Cassar, 2004; Udell, 2015). This is a barrier for development that stems from the low credit rating and high credit risk attributed to small companies. There are several major reasons for which these businesses may be perceived as riskier: lack of sufficient collateral (Czajkowska, 2013), the legal status (partnerships or proprietorships) (Bauer, 2013), inadequate knowledge of financial management (i.e. the inability to estimate the cost of capital, to assess the profitability of investments, to manage the risk) (European Parliament, 2012) and scope of accounting (Ayadi and Gadi, 2013). Small companies may be perceived as even riskier in developing countries, such as Poland, where the economy is less stable than in mature markets (Beck *et al*., 2008). This is why in these countries banks are less interested in investing in small companies than in developed countries (Dalberg, 2011).

Accounting has many ways of application. It is used by business entities, but also by non-profit organizations, professionals and governmental institutions. The principle role of accounting is to provide an information useful for users (managers, owners). The dimension of accounting (the scope of accounting) can be very narrow and ends with recording economic transactions or preparing financial statements. However, in a modern world, an accounting may also serve to "identify, measure and communicate economic information to permit informed judgments and decisions by the users of accounts" (Porter and Norton, 2014), so the scope of accounting may be much broader.

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The scope of accounting and reporting is closely related to the legal status of a business registered in Poland. In capital companies (not using simplified accounting), in which the concept of separate entity is used, the assessment of credit risk is easier and less costly than in the case of the self-employed or micro-companies. Moreover, ownership structure determines the level of tolerable financial risk. Family businesses operating mainly to provide an income for the owner and the members of his/her family reluctantly become indebted due to the fact that this is a threat to the stability of family life (Starczewska-Krzysztoszek, 2014). Thus, in this paper I investigate whether simplified accounting is a barrier for Polish Small and Medium-sized Entities (SMEs) enterprises to access financing resources, or makes funding more expensive for them.

The first part of the paper describes accounting regulations for small and micro enterprises in Poland and what kind of simplifications in accounting Polish businesses may use. The second section presents the literature review on the influence of simplified accounting on an access of small companies to finance. The last part of the paper shows results of interviews with bank managers and findings on the bank's offer for small businesses.

The findings may be important for all researchers interested in the role of financial information in the decision making of creditors and the consequences of the simplification of accounting for access of small companies to bank finance (including IFRS for SMEs). In order to reach our goal, literature research and interviews with five banks managers were used. Interviews with bank managers were anonymous, because official permission of the bank headquarters for the interview is almost not possible to obtain in Poland. Access to more managers was extremely challenging despite numerous attempts. While this impairs generalizability of findings via such a small number of interviews, this data nicely complements statistical data and our in-depth understanding of the polish case.

2. Accounting regulations for small and micro enterprises in Poland

Small and micro enterprises, depending on the type of business and its size, fall under different accounting and tax regulations. The basic legal act regulating the activity of business units receiving income more than 1,200,000 EUR is the Accounting Act issued on the 29 of September 1994 (with further refinements).

On September 5 2014, the regulator introduced a new category of business entity, the micro and small unit, which do not have to use all the regulations of the Accounting Act. It was forced by the UE Directive 2013/34/EU *of the European Parliament and of the Council of 26 June 2013 on the annual financial statements, consolidated financial statements and related reports of certain types of undertakings*. Limits of revenues, balance sheet sum for micro, small and medium-size entities indicated in the Directive were presented in the Polish Accounting Act in PLN. Therefore, the regulator included in this group of micro entities firms that do not exceed two of the three following amounts:

a) 1,500,000 PLN – balance sheet sum,
b) 3,000,000 PLN – annual revenue,
c) 10 employees – average annual number of full time employees (FTE)

These micro-entities can prepare simplified financial statements, including a balance sheet and a profit and loss statement.

Small entities, according to the Polish Accounting Act, are firms that do not exceed two of the following three amounts:

a) 17,000,000 PLN – balance sheet sum,
b) 34,000,000 PLN – annual revenue,
c) 50 employees – average annual number of full time employees (FTE)

Small entities additionally have the right to prepare simplified financial statements, however they are more detailed than the statements of micro enterprises. Entities that do not reach revenues of 1 200 000 EUR have to follow the regulations of the Income Tax Act for individuals, according to which, particular entities are required to keep a revenue and expense ledger and others will pay the flat rate of tax on registered income or pay a fixed tax using a tax card (Table 1).

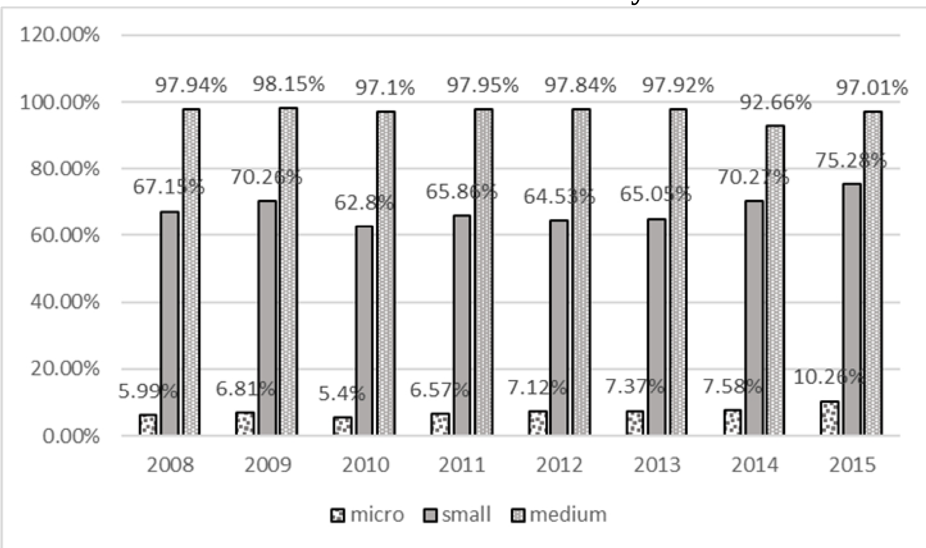
Table 1. **The scope of bookkeeping and reporting of Polish business units in connection with the chosen form of taxation and size of activity**

Type of accounting	**Conditions**	**Description**	**Information provided**
Tax card	· revenues< 150,000 Euro · Activity described in article 3 of the Income Tax Act · number of employees< 3	Tax is paid as a lump sum, regardless of the value of revenues and costs incurred	· salaries register · copy of invoices of sale and purchase
Tax on registered income:	· revenues<150,000 Euro · activity described in art. 2 and 8 of the Income Tax Act · number of employees >3	Tax is paid as a percentage of the registered revenues (costs are not taken into account)	· salaries register · copy of invoices of sale and purchase · register of equipment and intangible assets · register of supplies
Revenue and expense ledger	· revenues<1,200,000 Euro · partnership or proprietorship	The company pays the tax depending on its income (revenues minus costs). The company uses tax regulation instead of the Accounting Act to record revenues and costs,	· revenue and expense, financial results · register of salaries · register of equipment and intangible assets plus amortization plan · record of the vehicle usage and supplies
Full accounting for micro companies	Fulfilment of 2 of the following 3 requirements: **1.** balance sheet sum < 1,500,000 PLN, **2.** net sales <3,000,000 PLN, **3.** average employment <10 FTE · legal status of capital company	Full accounting with some exceptions, such as: simplified financial statements, possibility to use tax regulations in place of accounting regulations. Notes for financial statements are not necessary	· Information from the accounting system: costs, revenue, assets and liabilities, · A simplified financial statement for micro entities including: revenue from sale and other revenue (without details), main positions of assets and liabilities.
Full accounting for small companies	Fulfilment of 2 of the following 3 requirements: · balance sheet sum < 17,000,000 PLN, · net sales <34,000,000 PLN, average employment <50 FTE	Simplified financial statements, without a statement of the changes in equity or a cash flow statement as well as activity statement on the condition that the information will be presented in notes for the financial statement. In addition, financial ratios and information on the influence of the entity on the environment are not required.	· Information from the accounting system: costs, revenue, assets and liabilities, · financial statement for small entities

(*Source*: Own elaboration on the basis: Dz.U. z 1998 r. n. 144.; Dz.U. 1991 n. 80; Dz.U. 1988 n. 44.; Dz.U. 1994 n. 121)

It must be noted that every business entity in Poland may choose not to use simplified accounting, even those that record revenues lower than 150,000 EUR. However, despite such a possibility, many small businesses use simplified accounting, recording only revenue (revenue card for each employee in the case of the tax card) and wages. Research shows that only 16.79% of SMEs and 6% of micro-enterprises kept full accounting (Fundacja Rozwoju Biznesu [Foundation for Business Development], 2013), while most (approx. 70% of enterprises) use a revenue and expense ledger (see Figures 1; 2; 3). Only about 6-7% of micro enterprises use full accounting and 65% of small companies, implying that the problem with access to external financing may affect only 1/3 of small companies but more than 90% of micro enterprises. If we exclude the revenue and expense ledger, the biggest problem concerns only micro enterprises (Figure 2 and 3), because almost only micro entities use tax on registered income and revenue and expense ledger.

Figure 1. Share **of number of enterprises not using simplified accounting in the number of SMEs in Poland in the years 2008-2015**

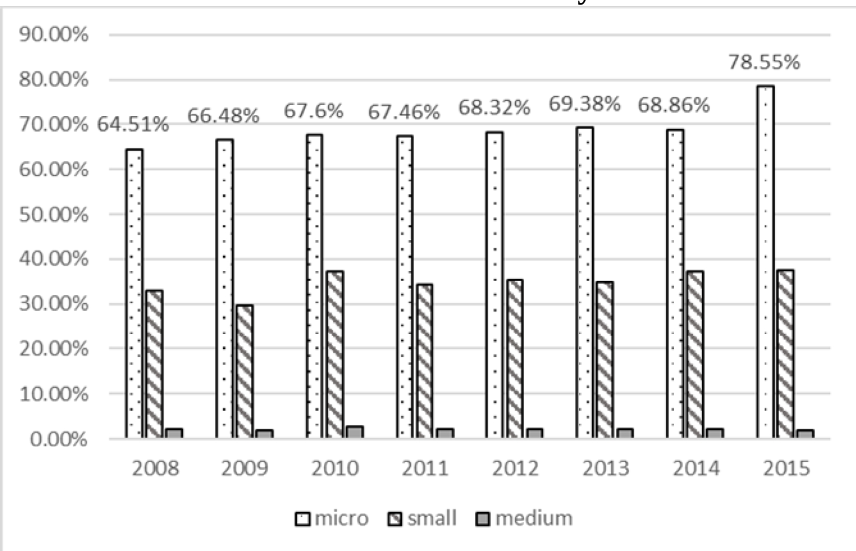


(*Source*: Own elaboration on the basis of statistical data of the General Statistics Office: „Działalność przedsiębiorstw niefinansowych" [Activity of nonfinancial enterprises] for the years 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015)

The revenue and expense ledger must be kept by entrepreneurs in Poland who receive annual income higher than 150,000 EUR., that is, those who cannot pay income tax on the basis of a flat rate of recorded income or the tax card. The income and expense ledger is a form of taxation and bookkeeping (most popular among micro-entities and second most popular among small businesses) (Figure 2). It must be noted that the least popular forms of accounting are flat rate tax and the tax card, i.e. the simplest tax and accounting forms (Figure 3). However, they also cause the highest difficulties in obtaining external financing (Pogodzińska-Mizdrak, 2008) and the inability to subtract operating expenses from revenue (including reporting losses during economic crises and the possibility to pay lower tax in the following years). Despite the constraints of the information contained in the revenue and expense ledger, it is a reliable source of information for lenders. In comparison with other simplified forms of bookkeeping, it does not create a large obstacle in obtaining external financing. It is possible to conduct a financial analysis of the entity and even prepare financial statements to apply for external financing (i.e. EU grants) (Jaworski, 2009) by taking into account such data from the revenue and expense ledger as:

1) sales revenues,
2) other revenues,
3) values of purchases,
4) additional costs of purchases,
5) wages and salaries, in cash and in kind,
6) other expenses,
7) register of plant, property and equipment and intangibles,
8) register of cash, receivables and payables (not obligatory, but some enterprises keep records).

Figure 2. **Share of number of enterprises using the revenue and expense ledger in the number of SMEs in Poland in the years 2008-2015**



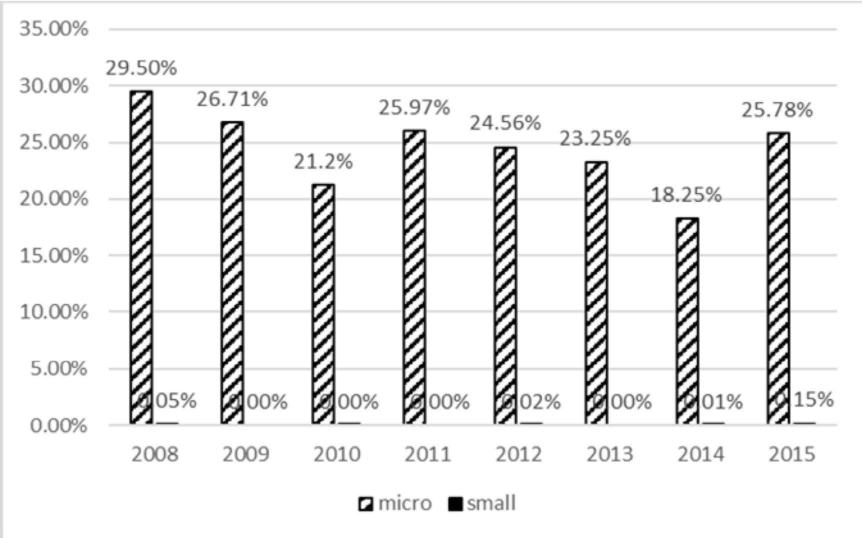
(*Source*: Own elaboration on the basis of statistical data of the General Statistics Office: „Działalność przedsiębiorstw niefinansowych” [Activity of nonfinancial enterprises] for the years 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015)

Simplified taxation and accounting forms are used in many countries as an incentive for entrepreneurs to set up a business in the form of a proprietorship or partnership (often a family business) (Żabiński, 2011). Simplified forms of taxation and accounting such as a flat rate of recorded income or a tax card are designed for micro-companies operating to a limited extent, so these forms of taxation do not occur in the group of small and medium-sized enterprises.

The use of these forms of taxation and accounting enables a considerable simplification of bookkeeping, documentation, and a decrease of the cost of control on the side of the tax authorities. The amount of tax to be paid by the entrepreneur keeping the tax card depends on the type of services provided and the size of the premises where the activity is run.

On the other hand, these forms of accounting limit the selection of: the type of activity (some forms of bookkeeping like the tax card or tax on registered income are available for just a few types of activity), the number of employees (up to 5 people for a tax card), the amount of revenue or income, and thus the number of services or products sold (i.e. number of lessons given by tutors). A flat rate of recorded income can be used by Polish entrepreneurs if their revenue for the previous year did not exceed 150,000 EUR. This possibility to select the form of accounting and taxation is also limited by the type of business, for example, entrepreneurs serving financial services or freelancers cannot use the flat rate of recorded income.

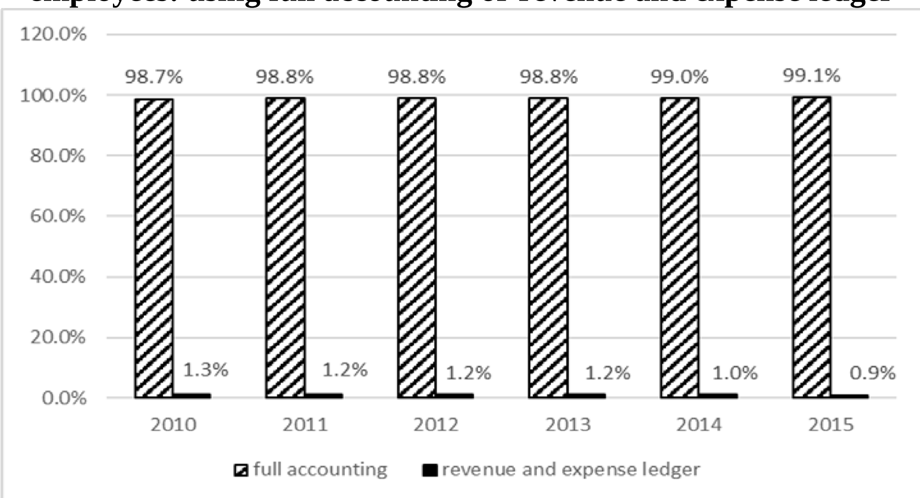
Figure 3. **Share of number of enterprises using the flat rate of recorded income or the tax card in the number of SMEs in Poland in the years 2008-2015**



(*Source*: Own elaboration on the basis of statistical data of the General Statistics Office: „Działalność przedsiębiorstw niefinansowych" [Activity of nonfinancial enterprises] for the years 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015)

According to GUS (General Office of Statistics) data for the years 2010-2015, the scope of accounting (full accounting, revenue and expense ledger, tax on registered income or the tax card) affects the amount of investments. It is difficult to say whether this is due to the lower capital requirements or difficulties in obtaining funds for projects.

Figure 4. **Share of value of investments of companies with more than 10 employees: using full accounting or revenue and expense ledger**



(*Source*: Own elaboration on the basis of statistical data of the General Statistics Office: „ Bilansowe wyniki finansowe podmiotów gospodarczych w 2015" [Balance sheet financial results of business entities in 2015])

Figure 4 shows that the value of investments in property, plant and equipment of enterprises using the revenue and expense ledger hovers around 1% of all investments in property, plant and equipment of companies. Most enterprises using the revenue and expense ledger work in the following sectors: "manufacturing" (29%), "trade" (20%) and "construction" (16%).

Lower investments may also be related to the legal status of the business unit. Entities keeping simplified accounting, and recording revenues only for tax purposes operate as partnerships or as proprietorships, therefore, they also have personal responsibility for the entities' obligations. The risk from the outstanding debt and any investment projects is perceived differently and limited to a greater extent than in capital companies (Bauer, 2013).

Costs related to the scope of accounting depend on the location of the business, its type and its size. The following table presents a comparison of the costs of bookkeeping and the tax burden.

Table 2. **Comparison of the cost of bookkeeping and the tax burden for different forms of accounting in Poland**

Type of bookkeeping/ accounting	Average cost of bookkeeping (min. for about 20 documents a month, salaries for one employee)	Tax
Tax card	95	Max. 1507 zł (depending on the type of activity)
Tax on registered income	95	20 %, 17 %, 8,5 %, 5,5 % or 3% for registered income (depending on the type of activity)
Revenue and expense ledger	150	18% of gross profit
Full accounting	400	18% of gross profit

(*Source*: Own elaboration on the research of the proposals of 20 accounting offices in Poland, and the Income Tax Act Dz.U. 1991 nr 80 poz. 350)

3. Impact of simplified forms of accounting on access to external financing

In many countries, simplified, cash-based forms of accounting are allowed (Bergner and Heckemeyer, 2016). Certain studies have argued that small businesses consider the option to choose simplified tax accounting in their choice of legal status. Simplified forms of accounting (bookkeeping) are provided in many countries to make the calculation of tax easier for entrepreneurs (Czaja-Cieszyn, 2009). However, the problem of access to external financing was not a major concern for the regulators, as small enterprises finance their projects mainly through their own sources, thus demand for external financing is low (Mikócziová, 2010). The growth of a business would lead to the need to opt for the revenue and expense ledger or full accounting, especially when the legal status of the business changes. Nevertheless, even in this situation, business entities may choose to prepare simplified financial statements.

In Poland, additional simplifications for micro and small businesses were introduced in 2015 and 2016 in response to EU directive 2013/34 (Klimczak and Krasodomska, 2017). At present, small capital companies may use a simplified method for the valuation of assets and liabilities and prepare simplified financial statements. Research shows that the introduction of these simplifications may result in savings in the region of 17 million PLN for companies using these facilitations (Mścibrodzka, 2014)[xlix].

However, financial statements, also simplified, are aimed at providing useful information to users of the information. For many years, the discussion has been ongoing over whether increasing the information in financial statements contributes to the increase of their usefulness, and whether it is in line with the expectations of stakeholders (Buk, 2010; Nowak, 2015; Volkov and Laing, 2012).

Entrepreneurs who use simplified accounting but recognize the shortcomings of the information from their accounting system, voluntarily keep additional accounts, such as receivables and payables accounts (Brest, 2013). They do this because they consider this information crucial either to manage the business or as important for lenders. The business entity when choosing a form of accounting may take into account not only the law, but also the specifics of its activity, the requirements of suppliers and creditors.

Simplifications of accounting for small businesses are however to reduce the cost of accounting and adjust the level of information in financial statements to the scope of activities. Many complicated transactions never occur in the activities of small entities, so certain regulations (like fair value measurement) are not useful. Jóźwicka and Zakrzewska-Bielawska (2014) indicate that particular entrepreneurs, despite being aware of the benefits of keeping full accounting, decide on simplified accounting due to the lack of skilled workers or accounting knowledge of the owner, as well as the cost of software and salary of the accountant.

At this point one question arises, whether such a simplified report will still be useful, and to what extent these simplifications can apply? The exemption of micro entities from preparing additional information means that other parts of their financial statements may not be of value (Maszczak, 2015; Martyniuk, 2016). Moreover, simplified accounting cannot generate enough information for managers, i.e. the costs necessary to make effective management decisions (Szczypa, 2016). Takats (2013) is in disagreement with this assertion, arguing that there is no evidence that along with the simplification of reporting comes the simplification of the information in the accounting system.

As research shows, capital providers criticize simplified accounting not only because of the limited usefulness of information, but also the poor reliability of the data presented in the reports (Jaworski, 2009). Studies reveal that companies that prepare simplified financial statements, also use simplifications that are not allowed in the

Accounting Act (Kaczmarczyk, 2014). For example, small businesses use tax regulations for calculation of depreciation, or do not recognize allowances in receivables or other assets. Simply put, small companies often use tax regulations in place of general accounting regulations, because they think that simplification of accounting means that they may use the same regulations for calculation a tax income and a financial result in the income statement (Kaczmarczyk, 2014).

Most owners of micro enterprises indicate that their reasoning behind not using bank loans are the high collaterals required, high funding costs and complicated procedures (Banasik and Napora-Lędźwa, 2014). One of many reasons for the worse credit conditions of small entities is the low quality of financial information provided (Palazuelos *et al.,* 2017; Berger and Udell, 1995). Sometimes, even preparation of financial statements is not enough to decrease the level of risk, and audited financial statements are required (Berger and Frame, 2007). Some researchers that small companies can have more difficult access to bank loans than larger firms (Schiffer and Weder, 2001) due to the company's lack of transparency on creditworthiness (Ayadi and Gadi, 2013). It may be caused by insufficient information on the financial situation of small enterprises. Small and micro enterprises usually can't present financial statements on their revenues, profits and liabilities which may create a significant obstacle for an evaluation of creditworthiness (Dalberg, 2011).

Studies show that small enterprise are attractive but also very risky clients for banks (Kulczycki, 2016). Simplified tax forms like the tax card do not generate any information for stakeholders (including lenders). Thus, the low value of information is often a barrier when applying for external funding. This is because a reliable assessment of the financial situation of the company becomes impossible if there is no data on assets, liabilities and expenses (Fedak and Osikowicz, 2009). Simplification of the information generated in the accounting system of micro businesses makes the assessment of the financial situation of these entities more difficult than companies keeping full accounting. Difficulties concerning the assessment of the level of financing risk for a company entering the market are large, and lead to the automatic assignment to this type of businesses of the lowest rating, and thus higher interest on loans. Because analysts cannot conduct ratio analysis for companies that do not prepare financial statements, an assessment of credit risk for these entities must be supplemented by qualitative assessment, including an analysis of the market (sales opportunities, competition, product quality, cooperation with suppliers, customers) as well as their history of business and management skills. As research shows, self-assessment by entrepreneurs is much higher than the assessment done by credit institutions. This may explain the reasons why entrepreneurs are dissatisfied with the credit decision given, and search for other reasons for which the loan application was rejected (Sobolewski, 2013).

Keeping simplified accounting may, however, be an obstacle to the development of the company when it becomes necessary to access other sources of financing, such as venture capital funds or EU grants. Applications for funding under the national and regional programs of development in Poland, co-financed with sources from the EU, also require data from the balance sheet, the income statement and the cash flow statement. These reports can be prepared in a simplified form for the two previous financial years and for the current period. A forecast is prepared for the duration of the project and the subsequent three years (for SMEs) after the completion of the project. The content of the application for the grant is uniform for all applicants (though it may vary slightly depending on the program) regardless of their organizational and legal form or scope of accounting. Enterprises that keep the revenue and expense ledger or pay tax on registered income or a tax card must also prepare financial statements for previous years and a forecast for the forthcoming few years. In such a situation, it is necessary to enlist the help of consulting firms or accounting offices to prepare the financial information, as inexperienced entrepreneurs are unable to do this without the support of specialists.

In addition, for micro companies or individuals using the tax card or the flat rate on registered income, the problem is to determine the value of fixed assets and inventory, as the personal assets of the owner of the business are often used in their business activity. This problem has been repeatedly considered from the point of view of SMEs' access to grants from international aid programs. However, the benefits of keeping full accounting are not truly recognized by SMEs.

4. Required financial information - interview and market analysis results

Entrepreneurs using simplified accounting may have greater difficulty in obtaining the necessary external financing as the limited information from the accounting system does not enable a full risk assessment of the entity's financial situation. Referring to the reporting simplifications for micro entities introduced to the Polish Accounting Act, we can state that these simplifications may, on the one hand, reduce the cost of accounting for small and micro enterprises, but, on the other, these simplifications can deepen the difficulties of SMEs in obtaining capital. As a result, the investments of small and micro enterprises are financed through their own resources, or deferred in time. This causes a mismatch between the needs of entrepreneurs and their financial capacity, and thus is the reason for the lack of growth possibilities and fulfilment of the market demand in a period of economic growth (Bauer, 2013).

Commercial banks take the decision to issue a loan after the analysis of the creditworthiness of the enterprise, i.e. after the evaluation of their financial situation, the ability to repay the debt and the assessment of any existing potential collaterals. The amount of the loan and its cost depend on the result of this analysis; the amount does not always cover all the expected expenses of the investment project's implementation for which the loan is taken. The entrepreneur who keeps a revenue and expense ledger or pays tax in the form of the tax card (one that is not able to provide reliable financial information about his business) stands the least possibility of obtaining a loan.

The analysis of the information presented on the websites of banks (required documents to apply for the loan) did not provide an answer to the question of whether the revenue and expense ledger or other simplified forms of taxation and accounting make access to bank loans more difficult. Depending on the type of credit offered by the bank, different financial information or documents may be needed. In most cases, banks require access to the revenue and expense ledger. Entrepreneurs paying a flat rate on registered revenue or the tax card must provide the tax documents submitted to the tax office. However, depending on the financial situation of the entrepreneur, on the amount of the loan requested or on other reasons, the bank may require additional documentation to assess the creditworthiness of the applicant.

In order to answer our research question, direct interviews with managers from five selected banks in Poland were used along with an analysis of the documentation required by banks for loan application[l]. Different research methods, like survey or statistical analysis of financial information of SMEs couldn't be used because of lack of financial data on SMEs activity in Poland and high costs of the survey[li].

Interviews were conducted[lii] in December 2015 with five employees of different banks in Poland. One of the respondents was a director of the regional division of a bank, and the 4 others were bank consultants. The aim of the study was to answer the question of whether keeping simplified accounting effects an increase in the cost of credit. Three questions were asked:

1. Is it possible to obtain a loan for the company using simplified accounting? If so, what are the requirements?

2. Is that loan more expensive or collaterals higher than for companies using full accounting?

3. Are there any limitations on the amount or purpose of the loan?

Respondents stated that the interest rate on the loan depended on many factors considered in the process of multi-criteria credit rating, such as: character, ability, means (own resources invested in the project), purpose (if the goal is economically justified), amount in comparison with value of assets, suggested methods of repayment and collaterals. However, since the analysis of the creditworthiness of small companies keeping simplified accounting may not be as clear as for other entities (the lack of possibility to calculate financial ratios), the bank's risk is greater for loans to small businesses, thus the loan for these businesses must be more expensive. The threshold of a loan depends on business earnings or the owner's income. Enterprises using a tax card or revenue and expense ledger are treated as individuals when the process of creditworthiness assessment is applied. For example, the value of a loan depends on the value of existing loans of the business owner, their spouse and the income per member of the family. A director of a bank answered that, in his opinion, the key reason for the difficult access of small entrepreneurs to bank loans was the inaccurate estimation of capital needs:

"*The owner of a small business is afraid that an application for a higher loan will be rejected, so asks for a lower amount. Then he secures the loan using his machines or other assets. In many cases, the amount of the loan is not sufficient, therefore he must search for a second loan. But it then turns out that he has no more collateral and his application for a loan is rejected. This is not a result of the fact that he runs a small or micro company, or that he uses simplified accounting, but a result of his inability to plan his investments over the long term*".

Analysis of the market offer revealed that there are two main groups of business clients of banks: small business and companies. However, entrepreneurs running a business in the form of proprietorships are considered to be individuals, therefore their credit conditions are the same as for other non-business clients. Banks accept any financial documents that companies can deliver: financial statements for companies keeping accounting books, copies of revenue and expense ledger or tax reports. Bank charges are similar for corporations and small enterprises, however, possible differences in credit conditions may appear when signing the contract, and concern the total cost of the loan, the period for which the loan is granted and its amount (Table 3).

Table 3. **Costs of external financing for companies in Poland**

	Provision for operation loan	**Provision for investment loan**	**Credit administration**	**Average interest rate**	**Preparation of financial statements for grant purposes**
Small business	0-7% (on average 1.75%)	1.5-4%	50	WIBOR (Warsaw Interbank Offered Rate) 1M or 3M plus margin, about 2-5%	500 PLN
Corporation	0-2%	1.50%	150	Negotiated (lower than interest rate for small business by 2-4%)	-

(*Source*: Own elaboration)

5. Conclusions

The conducted analysis of banks' loan offers, and interviews with bank managers led to the formulation of the conclusion that the simplified forms of accounting may influence the cost of credit, however, the most important reason for the problem is insufficient collaterals. Despite this, for many entrepreneurs, it may be a factor limiting the value of investments and may discourage them from applying for funding.

Business entities that prepare simplified financial statements should not encounter problems with access to external financing. Although keeping full accounting facilitates the running of a business's activity and allows for a decrease in the cost of capital in the case of applying for external financing, it is not necessarily the solution to all SME barriers for access to external sources of funding.

Interviews results indicate that the problem of SMEs access to finance does not result from the form of accounting. It concerns more the knowledge of managers and their ability to plan investments in the business. The results of the interviews should, however, be compared with survey among small business owners to find out if the bank managers' statements stay in line with entrepreneurs' opinion. Therefore, future research should investigate how business owners choose their investments and plan investments cash flows, the pros and cons of simplified accounting according to business owners, what information business owners require to manage their enterprise, or the extent to which small business owners using simplified accounting keep additional financial information out of the accounting system.

References

Ayadi, R. & Gadi, S. (2013) "Access by SMEs to Finance in the Southern and Eastern Mediterannean: What role for credit guarantee schemes?", *MEDPRO Technical Report* No. 35/2013, available online at: http://www.medpro-foresight.eu/ar/system/files/MEDPRO%20TR%20No%2035%20WP6%20Ayadi_0.pdf

Banasik, M. & Napora-Lędźwa, H. (2014) "Ocena dostępności źródeł finansowania sektora mikro, małych i średnich, przedsiębiorstw na przykładzie województwa śląskiego [An Evaluation of the Availability of Funding to the MSME Sector as Exemplified by the Śląskie Province of Poland]", *Zeszyty Naukowe Wyższej Szkoły Bankowej w Poznaniu*, vol. 55(4): 51-79

Bauer, K. (2013) "Rachunkowość a potrzeby informacyjne małego przedsiębiorstwa [Accounting and the information needs of small businesses]", *Finanse, Rynki Finansowe, Ubezpieczenia. Zeszyty Naukowe Uniwersytetu Szczecińskiego*, vol. 58: 11-20

Beck, T., Demirgüç-Kunt, A. & Soledad Martínez Pería, M. (2008) "Bank Financing for SMEs around the World Drivers, Obstacles, Business Models, and Lending Practices Policy. Research Working Paper; No. 4785", World Bank, available online at: https://openknowledge.worldbank.org/handle/10986/6315

Berger, A.N. & Udell, G.F. (1995) "Relationship lending and lines of credit in small firm finance", *The Journal of Business*, vol. 68(3): 351-381

Berger, A. N. & Frame, W.S. (2007) "Small business credit scoring and credit availability", *Journal of Small Business Management*, vol. 45(1): 5-22

Bergner, S.M. & Heckemeyer, J.H. (2016) "Simplified Tax Accounting and the Choice of Legal Form", European Accounting Review, December 2016: 1-21

Biernat-Jarka, A. & Planutis, E. (2013) "Credit Guarantee Scheme for the SME Sector in Poland against the Background of the Selected EU Member States", *Economic Science for Rural Development Conference Proceedings*, vol. 30: 32-37

Brzeska, A. (2013) "Podatkowa księga przychodów i rozchodów jako przydatne źródło informacji dla mikroprzedsiębiorstw" [Tax Receipts and Disbursements as a Useful Source of Information for Micro-Enterprieses], *Studia Ekonomiczne Regionu Łódzkiego*, vol. X: 95-107

Buk, H. (2012) "Dyskusyjność wartości informacyjnej zestawienia zmian w kapitale własnym" [The usefulness of the statement of changes in equity], *Zeszyty Teoretyczne Rachunkowości [Theoretical Journal of Accounting]*, vol. 66 (122):17-28

Cassar, G. (2004) "The financing of business start-ups", *Journal of Business Venturing*, vol. 19(2): 261-283

Czaja-Cieszyńska, H. (2009) "Użyteczność informacyjna uproszczonych form ewidencyjnych małych i średnich przedsiębiorstw na tle rozwiązań podatkowych w Polsce" [nformation Usefulness of Forms of Records for Small and Medium Sized Enterprises Against the Background of the Polish Tax System], *Zeszyty Naukowe Uniwersytetu Szczecińskiego*, vol 549: 172-181

Czajkowska, A. (2013) "Rola poręczeń i funduszy poręczeniowych w finansowym wsparciu przedsiębiorców indywidualnych" [The Role of Sureties and Guarantee Funds in the Financial Support of Individual Entrepreneurs], *Przedsiębiorczość i zarządzanie*, Tom XIV (6)

Dalberg Global Development Advisors (2011) *Report on Support to SMEs in Developing Countries Through Financial Intermediaries*, available online at: http://www.eib.org/attachments/dalberg_sme-briefing-paper.pdf

Duan, H., Han, X. & Yang, H. (2009) "An analysis of causes for SMEs financing difficulty", *International Journal of Business and Management*, vol. 4 (6): 74-75

European Parliament (2012) *Motion for a European Parliament Resolution on Improving access to finance for SMEs*, 2012/2134(INI), available online at:

http://www.europarl.europa.eu/sides/getDoc.do?pubRef=-//EP//TEXT+REPORT+A7-2013-0001+0+DOC+XML+V0//EN

Fedak, Z. & Osikowicz, M. (2009) "Optymalny model rachunkowości małych firm [Optimum model of accounting of small and medium enterprises]", [in]: Kamela-Sowińska A. (red.), *Zasoby i procesy w rachunkowości jednostek gospodarczych*, Warsaw: Difin

Fundacja Rozwoju Biznesu (2013) *Raport Usługi Księgowe w Polsce. Edycja 2013[Report Bookkeeping Services in Poland. Edition 2013]*, Warsaw

Porter, G.A. & Norton, C.L. (2014) *Financial Accounting: The Impact on Decision Makers*, United States: Cengage Learning, Inc

Jaworski, J. (2009) "Podatkowa księga przychodów i rozchodów jako źródło prognozowania i oceny kondycji finansowej mikroprzedsiębiorstwa" [Tax book of receipts and expenditure as a basis for forecasting and evaluation of financial position in a microenterprise], *Zeszyty Teoretyczne Rachunkowości*, vol. 48(104): 43-60

Joźwicka, A. & Zakrzewska-Bielawska, A. (2014) "Kompetencje Pracowników a Outsourcing Służb Finansowo-Księgowych w Małych Przedsiębiorstwach" [Competence of employees and outsourcing of financial & accounting service in small companies], *Zeszyty Naukowe Politechniki Łódzkiej*, vol. 57 (1188): 27-40

Kaczmarczyk, A. (2014) "Polityka rachunkowości w małych i średnich przedsiębiorstwach" [Accounting Policy and Small and Medium-Size Enterprise], *Studia Ekonomiczne / Uniwersytet Ekonomiczny w Katowicach*, Nr 201:142-150,

Klimczak K. & Krasodomska J. (2017) "The Role and Current Status of IFRS in the Completion of National Accounting Rules – Evidence from Poland", *Accounting in Europe*, vol. 14 (1-2): 158-163

Kulczycki, M. (2016) "Polityka banków w zakresie wsparcia finansowego konkurencyjności małych i średnich przedsiębiorstw" [Banks' Policy as Regards Financial Support for Competitiveness of Small and Medium-Sized Enterprises], *Zeszyty Naukowe Uczelni Vistula*, vol. 51 (6): 47-72

Martyniuk, T. & Martyniuk, O. (2016) "Uproszczenia w Sprawozdawczości Mikro- I Małych Przedsiębiorstw. Mit Czy Rzeczywistość?" [Simplifications in Financial Reporting of Micro- and Small Enterprises. Myth or Reality?]", *Studia Ekonomiczne. Zeszyty Naukowe Uniwersytetu Ekonomicznego w Katowicach*, vol. 268: 144-154

Maszczak, T. (2015) "Zakres informacyjny uproszczonego sprawozdania finansowego jednostki małej" [The information scope of the condensed financial statement of small undertakings], *Nauki o Finansach*, vol. 3 (24): 127-150

Mikócziová, J. (2010) "Sources of Investment Finance in Firms in Slovakia", *Journal of Competitiveness*, vol. 1/2010: 67-73,

Mścibrodzka, K. (2014) "Wyniki finansowe mikro-, małych i średnich przedsiębiorstw prowadzących księgi przychodów i rozchodów w latach 2012 i 2013 na tle lat poprzednich" [Financial Performance of Micro Firms and Small and Medium-Sized Enterprises Keeping Revenue and Expense Ledgers in 2012 and 2013 against the Background of Previous Years], *Zeszyty Naukowe Uczelni Vistula*, vol. 35/2014: 232-255

Nassr, I.K. & Wehinger, G. (2015) "Opportunities and limitations of public equity markets for SMEs", *OECD Journal: Financial Market Trends*, vol. 2015 (1): 49-84,

Nowak, E. (2015) "The usefulness of information disclosed in company annual activity reports", *Research Papers of the Wroclaw University of Economics [Prace Naukowe Uniwersytetu Ekonomicznego we Wroclawiu]*, issue 375: 117-125

Palazuelos, C.E., Herrero, C.A. & del Corte, J.M. (2017) "Are credit risk analysts concerned about the audit of the financial statements of SMEs?" *Universia Business Review*, 1st Quarter, issue 53:150-187,

Pogodzińska-Mizdrak, E. (2008) "Przegląd ekonomicznych i pozaekonomicznych problemów małych i średnich przedsiębiorstw w Polsce" [A Review of Economic and Non - Economic Problems of Polish Small and Medium Sized Enterprises]", *Finanse, rynki* *finansowe, ubezpieczenia. Zeszyty Naukowe Uniwersytetu Szczecińskiego*, vol. 11: 235-249

Schiffer, M. & Weder, B. (2001) "Firm Size and the Business Environment: Worldwide Survey Results", *International Finance Corporation*, Discussion Paper, no. 43, Washington, DC: World Bank and the International Finance Corporation, available online at:
https://openknowledge.worldbank.org/handle/10986/13988

Starczewska-Krzysztoszek, M. (2014) *Curriculum Vitae mikro, małych i średnich przedsiębiorstw 2014. Finansowanie działalności i rozwoju [Cirriculum Vitae of micro, small and medium enterprises 2014. Financing of development and activity]*, Warsaw: Konfederacja Lewiatan

Sobolewski, D. (2013) "Wpływ autooceny mikro-, małych i średnich przedsiębiorstw na badanie wiarygodności kredytowej przez fundusze pożyczkowe" [The Influence of Self-Evaluation on Micro, Small and Medium-sized Enterprises in Examining Creditworthiness through Loan Funds], *Zeszyty Naukowe Wyższej Szkoły Bankowej w Poznaniu*, vol. 47(2): 121-139

Szczypa, P. (2015) "Ewidencja kosztów w mikroprzedsiębiorstwach i jej wartość informacyjna. Stan obecny i postulowane kierunki zmian" [Records of Costs in Micro-Enterprises and Its Information Value: Current Status and Postulated Trends], *Konińskie Studia Społeczno-Ekonomiczne*, vol 1(2):185-197

Takats, G. (2013) "Koncepcja sprawozdawczości finansowej mikropodmiotów – przyczynek do dyskusji" [Financial Reporting Concept of Micro Entities - Discussion Paper], *Prace Naukowe Uniwersytetu Ekonomicznego we Wrocławiu*, vol. 313: 137-148

Udell, G. F. (2015) "SME Access to Intermediated Credit: What Do We Know, and What Don't We Know?", *Reserve Bank of Australia*, *Conference Volume*: 61-109

Żabiński, A. (2011) "Możliwości wykorzystania karty podatkowej jako narzędzia rozwoju mikroprzedsiębiorczości w gminach" [The Possibilities of Using the Tax Card as a Tool for Development of Micro Enterprises in the Municipalities], *Prace Naukowe Uniwersytetu Ekonomicznego we Wrocławiu*, vol. 167: 600-609

Volkov, A. & Laing, G. K. (2012) "Assessing the Value of Graphical Presentations in Financial Reports", *Australasian Accounting Business & Finance Journal*, vol. 6(3): 85-107

The Act on accounting of 29 September 1994, Journal of Laws, number 121, position 591 (Dz.U. 1994 n. 121)

The Act on tax on registered income of 20 November 1988, number 144, position 930 (Dz.U. z 1998 r. n. 144)

The Act on tax for individuals of July 1991, number 80, position 350 (Dz.U. 1991 n. 80)

Appendix 1. **Interviews information**

No.	Interviewee	Data of the interview	Duration of the interview
1	Director of the regional division of the bank	07.12.2015	15 minutes
2	Bank consultant	08.12.2015	8 minutes
3	Bank consultant	08.12.2015	5 minutes
4	Bank consultant	08.12.2015	4 minutes
5	Bank consultant	08.12.2015	5 minutes

(*Source*: Own elaboration)

PS9 TRANSFER PRICES

Chairperson: Anastasios Elemes, ESSEC Paris, France

A European map regarding the strictness of the transfer pricing regulations: Where is Romania situated?

Ioana Neacșu

Liliana Feleagă

The assessment of the transfer pricing influence on the income tax through the net margin method, in the case of the companies listed on the Bucharest Stock Exchange

Ioan Bogdan Robu

Neli Căpățînă Verdeș

The digital economic chain - it in the loop of the OECD regulations

Ramona V. Jurubiță

A European map regarding the strictness of the transfer pricing regulations: Where is Romania situated?

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Abstract: *In the context in which transfer pricing may represent a mechanism through which multinationals have the possibility to move funds internationally, in order to prevent the base erosion and profit shifting between multinationals, countries over the world have adopted various transfer pricing regulations. Furthermore, some of the countries adopted stricter regulations than others. The objective of our research was to identify the level of strictness for the transfer pricing regulations from Romania, compared with the transfer pricing regulations from other European countries. To achieve this objective, we analysed the transfer pricing regulations of all European countries and we built a transfer pricing strictness index, based on which we defined 4 categories of countries (where category 1 includes the countries with the least strict transfer pricing regulations and category 4 countries with the strictest regulations). After that, we illustrated how these categories are distributed on the European map. In order to collect the information, we used the transfer pricing guides issued by the Big Four companies for the year 2015. The study`s results show that the strictness of the transfer pricing regulations decreases from the west of Europe to east. Moreover, most of the countries were included in category 2, respectively category 3, meaning that the transfer pricing regulations from the European continent are not so flexible, but in the same time are not so strict. Romania was included in category 2, being situated on the map into an area where the transfer pricing regulations are not very strict.*

Keywords: *Transfer pricing, strictness, regulations, map, Europe*

1. Introduction

In the current context in which the number of related party transactions rises, multinationals may try to move their profits from a high-tax jurisdiction into a low-tax one. As a consequence, countries of the world are trying to combat the base erosion and profit shifting, in this respect introducing and extending their transfer pricing regulations (Lohse *et al.*, 2012). Therefore, some of the countries adopted stricter regulations than others.

Given all the above, we were motivated to analyse how strict are the transfer pricing regulations of the European countries. Moreover, the main objective of our research was to identify the level of strictness for the transfer pricing regulations from Romania, compared with the transfer pricing regulations from other European countries. In order to achieve this objective, we collected information about the

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transfer pricing regulations of all European countries, using in this respect the transfer pricing guidelines prepared by the Big Four companies for the year 2015. Furthermore, we computed a transfer pricing strictness index and based on this we defined certain categories of countries. In the end, we designed a European map showing how the categories (which reflect the strictness of the transfer pricing regulations) are distributed on the map and which is the position of Romania on this map.

We were also motivated by the fact that until now (as far as we know) no European map was designed in order to illustrate the strictness of the transfer pricing regulations from each country. Therefore, we consider that our study has an important contribution to the transfer pricing literature and in the same time could represent a starting point for future research. Furthermore, we observed that most of the studies performed until now about the strictness of the transfer pricing regulations are concentrated, in terms of transfer pricing documentation, only on the existence of a legal requirement. Therefore, in other train of thoughts, we consider that this study contributes to the existing literature due to the fact that in order to build the transfer pricing strictness index, in addition to the introduction of a legal requirement for the documentation of the transfer prices, we analysed other aspects related to the transfer pricing documentation subject as they are presented in this paper. In addition, we consider that our study could present importance for all European countries in order to assess how strict are their transfer pricing regulations compared with the regulations of the other countries from the continent.

The paper is organized as follows. Section 1 discusses the background literature on transfer pricing regulations and the strictness of these regulations. Section 2 describes the research methodology. Section 3 presents a European map showing the strictness of the transfer pricing regulations from each country and describes the position of Romania on this map. In the final section, the conclusions are accompanied by a description of tentative avenues of research.

2. Literature review

Matei and Pîrvu (2011) defined transfer pricing as prices charged between related parties for the acquisition/provision of services or for the acquisition/sale of goods. Sansing (2014) pointed out that prices at which services or goods are transferred between related parties influence the profit realized by each company involved in transaction and also the corporate income tax that should be paid by each of these companies. Therefore, it can be said that “transfer pricing is an important financial management mechanism allowing multinational corporations to manoeuvre funds internationally” (Hung Chan *et al.*, 2015). Due to this situation transfer pricing could deprive governments of their fair share of taxes from multinationals (Neighbour, 2002) and as a solution to this issue, countries have adopted regulations to “assess the appropriateness of the transfer prices quoted by MNEs” (Yao, 2013).

According to Mirijam (2015), a history of transfer pricing may begin, most probably, after the First World War, when US paid a special attention to how the profits are allocated between companies, using for the first time the concept of ***arm’s length principle.*** As a consequence, US was the first country which implemented a transfer pricing legislation. After this, based on the work performed by US and in order to develop global transfer pricing regulations, the Organisation for Economic Cooperation and Development (OECD) published a report about the allocation of profit and costs between affiliated companies. This report was revised most recently in 2010 and contains, inter alia, details about the transfer pricing key concepts, the analysis that should be performed in order to assess if transfer pricing comply with the arm`s length principle and details regarding the transfer pricing documentation (OCDE, 2010).

Moreover, in order to prevent the base erosion and profit shifting between multinationals, OECD lunched in 2013 a package of actions - BEPS Action Plan (Lamers *et al.*, 2014). The final version of the BEPS Action Plan includes some actions which are targeting the transfer pricing subject, namely Actions 8-10 "Aligning Transfer Pricing Outcomes with Value Creation" and Action 13 "Transfer Pricing Documentation and Country-by-Country Reporting". The main aspect analysed within BEPS Actions 8-10 is represented by the allocation of profits which should be closely aligned with the value created through underlying economic activities. Action 13 of the BEPS provides rules related to the transfer pricing documentation in order to enhance transparency for tax administration (i.e. there is required the preparation of a master file, a local file and a country-by-country report).

2.1. Previous studies performed in relation to the strictness of the transfer pricing regulations

Ito and Komoriya (2015) pointed out that in order to prevent the profit shifting between multinational companies, countries adopted transfer pricing regulations. In this context it can be analysed how strict are the transfer pricing regulations from these countries.

Lohse and Riedel (2012) studied the transfer pricing regulations of certain European countries and classified these countries in three main categories, reflecting in this way the level of the strictness of the transfer pricing legislation from each country analysed. In their study, the two authors included in the first category countries without or with limited transfer pricing legislation, where no documentation requirements exist, in the second category countries where the documentation requirement is not introduced in the national tax law, but it is required to exist during a tax audit, and in the third category countries where the documentation requirements are implemented in the national tax law. In addition, the two authors considered that when analysing the transfer pricing regulations, a number of other characteristics (such as the allowed method for transfer pricing calculation, the penalties for non-compliance with the transfer pricing rules and the opportunity to apply for an advance price agreement) may be taken into account.

In another study, Lohse *et al.* (2012) pointed out the fact that in order to measure the strictness of a transfer pricing legislation, additional factors could be considered: the definition of related parties, the deadline for documentation, the statute of limitations and penalties. According with these researchers, the lower the threshold used in order to determine the affiliation relationship, the shorter the deadlines established for the submission of the documentation, the longer the statute of limitations, and the higher the penalties, the stricter are the transfer pricing regulations. Moreover, in this study the authors examined the transfer pricing regulations from 44 countries over a time period of nine years (2001-2009) and noted that the transfer pricing regulations are less strict in European countries than in countries outside the Europe.

Marques and Pinho (2016) built an index in order to measure the strictness of the transfer pricing framework. The index was built on two fundamental pillars: transfer pricing regulations (statutory rules and documentation requirements) and law enforcement mechanisms (penalty aspects; mechanisms to assist enforcement – e.g. tax authority performing transfer pricing audits, report information regarding transfer pricing in the annual income tax returns etc.). The value 1 was assigned when an attribute was applicable, and the value 0 otherwise. These two authors analysed the transfer pricing framework of some European countries for the period 2001 - 2009 and observed that the index increased significantly over this period, indicating a scrutiny of related party transactions by the European governments. Furthermore, the results of their study show that "tightening the transfer pricing framework is capable of dissuading multinational companies from shifting profits from higher- to lower-tax countries".

Rathke and Rezende (2016) analysed the characteristics of transfer pricing system across 44 countries. The research was performed based on the information collected from the transfer pricing reports prepared by audit and tax advisory firms, for the year 2014. Based on these reports, the authors defined certain variables and constructed a coefficient which shows the differences on transfer pricing rules between the countries. The results indicated the existence of three groups characterized by relevant distinguishable attributes.

Riedel *et al.* (2015) investigated whether the strictness of the transfer pricing rules is effective in reducing the profit shifting between the multinationals. This study was performed across 26 European countries. The authors concluded that "transfer price documentation provisions have some effectiveness in limiting mispricing behaviour". However, in terms of transfer pricing rules, the authors analysed, beside the documentation requirement, other aspects such as the existence of specific transfer pricing penalties, the availability of advance price agreements and methods used in order to analyse the arm`s length principle.

According to Becker (2017) advance pricing agreements (APAs) determine in advance the transfer prices for related party transactions. Therefore, APAs are concluded between taxpayers and tax authorities before a transaction being performed, the main scope of the APAs being to establish the computation of the transfer pricing for that transaction. Moreover, Becker pointed out that "APAs serve as a commitment device for non-excessive future taxation".

Nicolay *et al.* (2016) measured the strictness of the transfer pricing regulations using as an indicator of strictness the existence of formal or informal transfer pricing documentation requirements. More exactly, the authors considered that a country has strict transfer pricing regulations if that country requires (in practice or as a legal requirement) the transfer pricing documentation to be available either upon the request of the tax authorities or to be presented together with the tax return. If this requirement was met within a country, the transfer pricing strictness indicator was set to 1, otherwise it was set to 0. The authors used the transfer pricing documentation requirement as an indicator for strictness, as they considered it “to be crucial element for increasing transparency of transfer price determination”.

Beer and Loeprick (2013) analysed the relation between the introduction of transfer pricing documentation requirement and the phenomenon regarding the profit shifting between multinational companies. They noted that during four years after the introduction of a mandatory transfer pricing documentation, the profit shifting among the subsidiaries of a multinational group has decreased with 60%. The authors concluded that the documentation requirement has a significant compliance impact on multinationals, discouraging in the same time the profit shifting. On the other hand, Ito and Komoriya (2015) noted that the introduction of transfer pricing documentation requirements decreases the value of the foreign direct investments.

2.2. Key concepts regarding transfer pricing regulations

According to the literature reviewed and presented above, transfer pricing documentation is one of the most important elements in the context of transfer pricing regulations. With regards to the transfer pricing documentation, we noted that the Big Four companies analysed within the annual worldwide transfer pricing guides some key concepts such as: the existence of a legal requirement for the preparation of the transfer pricing documentation file, by who and for which transactions should be prepared the documentation, the deadline for the preparation and for the submission, the existence of requirements regarding the preparation of annual documentation and the update of the benchmark study on an annual basis etc.

Other key concepts regarding transfer pricing regulations and analysed by the Big Four companies are related to transfer pricing methods, disclosure of related party transactions, definition of related parties, statute of limitation, penalties, advance pricing agreements, cost sharing agreements, transfer pricing adjustments, information that should be presented within the transfer pricing file etc.

3. Research methodology

The **main objective** of this research was to identify the level of strictness for the transfer pricing regulations from Romania, compared with the transfer pricing regulations from other European countries. In order to achieve this objective, we followed certain steps, as they are presented below:

Step 1

In the first step of the research we tried to identify (based on the literature reviewed) the elements that could be used in order to measure the strictness of the transfer pricing regulations. These elements are presented in section 3.1 below.

Step 2

As our objective was to identify the strictness of the Romanian transfer pricing regulations by reference to regulations of other European countries, our sample was represented by the 47 countries from Europe (this number is recognized by the World Atlas - http://www.worldatlas.com/cntycont.htm).

Therefore, in the next step, for each country from the sample we gathered information regarding the elements selected in the previous step. Regarding the data sources used in order to gather the necessary information, these were represented by the transfer pricing guides prepared by the Big Four companies: *2016 Global Transfer Pricing Country Guide* prepared by Deloitte, *International Transfer Pricing 2015/16* prepared by PwC, *Global Transfer Pricing Review 2016* prepared by KPMG and *Worldwide Transfer Pricing Reference Guide 2015–16* prepared by Ernst & Young. Our analysis was performed based on the reports prepared by these companies in 2016 containing information related to the 2015 year. We did not find any data source containing more recent information.

Moreover, we chose to use the guides prepared by the Big Four companies as these compile essential information regarding the transfer pricing subject. On the other hand, the information presented in these guides was collected from the transfer pricing specialists from the Big Four firm from each country analysed. Taken into account the knowledge and experience of these specialists we assume that the information included in the guides is representative at each country level.

Step 3

Based on the elements selected and documented in the previous steps we designed a transfer pricing strictness index, as we presented in the section 3.2 below. The index was computed for each country from the sample. After that, we used the values of the index in order to define categories for the strictness of the transfer pricing regulations (for example the first category refers to the least strict transfer pricing regulations, while the last category refers to the strictest regulations). Each country was included in a certain category.

In order to store the information about the elements of the index and to design the transfer pricing strictness index we used the Microsoft Excel application.

Step 4

In the last step of the research, we designed a map presenting how the categories identified are distributed within the European continent. Moreover, we tried to identify if a certain category dominates a specific region (for example a category may be preponderant met in the west of the Europe). In the end, we presented the position of Romania on the map designed.

In order to design the map, we used one of the online tools which allow the customization of maps. This tool was available on the website https://mapchart.net/.

3.1. Elements considered in order to compute the transfer pricing strictness index

Table 1 presents the elements analysed in order to compute the transfer pricing strictness index. These elements were grouped in three main categories.

Table 1. **Elements analysed in order to compute the transfer pricing strictness index**

Category of elements	Elements	Comments

Category of elements	Elements	Comments
	e$_1$: The transfer pricing documentation requirement is introduced in the tax law, and not only required to exist in practice	
	e$_2$: The transfer pricing documentation file is requested to be prepared by all taxpayers, and not only by certain taxpayers	For the countries where the transfer pricing documentation is required to exist only in practice (there are no legal requirements), we considered that the documentation may be requested, during a tax audit, for all categories of taxpayers and for all the related party transactions. Our consideration is based on the fact that there are no indications related to the fact that the documentation would be requested in practice only for certain category of taxpayers or transactions.
	e$_3$: The transfer pricing documentation file is requested to be prepared for all the related party transactions, and not only for certain transactions (for e.g. transactions which exceed a threshold)	
	e$_4$: Annual transfer pricing documentation requirements	We considered that an annual transfer pricing documentation requirement exist, even if it is applicable to all categories of taxpayers or only to certain categories.
Category I - elements regarding the transfer pricing documentation	**e$_5$:** There is a fixed deadline to prepare the transfer pricing documentation	
	e$_6$: The deadline for the submission of the transfer pricing file upon the request of the tax authorities is less than 30 days	We observed that big part of the countries analysed by us grants a deadline of 30 days for the submission of the transfer pricing documentation file upon the request of the tax authorities. Thus, we considered stricter a deadline of less than 30 days.
	e$_7$: There are penalties for not complying with the transfer pricing documentation requirements	
	e$_8$: The benchmark analysis should be updated annually	
Category II – elements regarding BEPS	**e$_9$:** BEPS Action 13 and / or Actions 8-10 are implemented in the local legislation	
	e$_{10}$: There are requirements regarding the disclosure of the related party transactions	In this respect we analysed if there are requirements regarding the disclosure of the related party transactions within the annual tax return or within a special return or report that should be submitted together with the annual tax return.
	e$_{11}$: The threshold used in order to determine the	According to Lohse and Riedel (2012), the largest group of countries uses a

Category of elements	Elements	Comments
Category III – other elements	affiliation relationship is below 25%	25% capital contribution in order to determine if two companies are associated enterprises. In addition, we also observed that big part of the companies from our sample uses the threshold of 25% in this respect. Given these aspects, we considered that a threshold below 25% represents a strict regulation. For the countries from our sample without a fixed threshold (i.e. 5 countries), we considered that there is a probability that companies with a participation of less than 25% be considered affiliated. Therefore, for these countries we considered a threshold below 25%.
	e_{12}: The statute of limitation is greater than 5 years	We observed that big part of the countries analyzed by us applies a statute of limitation of 5 years. Thus, we considered stricter a statute of limitation greater than 5 years.
	e_{13}: Advance price agreements (APAs) are not available	According to Lohse and Riedel (2012), "such arrangements reduce the risk of double taxation and lead to a greater certainty in international trade". Given this, we considered that countries where APAs are not available are stricter because a taxpayer does not have the chance to reduce the risk of double taxation.

(*Source:* Authors' processing)

Initially, we analysed a greater number of elements, but in the end we used in our research only those elements which allowed us to evaluate the strictness of the transfer pricing regulations. For example, initially we included in the list of elements information about the transfer pricing methods, the definition of the related parties and about the application of the transfer pricing rules for permanent establishments. More exactly, we analysed if countries impose a hierarchy for the transfer pricing methods, take into consideration the exercising of common control (e.g. common management) in order to establish an affiliation relationship and if they apply transfer pricing rules for the permanent establishments. Because these elements do not differ significantly between the countries, we did not consider relevant to include them in the final list of elements.

We chose to include elements related to the transfer pricing documentation, as we noted that within the literature reviewed the researchers used the transfer pricing documentation requirement in order to measure the strictness of the transfer pricing regulations, considering it a crucial element in this respect. Moreover, taking into account that the objective of the BEPS Action Plan developed by OECD is to minimize and discourage the profit shifting between multinationals, we considered that the fact that a country adopted into the national legislation the Actions related to transfer pricing aspects involves stricter transfer pricing regulations in that country. Furthermore, based on the literature reviewed we considered relevant to analyse other elements such as the existence of requirements regarding the disclosure of the related party transactions, the threshold used in order to determine the affiliation relationship, the statute of limitation and the opportunity to apply for advance price agreements (APAs).

3.2. Development of the transfer pricing strictness index

In order to measure the strictness of the transfer pricing regulations we developed an index based on the following formula:

$TP_{SI} = (\sum_{i=1}^{m} e_i) * pi$, where:
TP_{SI} = transfer pricing strictness index;
e_i = elements identified and analysed in the first two steps of the research. We assigned the value 1 if an element was included in the transfer pricing regulations of the country analysed and 0 otherwise;
m= number of elements;
pi = the percentage of importance. We grouped the elements in main categories and this percentage reflects how important a category of elements is in order to analyse the strictness of the transfer pricing regulations. The greater the percentage for a category of elements, the greater the measure in which that category contributes to the existence of strict transfer pricing regulations.

The formula mentioned above was used for the computation of the transfer pricing strictness index of each country analysed. The higher the value of the index is, the stricter the transfer pricing regulations are.

The percentage of importance
For each category of elements, we determined a percentage of importance. In order to do this, in table 2 we rated the three categories of elements using a scale from 1 to 3 (where 1 represents the less important category and 3 the most important category). After that, based on the rating process we determined the percentage of importance for each of the three categories of elements.

Table 2. **Percentage of importance (pi)**

Category Rating/ pi	Category I - elements regarding the transfer pricing documentation	Category II – elements regarding BEPS	Category III – other elements
Rating	3	2	1
pi (=rating/(3+2+1))	50%	33%	17%

(*Source*: Authors' processing)

We believe that the elements related to the transfer pricing documentation should be considered as the most important elements in order to measure the strictness of the transfer pricing regulations. Our assumption is based on the results obtained by certain researchers according with the transfer pricing documentation increases the transparency of transfer price determination limiting in this way the profit shifting between multinationals. Moreover, some researchers analysed only the transfer pricing documentation aspects in order to determine how strict the transfer pricing regulations of the countries from their sample are (***e.g.*** Lohse and Riedel (2012), Lohse ***et al.*** (2012), Nicolay ***et al.*** (2016) etc.), considering this aspect the most relevant in this respect.

After the elements related to transfer pricing documentation, the next important element is represented by the implementation within the national legislation of the BEPS Action 13 and / or Actions 8-10. The fact that we considered this element the second as importance is justified by the current context in which the implementation of the BEPS Actions related to transfer pricing is considered a big step in order to prevent the base erosion and profit shifting between multinationals. In the end, we assumed that the other factors analysed are the less important in order to analyse the strictness of the transfer pricing regulations.

Summarizing all the above, the formula applied for each country from the sample in order to measure the strictness of the transfer pricing regulations was the following:

$$TP_{SI} = (e_1 + e_2 + e_3 + e_4 + e_5 + e_6 + e_7 + e_8) * 50\% + e_9*33\% + (e_{10} + e_{11} + e_{12} + e_{13})*17\%$$

Using the above formula and assuming that all elements have the value 1, the maximum value of the transfer pricing strictness index would be 5.

3.3. Categories of transfer pricing regulations

In the next step of the research, based on the values of the transfer pricing strictness index, we defined certain categories of countries. We mention the fact that for the countries which are considered tax heaven, do not have implemented transfer pricing regulations or do not have transfer pricing documentation requirements (neither in practice) we did not find relevant to compute a transfer pricing index and therefore we included these countries in a special category (i.e. category 0). However, if we had computed a transfer pricing index for those countries, the values obtained would have been less than 1.

The other categories were defined based on the value of the transfer pricing strictness index, as they are presented in table 3.

Table 3. **Categories of transfer pricing regulations**

TP_{SI}	*Category*
n.a.	category 0
1 - 1.9	category 1
2 - 2.9	category 2
3 - 3.9	category 3
4 - 5	category 4

(*Source*: Authors' processing)

Category 1 represents the least strict category of countries in terms of transfer pricing regulations, while category 4 represents the strictest category.

4. Results and interpretations

The elements regarding the transfer pricing regulations, presented for each country could be found in the Appendix 1. The elements related to BEPS Action Plan and other elements, also presented for each country could be found within Appendix 2. In Appendix 3 we presented the value of the transfer pricing strictness index, computed for each country analysed. We mention the fact that these annexes do not include countries included in the special category 0.

The table 4 below shows in which category was included each European country.

Table 4. **Categories of transfer pricing regulations per countries**

Category 0	*Category 1*	*Category 2*	*Category 3*	*Category 4*
Andorra	Azerbaijan	Albania	Croatia	Italy
Armenia	Belgium	Austria	Denmark	Spain
Cyprus	Czech Republic	Belarus	France	
Liechtenstein	Finland	Bosnia and Herzegovina	Greece	
Macedonia	Germany	Bulgaria	Hungary	
Malta	Latvia	Estonia	Iceland	
Moldova	Lithuania	Georgia	Ireland	
Monaco	Sweden	Luxembourg	Norway	
Montenegro	Switzerland	Netherlands	Portugal	
San Marino		Poland	Serbia	
Vatican City		Romania	Slovenia	
		Slovakia	United Kingdom (UK)	
		Ukraine		

(*Source*: Authors' processing)

As we already mentioned, countries included in **category 0** are those which are considered tax heaven, do not have transfer pricing regulations or do not have transfer pricing documentation requirements (neither in practice).

The main characteristics specific for the countries included in **category 1** and which indicate less strict transfer pricing regulations are the following:

- there is not requested an annual transfer pricing documentation file. Only one country has annual transfer pricing documentation requirements (i.e. Sweden);
- there is not a fixed deadline to prepare the transfer pricing documentation;
- the deadline for the submission of the transfer pricing file upon the request of the tax authorities is greater than 30 days. Only Azerbaijan applies a deadline which is less than 30 days;
- there are no penalties for not complying with the transfer pricing documentation requirements. Only 2 countries apply these kind of penalties (Finland and Germany);
- the benchmark analysis should not be updated annually. Only Latvia requires the annual update of the benchmark analysis;
- BEPS Action 13 and / or Actions 8-10 are not implemented in the local legislation;

- the statute of limitation is lower than 5 years. Only Sweden applies a statute of limitation greater than 5 years;
- APAs are available. Only in Azerbaijan APAs are not available.

Belgium, Czech Republic and Finland obtained the lower value of the transfer pricing strictness index (i.e. 1.17), meaning that these countries have the less strict transfer pricing regulations from Europe.

The main characteristics specific for the countries included in **category 4** and which indicate the strictest transfer pricing regulations are the following:

- the transfer pricing documentation requirement is introduced in the tax law, and not only required to exist in practice;
- the transfer pricing documentation file is requested to be prepared by all taxpayers, and not only by certain taxpayers;
- there is requested an annual transfer pricing documentation file;
- there is a fixed deadline to prepare the transfer pricing documentation;
- the deadline for the submission of the transfer pricing file upon the request of the tax authorities is less than 30 days;
- there are penalties for not complying with the transfer pricing documentation requirements;
- the benchmark analysis should be updated annually;
- BEPS Action 13 and / or Actions 8-10 are implemented in the local legislation;
- there are requirements regarding the disclosure of the related party transactions.

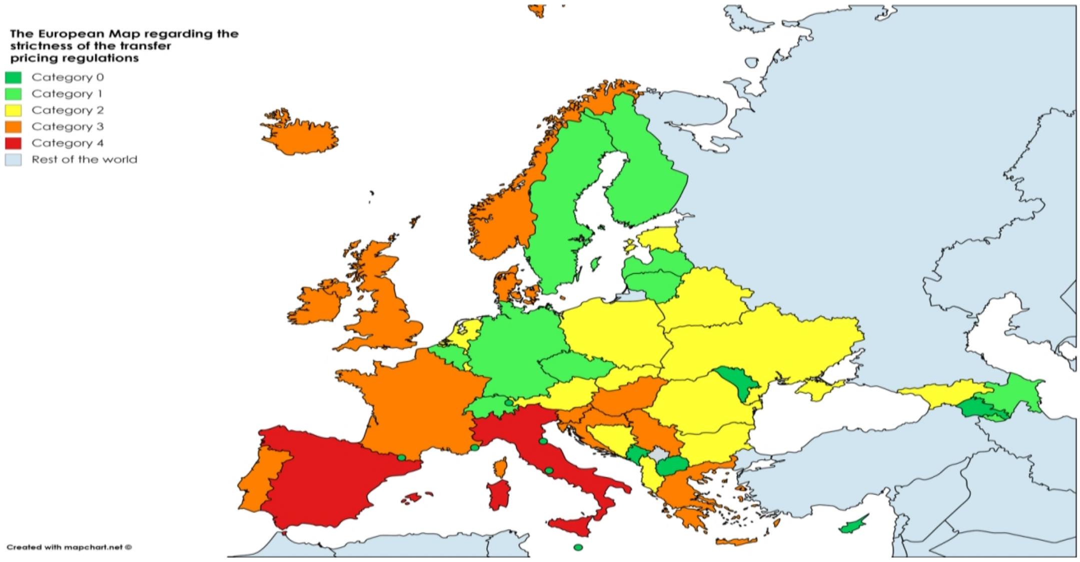
Countries included in category 4 are Spain and Italy, obtaining a value of the transfer pricing strictness index of 4.

The other two categories (i.e. **category 2 and category 3**) represent a mix between the characteristics of category 1 and category 4.

4.1. The European map of transfer pricing regulations

The figure below presents a European map showing how strict are the transfer pricing regulations in each country.

Figure 1. **The European map of transfer pricing regulations**



(*Source*: Authors' processing)

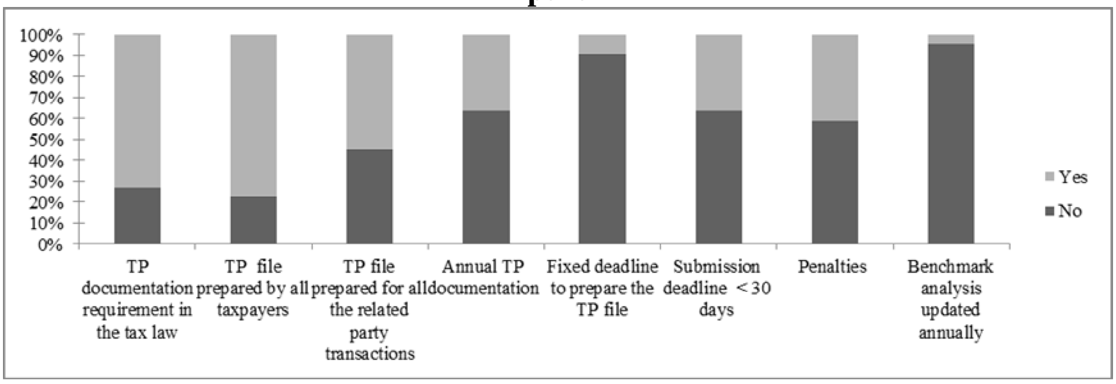
As can be observed from the map above, most of the countries are included in category 2, respectively category 3, meaning that that the transfer pricing regulations from the European continent are not so flexible, but in the same time are not so strict. Given this, we consider that this result may sustain the affirmation of Lohse, Riedel and Spengel (2012) according with transfer pricing regulations are less strict in European countries than in countries outside the Europe.

In other train of thoughts, the above map can be split in two main areas, as follows:

- ***the central – eastern part*** (i.e. more exactly the right part of the map), where the transfer pricing regulations are less strict. The majority of the countries from this area are those from category 1 and category 2.

The charts below present the transfer pricing elements analysed in this study, showing the percentage of the countries from category 1 and 2 whose transfer pricing regulations are characterized by a certain element, respectively the percentage of the countries who do not have that element in the transfer pricing regulations.

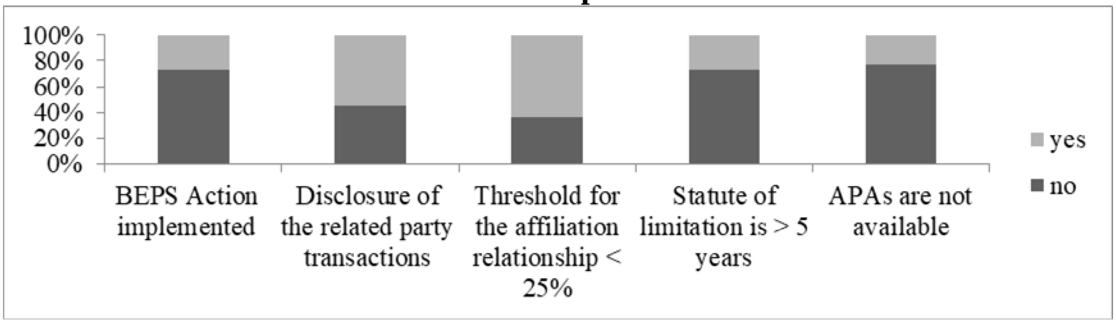
Figure 2. **Regulations regarding TP documentation, specific to central – eastern part**



(*Source*: Authors' processing)

According with the Figure 2, most of the countries included in category 1 and category 2 *do not* require a transfer pricing documentation file to be prepared for all the related party transactions and an annual transfer pricing documentation file, do not establish fixed deadline to prepare the transfer pricing file or a deadline of less than 30 days to submit the documentation upon the request of the fax authorities, do not impose penalties for not complying with the transfer pricing documentation requirements and do not require an annual update of the benchmark analysis. However, most of these countries introduced a transfer pricing documentation requirement in the national tax low and require a transfer pricing file to be prepared by all the taxpayers.

Figure 3. **Regulations regarding BEPS and other aspects, specific to central – eastern part**



(*Source*: Authors' processing)

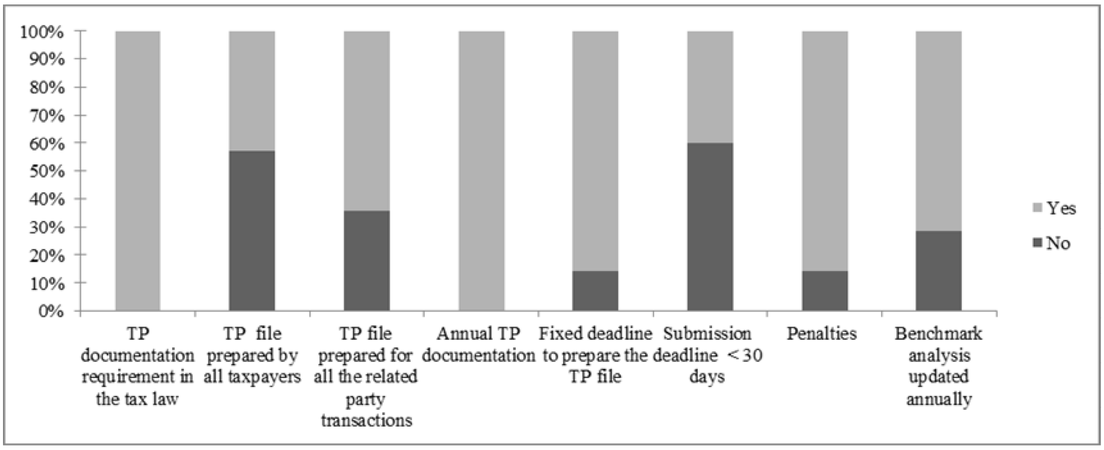
In addition, according to the figure 3, big part of the countries from category 1 and 2 and belonging to the central – eastern part does not implement BEPS Action Plan 13 and/or 8-10 in the national law, do not have a statute of limitation greater than 5 years and allow the requirement of APAs by the taxpayers. In the same time, most of these countries require a threshold below 25% in order to determine the affiliation relationship and require a disclosure of the related party transactions within or together the annual tax return.

Summarizing all the above, the characteristics of the countries from the central – eastern part indicate the presence of transfer pricing regulation which are not so strict in this area. The central – eastern area has a bigger coverage on the map, compared to the next area.

- ***the south – west part*** (i.e. the left part of the map), where the transfer pricing regulations are stricter. Most of the countries from this part of the map were included in category 3 and category 4. This area has a lower coverage on the map.

  The charts below are similar with those presented above, these being designed for the countries included in category 3 and 4.

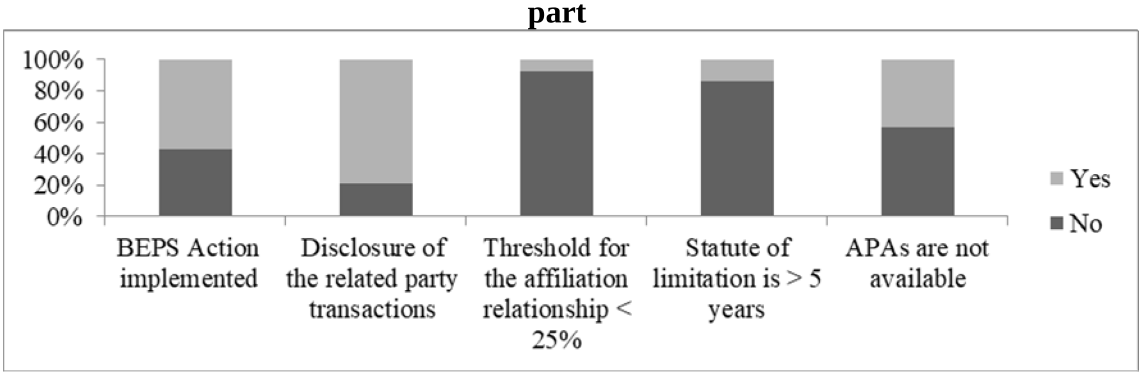
Figure 4. **Regulations regarding TP documentation, specific to south - west part**



(*Source*: Authors' processing)

According with the above graphic, most of the countries included in category 3 and category 4, belonging to the south - west part, introduced in the national law the transfer pricing documentation requirement, require a transfer pricing file to be prepared for all the related party transactions and an annual transfer pricing file, impose fixed deadline for the preparation of the documentation, impose penalties for not complying with the transfer pricing documentation requirements and require an annual update of the benchmark analysis. All these characteristics illustrate the strictness specific to the south – west area. It is astonishing that big part of the countries do not require a transfer pricing file that should be prepared by all the taxpayers and do not impose a deadline of less than 30 days for the submission of the transfer pricing file upon the request of the tax authorities.

Figure 5. **Regulations regarding BEPS and other aspects, specific to south - west part**



(*Source*: Authors' processing)

In addition, according to the figure 5 from above, big part of the countries from category 3 and 4 and belonging to the south - west part implemented BEPS Action Plan 13 and/or 8-10 in the national law and require a disclosure of the related party transactions within or together the annual tax return. Also, these aspects show the strictness of the transfer pricing rules specific to this part of the map. Surprisingly, most of these countries do not have a statute of limitation greater than 5 years and do not require a threshold below 25% in order to determine the affiliation relationship. Moreover, these countries allow the requirement of APAs by the taxpayers.

Given all the above, it can be said that the strictness of the transfer pricing regulations decreases from the west of Europe to the east. Moreover, we noted that countries from a certain category tend to be grouped on the map. This is the most visible for countries belonging to category 2.

4.2. Position of Romania on the European map of transfer pricing regulations

Regarding the position of Romania on the European map, it is situated in the central – eastern part, belonging to the area where the transfer pricing regulations are not very strict.

Romania was included in category 2, the main characteristics of this country in terms of transfer pricing regulations being the following:

- regulations related to the transfer pricing documentation: the transfer pricing documentation requirement is introduced in the national tax law, there being required an annual transfer pricing documentation file which should be prepared by the large taxpayers until a fixed deadline; there are penalties for not complying with the transfer pricing documentation requirements, but the transfer pricing documentation file is not requested to be prepared by all taxpayers and for all the related party transactions; the deadline for the submission of the transfer pricing file upon the request of the tax authorities is not less than 30 days; there are no specific requirements regarding the updating of the benchmark analysis, but however the prudent approach would be to perform a new search for each year under analysis.
- other regulations: there are no requirements regarding the disclosure of the related party transactions within tax return, the threshold used in order to determine the affiliation relationship is 25%, the statute of limitation is not greater than 5 years and APAs are available.

Summarizing all the above, stricter transfer pricing regulations for Romania may involve the following changes:

- changes related to the transfer pricing regulations: introduction of rules according with the transfer pricing documentation file should be requested to be prepared by all taxpayers and for all the transactions. In addition, for stricter regulations, there should be established shorter deadlines for the submission of the transfer pricing file upon the request of the tax authorities.
- other changes: introduction of requirements regarding the disclosure of the related party transactions within tax return, increase of the statute of limitation etc.

On the other hand, according with a recent study performed by Neacșu and Feleagă (2017), some of the changes mentioned above may indicate stricter transfer pricing regulations, but they may be not considered efficient in order to reduce the profit shifting between the multinationals. In that study the authors asked the tax specialists from Romania about their perception on the Romanian transfer pricing regulations. These specialists considered that the annual preparation and submission of the transfer pricing documentation file by all taxpayers could represent changes that the Romanian transfer pricing legislation may need for a better prevention of the tax results` manipulation. In addition, the respondents considered that the analysis of all the related party transactions may not be an efficient amendment, as in this situation the taxpayers will involve more resources in order to document immaterial transactions and this could represent a disadvantage for a country which needs to attract foreign investments. Moreover, the respondents considered that an efficient measure in order to prevent the profit shifting may be represented by the encouraging of the taxpayers to use APAs.

Considering all the above, we strongly believe that that if some regulations indicate a strict transfer pricing regime, these regulations may not be efficient for the prevention of base erosion of profit shifting and in the same time may affect the foreign investments.

5. Conclusions

The results obtained from the analysis performed by us show that the strictness of the transfer pricing regulations decreases from the west of the Europe to the east of this continent. Moreover, the European map may be split in two main areas: the *central – eastern part*, where the transfer pricing regulations are less strict and the *south – west part*, where the transfer pricing regulations are stricter.

A general overview of the European map indicates that most of the countries were included in category 2, respectively category 3, meaning that that the transfer pricing regulations from the European continent are not so flexible, but in the same time are not so strict. We found only 2 countries included in category 4 (i.e. the category which indicates the existence of the strictest transfer pricing regulations), these countries being Italy and Spain.

Regarding the position of Romania on the European map, it was included in category 2, being situated in the central-eastern part and belonging to the area where the transfer pricing regulations are not very strict. Therefore, there are some regulations that our country could adopt in order to become a stricter country in terms of transfer pricing regulations. However, an important aspect should be considered in this respect, respectively if some regulations indicate a strict transfer pricing regime, these regulations may not be efficient for the prevention of base erosion of profit shifting and in the same time may affect the foreign investments. Therefore, the following questions should be put *do stricter transfer pricing regulations impact the foreign investments? If so, countries are willing to pay this price in order to gain a better prevention of the base erosion and profit shifting?*

Given the situation presented above, a future research direction could be represented by the analysis of the impact of stricter transfer pricing regulations on the foreign investments. Other future research directions may involve the analysis of more elements related to the transfer pricing regulations (for example the cost contribution arrangements, the transfer pricing adjustments etc.) in order to include them in the transfer pricing strictness index.

Regarding the limits of our research, it is represented by the fact that in order to build the transfer pricing strictness index we took into consideration only certain elements of the transfer pricing regulations of the countries analysed, and not all possible elements. Another limit of our research may be represented by the percentage of importance used in order to design the index. However, with all these limits we consider that our research contributes to the enrichment of the transfer pricing literature.

References

Beckera, J., Davies, R.B. & Jakobsa, G. (2017) „The economics of advance pricing agreements”, *Journal of Economic Behavior & Organization*, vol. 134, no. February 2014: 255–268

Beer, S. & Loeprick, J. (2013) “Profit Shifting: Drivers and Potential Countermeasures”, *WU International Taxation Research Paper Series*, no. 2013-3, available online at http://epub.wu.ac.at/3893/1/SSRN-id2271539.pdf (Accessed February 2017)

Deloitte (2016) “2016 Global Transfer Pricing Country Guide” available online at https://www2.deloitte.com/us/en/pages/tax/articles/global-transfer-pricing-country-guide.html (Accessed February 2017)

Ernst & Young (2016) “Worldwide Transfer Pricing Reference Guide 2015–16” available online at http://www.ey.com/Publication/vwLUAssets/EY-Worldwide-transfer-pricing-reference-guide-2015-16/$File/EY_Worldwide_Transfer_Pricing_Reference_Guide_2015-16.pdf (Accessed February 2017)

http://www.worldatlas.com/cntycont.htm

https://mapchart.net/

Hung Chana, K., Agnes, W., Lo, Phyllis, L.L., Mob (2015) “An empirical analysis of the changes in tax audit focus on international transfer pricing”, *Journal of International Accounting, Auditing and Taxation*, vol. 24: 94–104

Ito, J. & Komoriya, Y. (2015) *Firms' Location Selections and Regional Policy in the Global Economy*, Chapter 6 - The impact of transfer pricing regulations on the location decisions of MNEs, Tokyo: Springer, 81-106

KPMG (2016) “Global Transfer Pricing Review 2016” available online at https://home.kpmg.com/content/dam/kpmg/xx/pdf/2016/11/global-transfer-pricing-review.pdf (Accessed February 2017)

Lamers, I., Mcharo, P. & Nakajima, K. (2014) “Tax base erosion and profit shifting (BEPS) and international economic law”, *Genève: The Graduate Institute, Centre for Trade and Economic Integration, CTEI working papers*

Lohse, T. & Riedel N. (2012) „The impact of transfer pricing regulations on profit shifting within European multinationals”, *FZID Discussion paper, No. 61-2012*, available online at https://www.econstor.eu/bitstream/10419/67717/1/732536626.pdf (Accessed March 2017)

Lohse, T., Riedel, N. & Spengel, C. (2012) “The increasing importance of transfer pricing regulations – a worldwide overview”, *Oxford University Centre for Business Taxation working paper* 12/27

Marques, M. & Pinho, C. (2016) “Is transfer pricing strictness deterring profit shifting within multinationals? Empirical evidence from Europe”, *Accounting and Business Research*, vol. 46, no. 7: 703-730

Matei, G. & Pîrvu , D. (2011) “Preţurile de transfer în Uniunea Europeană”, *Economie teoretică şi aplicată*, vol. XVIII (2011), issues 4(557): 99-111

Mirjam, K. (2015), “Transfer Pricing in a BEPS Era: Rethinking the Arm’ s Length Principle – Part I”, *International Transfer Pricing Journal*, vol. 3: 141-144

Neacşu, I. & Feleagă, L. (2017) “Evolutions and tendencies regarding the Romanian transfer pricing legislation: is there a need for change?”, *Audit Financiar*, vol. XV, no. 1(145)/2017: 65-82

Neighbour, J. (2002) *Transfer pricing: Keeping it at arm’s length*, in OECD Observer No. 230, OECD Center for Tax Policy and Administration, available online at http://oecdobserver.org/news/archivestory.php/aid/670/Transfer_pricing:_Keeping_it_at_arms_length.html (Accessed March 2017)

Nicolay, K., Nusser, H. & Pfeiffer, O. (2016) "On the interdependency of profit-shifting channels and the effectiveness of anti-avoidance legislation", available online at http://www.sbs.ox.ac.uk/sites/default/files/Business_Taxation/Events/conferences/2016/Doctoral_mtg_2016/nusser-final.pdf (Accessed February 2017)

OECD (2010) Transfer Pricing Guidelines for Multinational Enterprises and Tax Administrations, available online at http://www.oecd.org/tax/transfer-pricing/oecd-transfer-pricing-guidelines-for-multinational-enterprises-and-tax-administrations-20769717.htm (Accessed May 2016)

OECD (2015), Aligning Transfer Pricing Outcomes with Value Creation, Actions 8-10 - 2015 Final Reports, OECD/G20 Base Erosion and Profit Shifting Project, OECD Publishing, Paris, available online at http://dx.doi.org/10.1787/9789264241244-en [Accessed May 10th, 2016]

OECD (2015), Transfer Pricing Documentation and Country-by-Country Reporting, Action 13 - 2015 Final Report, OECD/G20 Base Erosion and Profit Shifting Project, OECD Publishing, Paris, available online at http://dx.doi.org/10.1787/9789264241480-en [Accessed May 10th, 2016]

PwC (2016) "International Transfer Pricing 2015/16" available online at http://www.pwc.com/gx/en/international-transfer-pricing/assets/itp-2015-2016-final.pdf (Accessed March 2017)

Rathke, A.A.T., & Rezende, A.J. (2016) "Exploring the characteristics of transfer pricing systems across countries", available online at https://ssrn.com/abstract=2757808 (Accessed February 2017)

Riedel, N., Zinn, T. & Hofmann, P. (2015) "Do transfer pricing laws limit international income shifting? Evidence from Europe", *University of Bochum, CESinfo Munich, DIW Berlin, NoCet & Oxford University CBT*

Sansing, R. (2014), "International Transfer Pricing", *Foundations and Trends® in Accounting*, vol. 9, issues 1:1-57

Yao, J.T (2013) "The arm's length principle, transfer pricing, and location choices", *Journal of Economics and Business, vol. 65,* issues January–February 2013:1-13

[xlix] The research of consequences of introducing planned changes in the Accounting Act.

[l] Requirements presented on the websites of Polish banks.

[li] Because SMEs are not very willing to participate in surveys, the research among SMEs must be conducted by specialized agencies on a wide scale to obtain a minimum rate of response.

[lii] Notes were taken during the interviews

Appendix 1. **Elements regarding the transfer pricing documentation**

	Category I - elements regarding the transfer pricing documentation							
Countries	***The transfer pricing documentation requirement is introduced in the tax law, and not only required to exist in practice***	***The transfer pricing documentation file is requested to be prepared by all taxpayers, and not only by certain taxpayers***	***The transfer pricing documentation file is requested to be prepared for all the related party transactions, and not only for certain transactions***	***Annual transfer pricing documentation requirements***	***Fixed deadline to prepare the transfer pricing documentation***	***The deadline for the submission of the transfer pricing file upon the request of the tax authorities is less than 30 days***	***There are penalties for not complying with the transfer pricing documentation requirements***	***The benchmark analysis should be updated annually***
Albania	1	1	1	0	0	0	1	0
Austria	1	1	1	0	0	1	0	0
Azerbaijan	0	1	1	0	0	1	0	0
Belarus	1	1	0	1	0	1	0	0
Belgium	0	1	1	0	0	0	0	0
Bosnia and Herzegovina	0	1	1	0	0	1	0	0
Bulgaria	0	1	1	0	0	1	0	0
Croatia	1	1	1	1	0	1	0	1
Czech Republic	0	1	1	0	0	0	0	0
Denmark	1	0	1	1	1	0	1	1
Estonia	1	0	1	1	0	0	1	0
Finland	1	0	0	0	0	0	1	0
France	1	0	0	1	1	0	1	1
Georgia	1	1	0	1	1	0	0	0
Germany	1	1	0	0	0	0	1	0
Greece	1	0	1	1	1	0	1	1
Hungary	1	0	0	1	1	1	1	1

Category I - elements regarding the transfer pricing documentation								
Countries	***The transfer pricing documentation requirement is introduced in the tax law, and not only required to exist in practice***	***The transfer pricing documentation file is requested to be prepared by all taxpayers, and not only by certain taxpayers***	***The transfer pricing documentation file is requested to be prepared for all the related party transactions, and not only for certain transactions***	***Annual transfer pricing documentation requirements***	***Fixed deadline to prepare the transfer pricing documentation***	***The deadline for the submission of the transfer pricing file upon the request of the tax authorities is less than 30 days***	***There are penalties for not complying with the transfer pricing documentation requirements***	***The benchmark analysis should be updated annually***
Iceland	1	0	1	1	1	0	1	0
Ireland	1	0	0	1	1	1	0	1
Italy	1	1	0	1	1	1	1	1
Latvia	1	1	0	0	0	0	0	1
Lithuania	1	0	1	0	0	0	0	0
Luxembourg	0	1	1	0	0	1	1	0
Netherlands	1	1	1	0	0	0	0	0
Norway	1	0	1	1	0	0	1	1
Poland	1	0	0	1	0	1	1	0
Portugal	1	0	1	1	1	1	1	0
Romania	1	0	0	1	1	0	1	0
Serbia	1	1	1	1	1	0	1	1
Slovakia	1	1	0	1	0	1	1	0
Slovenia	1	1	1	1	1	0	1	0
Spain	1	1	0	1	1	1	1	1
Sweden	1	1	0	1	0	0	0	0
Switzerland	1	1	1	0	0	0	0	0
Ukraine	1	1	0	1	0	0	1	0
United Kingdom (UK)	1	1	1	1	1	0	1	0

Appendix 2. **Elements regarding BEPS and other elements**

Countries	*Category II – elements regarding BEPS*	*Category III – other elements*			
	BEPS Action 13 and / or Actions 8-10 are implemented in the local legislation	***There are requirements regarding the disclosure of the related party transactions***	***The threshold used in order to determine the affiliation relationship is below 25%***	***The statute of limitation is greater than 5 years***	***APAs are not available***
Albania	0	1	0	0	0
Austria	0	0	0	1	0
Azerbaijan	0	0	1	0	1
Belarus	0	0	1	1	1
Belgium	0	0	1	0	0
Bosnia and Herzegovina	1	1	1	0	1
Bulgaria	0	1	1	0	1
Croatia	0	1	0	0	1
Czech Republic	0	1	0	0	0
Denmark	1	1	0	1	0
Estonia	1	0	1	0	1
Finland	0	1	0	0	0
France	1	1	0	0	0
Georgia	0	1	0	1	0
Germany	0	0	0	0	0
Greece	0	1	0	0	0
Hungary	0	0	0	0	0
Iceland	0	1	0	1	1
Ireland	1	0	0	0	1

Countries	***Category II – elements regarding BEPS***	***Category III – other elements***			
	BEPS Action 13 and / or Actions 8-10 are implemented in the local legislation	***There are requirements regarding the disclosure of the related party transactions***	***The threshold used in order to determine the affiliation relationship is below 25%***	***The statute of limitation is greater than 5 years***	***APAs are not available***
Italy	1	1	0	0	0
Latvia	0	1	1	0	0
Lithuania	0	1	1	0	0
Luxembourg	1	0	1	0	0
Netherlands	1	1	1	0	0
Norway	1	1	0	0	1
Poland	1	1	1	0	0
Portugal	1	1	1	0	0
Romania	1	0	0	0	0
Serbia	0	1	0	0	1
Slovakia	0	1	0	1	0
Slovenia	0	1	0	0	1
Spain	1	1	0	0	0
Sweden	0	0	1	1	0
Switzerland	0	0	1	0	0
Ukraine	0	1	1	1	0
United Kingdom (UK)	1	0	0	0	0

Appendix 3. **The value of the transfer pricing strictness index for each country analysed**

Country	***Transfer pricing strictness index***	***Country***	***Transfer pricing strictness index***
Albania	2.17	Ireland	3
Austria	2.17	Italy	4
Azerbaijan	1.84	Latvia	1.84
Belarus	2.51	Lithuania	1.34
Belgium	1.5	Luxembourg	2.5
Bosnia and Herzegovina	2.34	Netherlands	2.17
Bulgaria	2.01	Norway	3.17
Croatia	3.34	Poland	2.67
Czech Republic	1.17	Portugal	3.67
Denmark	3.67	Romania	2.33
Estonia	2.67	Serbia	3.84
Finland	1.17	Slovakia	2.84
France	3	Slovenia	3.34
Georgia	2.34	Spain	4
Germany	1.5	Sweden	1.84
Greece	3.17	Switzerland	1.67
Hungary	3	Ukraine	2.51
Iceland	3.01	United Kingdom (UK)	3.33

The assessment of the transfer pricing influence on the income tax through the net margin method, in the case of the companies listed on the Bucharest Stock Exchange

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Abstract: *Transfer pricing is used in order to reach the objectives of the management accounting, alongside with the ones of the tax reporting system. By using transfer pricing, multinational companies share a part of their profits between the subsidiaries, depending on the contribution of each of them to the activity of the company or depending on other pre-set criteria. Using controlled transactions, a part of the multinational companies can be frequently tempted to direct most of the gained profit towards the subsidiaries that are located in countries with low levels of income taxes. The purpose of this study is represented by the assessment of the influence that transfer pricing transactions have on the income tax. The study proposes the analysis and assessment of the transfer pricing influence on the fiscal results that were reached by the companies listed on the Bucharest Stock Exchange. To reach the research objectives, the study used a sample with companies, which report or do not report transactions with the affiliated entities and implicitly used the transfer pricing. For the analysis, data were collected at the level of the 2015 financial exercise. The research results show a significant influence of the transfer pricing on the income tax in the case of the companies that are listed on the Bucharest Stock Exchange.*

Keywords: *Transfer pricing, arm's length principle, traditional methods, transactional methods, net margin methods, income tax*

1. Introduction

Transfer pricing represents the monetary expression of the transactions between the affiliated entities (Cools and Emmanuel, 2007, p.573). Its significance results from the existence of the categories of accounting information users, such as: the management of the entity and of the subsidiaries, the employees, creditors, investors and possible investors, and the tax authorities, all having a common interest, besides the others and namely the profitability of the company (Martini, 2005, p.3).

Compared to the information resulted from the financial accounting, in the case of the transactions that use the transfer pricing, the information resulted based on the management accounting cannot always be considered as a qualitative one (Cools and Emmanuel, 2007, p.578). Transfer pricing plays a significant role for the both types of accounting, as, by using them, the profit is distributed to the other subsidiaries of one company (Hiemann and Reichelstein, 2012, p.3).

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In order to reach the objectives of the management accounting, alongside with the ones of the tax reporting system, many of the multinational companies register the transactions using the transfer pricing, thus using two separate sets of registers (one for the management accounting and one for the tax reporting), which, in most of the cases, can contain contradictory information (Hiemann and Reichelstein, 2012, p.4).

In order to provide information about the profitable situation of the company, managers mostly use cost adjustments techniques (Anderson, 2007, p.482). To this extent, the tax authorities might be in doubt regarding the accounting evidence of the transfer pricing in dual system (Durst, 2002, p.98). Thus, in order to ensure a unique informational flow, the use of a single transfer pricing transactions' register, both for the decision making process and for the taxes, would represent a solution (Cools and Emmanuel, 2007, p.578).

In the context of economic globalization, the main objectives of the tax authority is represented by the avoidance of double taxation and the stimulating of trade exchanges at international level (OECD, 2010, p.38). In order to reach this objective, the profit gained by the multinational companies should be taxed a single time (Durst and Cullbertson, 2003, p.38). It is known that multinational companies share a part of their profits between the subsidiaries, depending on the contribution of each of them to the activity of the company or depending on other pre-set criteria. To this extent, using controlled transactions, a part of the multinational companies can be frequently tempted to direct most of the gained profit towards the subsidiaries that are located in countries with low levels of income taxes (Cools and Emmanuel, 2007, pp.573-574).

The purpose of this study is represented by the assessment of the influence that transfer pricing transactions have on the tax income, set by the Romanian tax authorities in order to gather incomes for the state budget. To this extent, the study proposes the analysis and evaluation of the transfer pricing influence on the results that were reached by the companies listed on the Bucharest Stock Exchange. To do that, the study used two sub-samples with listed companies, which report or do not report transactions with the affiliated entities and implicitly use the transfer pricing. Subsequently to the analysis of the data collected at the level of the companies included in the sample for the 2015 financial exercise, the research results show a significant influence of the transfer pricing on the income tax in the case of the companies that are listed on the Bucharest Stock Exchange.

2. Literature review and hypothesis development

The issue of the transfer pricing use has been widely studied in the literature, as it directly influences the results reached by companies (Hirshleifer, 1956, Plasschaert, 1979, Eccles, 1985, Eden, 2009, Hiemann and Reichelstein, 2012), etc.

2.1. Conceptual elements regarding transfer prices

Amongst the regulations regarding the transfer pricing, this concept is referred to as being the price used by the affiliated entities for intra-group transactions (OECD, p.19, 2010). According to these standards, the transfer prices should be equal to the ones that arise in transactions in similar cases between unaffiliated or independent entities (Cools and Emmanuel, 2007, p. 574).

The transfer pricing concept dates back to 1880 (Cox *et al*., 1997, p.22). At the level of General Motors, the concept of market-cost based transfer prices was firstly used (Fleischman and Tyson, 2007, p.1079). In 1921 the first regulations of the transfer pricing were issued and adopted by the American Congress (Durst and Culbertson, 2003, p.43).

At the level of OECD, the standards regarding the transfer pricing were set in 1979, being adapted and completed in time. Nowadays, at the European level, transfer pricing is regulated based on the *TPG – Transfer Pricing Guidelines for Multinational Enterprises and Tax Administrations* and on the *Base Erosion and Profit Split Action Plan (BEPS)*

According to the issued standards of the Organization for Economic Cooperation and Development (OECD, p.33, 2010), it is presumed that transfer pricing must meet the arm's length principle. The most detailed standards regarding the use of transfer pricing are the ones issued in the United States of America by the Internal Revenue Service (IRS) (Cools and Emmanuel, 2007, p.573).

Considered a highly important principle, it assumes that the transfer pricing must be set by the affiliated entities for their transactions, given the free and transparent market (Eden, 2009, p.602).

Thus, a series of main functions of transfer pricing appears, such as: the profit allocation, to determine and evaluate the profitableness of the whole economic entity and of its composing parts (divisions, affiliated entities, subsidiaries, units, etc.); the coordination, the influence and the guidance of the subsidiaries by the managers; the calculation of the costs for the management accounting, as a support for the decision-making process and the adjustment of the market-created prices; the simplification of cost accounting by using normalization measures to remove the external factors from the economic analysis, factors which have influence on the prices; other external regulation functions used for the financial reporting (Schuste, 2015, pp.6-12).

Three types of transfer pricing have shaped in time, which are used in the transactions with the affiliated parts: cost-based, market-based and negotiated transfer prices (Schuster, 2015, p.12). Depending on the nature of the transaction, each of these prices can be used for the transactions between affiliated companies (Schuster, 2015, p.13). At the same time, it is allowed to concurrently use all the transfer pricing categories; what matters is the contribution to the reaching of accurate financial-accounting information.

Cost-based prices originate in the management accounting and are established by the providers-producers in their transactions with their clients (Li and Ferreira, 2007, p.27). They are usually expressed by the standard cost, the marginal cost, the complete cost, etc. (Schuster, 2015, p.23-42).

Market-based transfer prices regard the costs resulted from the use of the market information (ex: customer preferences, the quality of the goods/services, post-selling services, goods substitution and their durability) and can be applied within the sub-units of one entity, only if they are independent and if they can evaluate their own performance (Veres, 2011, p.291, Hirshleifer, 1956, p.172).

Some opinions (Hirshleifer, 1956, p.176) claim that market prices can only be used if there is a perfectly competitive market, and, if it does not exist, cost-based prices will be used. The negotiated prices are mutually set by the seller and the buyer (Li and Ferreira, 2007, p.26). They are generally used by the subsidiaries to maximize or minimalize the results (Steiner, 2007, p.279).

2.2. The documentation of transfer pricing

Starting from 1994, in the USA, through regulation no. 482 of the IRS, the folder of the transfer pricing in the transactions with the affiliated entities has been imposed. The documentation regarding the transfer pricing must include information on the affiliated parts, the seemingly functions and risks, the market conditions, the fiscal evidence of the transactions, the identification of the comparables in order to set the transfer prices, the implementation of the transfer pricing methods, the economic analysis of the affiliated entities and other issues related to the transactions between affiliated entities (Cools and Emmanuel, 2007, p.577). The transfer pricing folder is not mandated to be identically structured for every entity, as there are differences from country to country and from field to field regarding social, cultural aspects etc. It is also important that the folder must include all relevant information as to reflect the intra-group transactions as much as credible (Cools and Emmanuel, 2007, p. 577).

The main objectives regarding the organization of the transfer pricing documentation are the lowering of the auditing risk and the avoidance of misunderstandings with the tax authorities, as well as the insurance of transparency in the reporting of financial information that is useful to the decision making process of the investors (Dean *et al.*, 2008, p.16). When the entities organize the transfer pricing folder, the tax authorities are somehow sure that policies regarding the transfer pricing are applied in the transactions that require transfer pricing ant that the arm's length principle use is met (OECD/g20, 2014, p.15). It supposes that the given folder must be organized at the moment of the transaction or until the submission of the statements regarding the affiliated profit of the transaction (OECD/G20, 2014, p. 21).

2.3. Calculus methods of transfer pricing

The literature provides more methods that could be used for the determination of the transfer pricing (Li and Ferreira, 2008, p.26). According to the OECD standards, the following methods are recommended: **traditional methods** (reselling price method, the price comparison method and cost-plus method) and **transactional methods** or **profit based methods** (the net margin method and the method of the profit allocation). Besides, they also accept the use of any other method that would lead to the determination of the transfer prices according to the arm's length principle (PwC, 2013, p.34).

One of the most frequently used methods for the identification of the transfer prices is the Comparable Uncontrolled Price (CUP) method (Eden, 2009, p. 605). The use of this method consists of comparing the prices associated to some transactions between affiliated parts with the prices used by independent entities (Eden, 2009, p.605). The transactions between independent entities are transactions between entities outside the group (external comparable) or transactions between an entity, part of the group, and an external entity (internal comparable) (PwC, 2013, p.37). In the case of some customized products, the given method cannot be used, as it is little probable that there would exist prices for similar transactions (Cools and Emmanuel, 2007, p.580).

The **Resale Price Method** (RPM) method uses the resale price, reduced with a gross margin/expenditure associated to it (Li and Ferreira, 2008, p.28). This can be applied for the tangible goods whose value has not been significantly changed through operation such as packaging ore repackaging, sorting etc.

When using the **Cost Plus Method** (CPM), one starts from the identification of the costs that are supported by the goods' or services' providers, plus a corresponding profit margin (Hughes and Nicholls, 2010). The so reached price is compared between the controlled and independent entities in order to establish the transfer price that meets the arm's length principle (Eden, 2009, p.66).

The **Transactional Net Margin Method** (TNMM) comes to see if after the internal transactions of one multinational entity, there is an adequate net operating margin, which is determined is based on the turnover, the total assets and the operating costs etc (Durst, 2010, p.851). In order to use this method, one is not forced to identify a comparable transaction, but it is enough to use some independent comparable entities (PwC, 2013, p.42). The margins reached for all the entities, namely the independent ones and the ones involved in controlled transactions, are compared one to another to identify the existence of the transfer price, according to the market value principle (OECD, 2010, p.6).

The **Profit Shift Method** (PSM) assumes the shifting of the profit towards the components of the group depending on the contribution of each part to its gaining, on the assumed risks and on the assets used to gain profit (Li and Ferreira, 2008, p. 28). The use of this method is made in two ways: through the contributive and the residual analysis (KPMG, 2011, p. 11). According to the first method, profit is shifted according to the contribution of each subsidiary to the gain. The residual analysis assumes two stages: first, a minimum profit is ensured for each of the subsidiaries, and then, the profit is shifted using the information from similar independent transactions (OECD, 2010, p.29).

The determination methods of the transfer prices can only be applied after the identification of some independent transactions or entities, otherwise, they cannot serve the testing of the arm's length principle for the transactions between affiliated entities (Li and Ferreira, 2008, p. 28). Also, the transfer price determined as the result of using the methods can be sometimes questionable, considering the different market structure (Gresik and Osmundsen, 2008, p.235).

2.4. Tax regulations regarding the use of transfer prices in Romania

Compared to other states, from the perspective of judicial regulation, in Romania, the transfer pricing appears quite late. The first Romanian regulation regarding the transactions between affiliated parts is represented by the Law no. 571/2003 regarding the Tax Code. All the regulation regarding the transfer pricing presented in this law are taken from the OECD Directives, as a result of directing the national economy towards international standards. In 2008, Order 222/20008 was issued, regarding the content of the transfer pricing folder, through which the Romanian lawmaker provided the contributing entities with detailed information regarding the transfer prices, the shape and the content of the transfer prices folder as well as the usable methodology for the determination of the transfer pricing.

The new Tax Code (Law no. 227/2015) displays the prices in an actualized shape, due to the new OECD regulations (namely the *Base Erosion and Profit Split Action Plan*). The new law stipulates that the transfer pricing must be determined starting from the arm's length principle. As well, the law presents the categories of entities which are mandated to organize the transfer prices folder and other relevant information. According to the new Tax Code, the following are considered affiliated persons which make transactions: the individuals, of which one is husband/wife or they are maximum 3rd degree relatives; an individual and a legal entity, which owns, directly or not, at least 25% of the titles of the first one; legal entities, of which one owns, directly or by affiliation, at least 25% of the other's equity interests.

Order no. 442/2016, regarding the transactional volume, the terms for the organization, content and the requirement conditions of the transfer pricing folder and the adjustment/estimation procedure of the transfer pricing, presents the entities that are mandated to organize the transfer pricing folder (based on some imposed criteria), the content of the folder, the issuance terms as well as other information. Given the existence of some in advance agreements between the affiliated entities, they have the right to follow the steps displayed in the agreement, regarding the setting of the transfer pricing during the period that is admitted by the tax authority. The price agreements made in advance are regulated by the Order of the ANAF President No. 3735/2015- the procedure of in-advance issuance of the price agreement.

The folder of transfer prices, according to the Romanian standards displayed in Order No. 442/2016 must include information regarding the affiliated entities' group, as well as of each of them, which register transactions with transfer pricing (activity, financial analysis, research/development activities, business strategies, functions, risks etc.), the functional analysis (functions and risks associated to the intra-group transactions) and economic analysis (the use of the methods and the determination of the transfer pricing).

2.5. The development of the research hypothesis regarding the influence of transfer pries on the income tax

Generally, within multinational companies, the use of transfer pricing supports the managers' decision-making process, paid by the entity depending on the reported performance (Novicovas, 2011, p.129). Also, the transfer pricing is used for the establishment of the tax duties resulted from the activity of each subsidiary, which directly influences the taxation of the whole entity (Hyde and Choe, 2005).

Regulations regarding transfer pricing are designed to avoid tax evasion within multinational companies, as well as to avoid their double taxation (Eden, 2012, p.208). Given these facts, the standards provided by the responsible international organizations should meet these objectives in order to satisfy the needs of the tax authorities and to give the multinational companies the chance of being transparent in their transactions with the subsidiaries.

Transfer pricing used by the affiliated entities will be accepted by the tax authority only if they will bring arguments and proofs that the prices used in the transactions within the group are the same prices with the ones in the unverified transactions (Cools, 2005, p.67). In other words, transfer pricing used by affiliated entities must meet the arm's length principle, in order to be fiscally validated (Mura *et al*., 2013, p.487).

Alongside other methods (ex: loans between affiliated entities), affiliated entities frequently use the transfer prices in order to modify the financial results, in order to low the taxes (Blouin *et al*., 2010, p.6). This makes the multinational reduce the profitableness of the entities located in countries with high income tax rates and to shift a significant part of the profit towards the affiliated entities that are located in the so called tax havens, countries with mean rates of income tax (Mura *et al*., 2013, p.484). Such a possibility cannot be also attributed to affiliated entities which represent components of the group located in the same country, given the fact that the income tax rate is the same for all (Eden, 2012, p.225).

If an entity transfers a monetary unit from the profit to a subsidiary in another state, given the constant investment potential, then, the reduction of the income tax will be equivalent to the difference between the profit rates that are applicable in the countries where they operate (Gruber and Mutti, 1991, p.286).

Studies in the field have emphasized the fact that the intra-group transactions are far from being made given the interaction between the goods' and services' demand and offer (Cools, 2005, p.67). There is no surprise that tax authorities are suspicious when it comes to the practices used by the multinational companies within their internal transactions (PwC, 2013, p.255). The lawmaker considers that there are three problems regarding the use of transfer prices at the level of multinationals: the judicial issue, the shifting and the evaluation (Eden, 2009, p.596). Which state has the right to set the tax level for the profit of one multinational company, from the judicial perspective? How is the profit distributed amongst the subsidiaries, as long as they all take part in the gaining of the profit? How will the transfer pricing be evaluated within multinationals: cost-based or market based? (Eden, 2009, p.597). This is the cause why tax authorities consider that there are reasons to consider the transfer pricing manipulation as a danger regarding the collection of incomes for the state budget (Cools, 2005, p.68).

A way of reducing the income tax, using the transfer pricing, is represented by the transactions with intangible assets or rare goods, whose market value cannot be determined or it can be hardly determined, as a result of the impossibility of identifying some comparable transactions (Gravelle, 2015, p.12). When it comes to these transactions, the evaluation is made through the difference between the acquisition cost and the net value, which is exactly the goodwill (Eden, 2012, p.211). Also, one considers that the transfer pricing must be corresponding to the benefits gained as a results of using intangible assets (Eden, 1998, p.14).

Thus, we can conclude that transfer pricing that do not meet the arm's length principle has a direct influence of the results gained from the transactions between affiliated entities, respectively the income tax corresponding to the registered results. Moreover, we can consider that the transactions between independent entities are according to the arm's length principle and the result obtained from such transactions is not one that is affected by accounting manipulations, being accepted by the tax authorities. Starting from this assertion, the study proposes the testing and validation of the following research hypothesis:

Research hypothesis: *At the level of the entities (companies listed at the Bucharest Stock Exchange) which carry out transactions with affiliated parts, the use of transfer pricing has a significant influence on the income tax that is registered by the tax administrations compared to the entities that carry out independent transactions.*
Based on this hypothesis, the purpose of the present study is to evaluate the influence of using the transfer pricing on the income tax registered by the companies listed on a regulated market, namely the Bucharest Stock Exchange.

3. Research methodology

For testing and validating the proposed research hypothesis, in this study we use a statistical approach, based on some empirical evidence that were recorded for the companies listed at the Bucharest Stock Exchange (BSE). Aforesaid statistical calculation will identify a sample of companies with consequent related data collection and analysis, a set of variables will be filed and suitable analysis methods will come as output all depending on this study scope and deliverables and based on the *arm's length principle.*

3.1. The scope and research objectives of the study

The scope of this study covers the analysis and assessment of the transfer pricing - based transactions influence on the corporate tax reported by the Romanian businesses listed on the Bucharest Stock Exchange (BSE).

The study therefore wants to reach the following targets:

- Identifying the Bucharest Stock Exchange (BSE) listed businesses filing Transfer Pricing-based transactions;
- Estimating and testing transfer pricing-based transactions influence on the corporate tax reported by Bucharest Stock Exchange (BSE) listed businesses;
- Estimating and testing corporate tax differences reported by Bucharest Stock Exchange (BSE) listed businesses between those performing and not performing transfer price-based transactions.

3.2. Sampling, methods used in analysis and data sources

This study covers the population as businesses authorised to operate on the Bucharest Stock Exchange (BSE) Section BVB (regulated stock market), 85 Companies in 2015 tax year. It was considered both businesses applying transfer prices and not. One setting covers higher specifications for Stock Exchange listed businesses concerning accounting and tax reporting assuming that such data were delivered to the users by the businesses considered all following regulations in force. Stock Exchange listed businesses do submit data related to shares, allotment of shares and shareholders, affiliation, accounting and tax reports.

The selected sample contains companies from the Heavy Machinery, Process and Chemical Plants, Food, Construction and Garment Manufacturing. From the 85 listed companies on BSE there were selected 26 companies in the field of manufacturing businesses that also apply transfer pricing (based on the data related to affiliation/affiliated parties: 11 businesses have reported consolidated annual accounting and tax data, only 15 businesses have reported customized/specific annual accounting and tax data as previously entered a Group of Companies) and 23 companies did not have performed transfer prices-based transactions (10 companies are independent as did not enter in any Group of Companies, and 13 companies have entered in Groups of Companies - consolidation, but did not file transfer price-related transactions). A setting simplifying our data report identifies the first set of companies as ***affiliated entities*** and the second set of companies as ***independent entities***.

The analysis covers a sample of 49 companies. The following reasons have excluded the other 36 companies listed on the BSE: a higher rate of shares and funds of these companies belongs to the Government, there are credit or investment companies, no data concerning shares and shareholders, no transfer pricing-based transactions performed. The sample does not consider, also, companies due to insolvency or temporarily not allowed to operate on the BSE. Excluded companies did not meet relevant sample specifications. The final sample covers 22 affiliated entities and 19 independent ones.

Data coming from accounting and tax reports (2015 tax year) of the businesses considered were collected manually to be applied in this study. The new Tax Code has been approved in 2015 significantly defining and relating to transfer pricing. The following general calculation models were applied the assumptions and settings this study is based onto be validated willing to compare transfer prices application rate against taxation reported (especially corporate tax):

$$Itax/TO = ß_0 + ß_1 \cdot OI/TO + \varepsilon \qquad (1)$$
$$Itax/OE = ß_0 + ß_1 \cdot OI/OE + \varepsilon \qquad (2)$$
$$Itax/TA = ß_0 + ß_1 \cdot OI/TA + \varepsilon \qquad (3)$$
$$Itax/OE = ß_0 + ß_1 \cdot EBT/OE + \varepsilon \qquad (4)$$

where:
Itax = Income tax; *TO = Turnover*; *OI = Operating income*; *OE = Operating expenses*; *TA = Total Assets*; *EBT = Earnings before taxes.*

This is to emphasize that aforesaid variables must be applied by the entities for Net Profit method calculating transfer pricing within the limits of Asset Market Value (*arm's length principle*).

Transfer pricing application rate over corporate tax estimation stipulates, also, general calculation models to include a dummy variable (**TP**) equal to 1 when transfer pricing are applied and 0 when not. This variable-related parameters ($ß_2$ and $ß_3$) significant estimations show a significant rate of the transfer pricing over corporate tax reported.

This is to say that relations applied to the new models will be the following:

$$Itax/TO = \beta_0 + \beta_1 \cdot OI/TO + \beta_2 \cdot TP + \beta_3 \cdot TP \cdot OI/TO + \varepsilon \quad (5)$$
$$Itax/OE = \beta_0 + \beta_1 \cdot OI/OE + \beta_2 \cdot TP + \beta_3 \cdot TP \cdot OI/OE + \varepsilon \quad (6)$$
$$Itax/TA = \beta_0 + \beta_1 \cdot OI/TA + \beta_2 \cdot TP + \beta_3 \cdot TP \cdot OI/TA + \varepsilon \quad (7)$$
$$Itax/OE = \beta_0 + \beta_1 \cdot EBT/OE + \beta_2 \cdot TP + \beta_3 \cdot TP \cdot EBT/OE + \varepsilon \quad (8)$$

The output within this study comes from data analysis on SPSS 2.0 software.

4. Research results and discussions

After applying data analysis, the main results obtain consist in descriptive statistics for the variables proposed in the models (by total and by categories – with and without transfer pricing), estimations for the correlation coefficients between variables included in the models (by total and by categories – with and without transfer pricing), and at the end the parameters estimated for the proposed models.

In Table 1 there are presented the descriptive statistics (mean and standard deviation – std. dev.). The results are shown by total and by each category of companies (with transfer pricing and without transfer pricing).

Table 1. **Descriptive statistics by total and by categories**

Variable	Category	N	Mean	Std. Dev.
Itax/TO	TP	22	0.027	0.070
	NTP	19	0.015	0.015
	Total	41	0.022	0.052
Itax /OE	TP	22	0.024	0.059
	NTP	19	0.016	0.016
	Total	41	0.021	0.044
Itax /TA	TP	22	0.012	0.018
	NTP	19	0.009	0.008
	Total	41	0.011	0.014
OI/TO	TP	22	0.102	0.299
	NTP	19	0.068	0.066
	Total	41	0.086	0.222
OI/OE	TP	22	0.101	0.296
	NTP	19	0.075	0.072
	Total	41	0.089	0.220
OI/TA	TP	22	0.034	0.039
	NTP	19	0.030	0.050
	Total	41	0.032	0.044
EBT/OE	TP	22	0.015	0.077
	NTP	19	0.054	0.092
	Total	41	0.033	0.086

[*] TP – companies from transfer pricing category
[**] NTP – companies from non -transfer pricing category
(*Source*: Authors' processing in SPSS 20.0)

From Table 1 we can observe that companies listed on BSE and use transfer pricing show high level of income tax (scaled by turnover, operating expenses, total assets) comparative with the companies that do not use transfer pricing. Also, companies with transfer pricing show high values of operating income, compared to the ones without transfer pricing. But, if we analyse the earnings before taxes – operating expenses ratios, we can observe that companies that use transfer pricing have low values of this ratio, compared with the values for the companies without transfer pricing. This can be explained (if we assume the high values of operating income for the companies with transfer pricing) by the fact that this type of companies (that use transfer pricing) have high level of operating expenses, possible due to the high costs that are used in order to transfer their profit to affiliates.

In order to assess the link between the variables included in the proposed models, in Table 2 we present the estimates for the Pearson correlation coefficients.

Table 2. **Pearson correlation coefficients for the variables included in the proposed models by total and by categories**

Pearson correlation	**Category**	*OI/OE*	*OI/TO*	*OI/TA*	*EBT/OE*
Itax/TO	TP	-	-0.070	-	-
	NTP	-	-0.109	-	-
	Total	-	-0.061	-	-
Itax/OE	TP	-0.069	-	-	-0.559*
	NTP	-0.014	-	-	0.358*
	Total	-0.060	-	-	-0.309*
Itax/TA	TP	-	-	-0.291*	-
	NTP	-	-	0.311*	-
	Total	-	-	-0.646	-

* Significant values for a 0.10 Sig. level

(*Source*: Authors' processing in SPSS 20.0)

From Table 2 we can see that for the companies that are listed on BSE there are no significant correlation between the operating income and the income taxes (reported to the fiscal administration). But if we take into consideration the total assets, and the possibility of capitalization of some operating expenses, we can see that companies that use transfer pricing report a high level of operating income and total assets, but a low level of income tax. Compared with them, companies with high level of operating income reported high level of income tax, which is a normal connection. Also, if we take into consideration the earnings before taxes, we see that companies that use transfer pricing show a negative connection between earnings and income tax (possible due to the transfer pricing that could affect the operating expenses). In the same time, companies that do not use transfer pricing show a positive connection between earnings and income tax (which is a normal connection).

In order to assess the influence of transfer pricing on the income tax, in Table 3 there are presented the parameter estimates for the proposed models (for the basic models that do not take into consideration the influence of transfer pricing, and for the models that take into consideration the use of transfer pricing).

Table 3. **Parameter estimates for the proposed models**

Parameters estimates	Model 1 Itax/TO	Model 2 Itax/OE	Model 3 Itax/TA	Model 4 Itax/OE	Model 5 Itax/TO	Model 6 Itax/OE	Model 7 Itax/TA	Model 8 Itax/OE
Intercept	0.010	0.010	0.011	0.016	0.008	0.008	0.009	0.008
OI/TO	-0.016	-	-	-	-0.034	-	-	-
OI/OE	-	-0.013	-	-	-	-0.014	-	-
OI/TA	-	-	-0.024	-	-	-	0.045	-
EBT/OE	-	-	-	-0.162*	-	-	-	0.053
TP	-	-	-	-	0.011	0.007	0.008**	0,199**
TP·OI/TO	-	-	-	-	0.017	-	-	-
TP·OI/OE	-	-	-	-	-	0.000	-	-
TP·OI/TA	-	-	-	-	-	-	-0.190*	-
TP·EBT/OE	-	-	-	-	-	-	-	-0.500*
Fixed factors	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	41	41	41	41	41	41	41	41
AdjusR^2	0.016	0.015	0.006	0.100	0.029	0.022	0.093	0.316

* Significant values for a 0.10 Sig. level

* *Significant values for a 0.20 Sig. level

(*Source*: Authors' processing in SPSS 20.0)

In Table 3 there are presented the parameters estimates for the proposed models (basic models: from 1 to 4) and for the models that take into consideration the influence of the use of transfer pricing on the income tax (models: from 5 to 8).

Parameter estimates for equation 1 to 3 show that operating income does not have a significant influence on the income tax (in the case of Romanian listed companies on BSE, even they use or not transfer pricing). But if we analyse the influence of earning before taxes (that take into consideration financial revenues and expenses) we can see that this earning scaled by operating expenses have a significant influence on the income tax. We can assume that companies listed on BSE might manipulate their earning or operating expenses in order to reduce their income tax (from model 4: a high level of earnings before taxes scaled by total expenses have a negative significant influence on income taxes).

Also, if we take into consideration the proposed two categories (base on the use of transfer pricing), we can see that transfer pricing has a positive influence on the income taxes (model 7 and 8). We can see that are significant coefficients for the use of transfer pricing, and companies which use it pay more taxes. But if we analyse the method that is used in transfer pricing (gross margin), we can observe that companies with high levels of operating income and high level of total assets or operating expenses have a low level of income taxes. In this case we can assume that Romanian companies that are listed on BSE used transfer pricing in order to capitalize some operating expenses or to transfer the profit to the affiliates using some recognized operating expenses (by Romanian Fiscal Administration) in order to reduce their income taxes (models 7 and 8).

5. Conclusions

Global economy has significantly increased the both the number of multinational businesses and Groups of Companies. Such companies follow the target to gain new investments and investors. In this way the management applies available tools for reaching these targets.

As matter of fact, it was identified transfer pricing-based calculation methods for output processing willing to decrease the profit of the subsidiaries based in higher taxation rate countries and moving them to places applying lower taxation rates.

The scope of this study covers the analysis and estimation of the transfer pricing-based transactions rate against accounting and tax data reported by businesses listed on the Bucharest Stock Exchange (BSE).

This study assumptions and settings duly tested were validated. Collected data analysis, related to businesses included in the sample processed in relation to the tax year 2015, shows a significant rate of the transfer pricing application on the corporate tax in case of companies listed on the Bucharest Stock Exchange and performing transfer pricing - related transactions with affiliated counterparties.

Data applied in this study are coming from the tax year 2015, that is why the new Tax Code (Act 227/2015) has been entered into force on January 1st, 2016.

Transfer prices regulations coming from Tax Code and Decree 442/2016 are more clear and detailed concerning transactions with affiliated entities. It was suggested, therefore, analysis time frame will be extended for more tax years. Comparing will be set up from one timeframe (tax year) to another, new regulations application rate will be compared against output coming from entities applying transfer prices.

References

Atkinson, M. & Tyrrall, D. (1999). *International transfer pricing - a practical guide for finance directors*, London: Pearson Education.

Cools, M., 2005. Cross-Border Transfer Pricing: A Corporate Governance Perspective, *Finance and Common Good*, 23, pp. 65-74.

Cools, M. & Emmanuel, C. (2007). *Transfer pricing: The implications of fiscal compliance*, In: Ch. S. Stone, A. G.

Gravelle, J., G. (2015). Tax havens: International Tax Avoidance and Evasion, Congressional Research Service

Hopwood, M. & Shields, D. (eds.) (2007), *Handbook of management accounting research*, Elsevier Ltd., Vol. 2, pp. 573-585.

Cox, J. F., Howe, W. G. & Boyd, L. H. (1997). Transfer pricing effects on locally measured organizations. *Industrial management - Chicago then Atlanta-*, 39, pp. 20-30.

Durst, M., C. (2002). Management versus tax accounting in intercompany transfer pricing, *Tax Management International Journal*, 31(2), pp. 95–103.

Durst, M. & Cullbertson, R., E. (2003). Clearing away the sand: Retrospective methods and prospective documentation in transfer pricing today, *Tax Law Review,* 57, p. 43.

Durst, M. (2010). It’s Not Just Academic: The OECD Should Re-evaluate Transfer Pricing Laws, *Tax Notes* 18(1), pp. 247-256

Durst, M. (2010). Making transfer pricing work for developing countries, *Tax Notes International*, 60, pp. 851-854.

Eden, L. (1998). Taxing Multinationals: Transfer Pricing and Corporate Income Taxation in North America. *Toronto: University of Toronto Press.*

Eden, L. (2009). Taxes, Transfer Pricing and The Multinational Enterprise, *The Oxford Handbook of International Business* (2 ed.).

Eden, L. (2012). Transfer price manipulation, In Draining Development? *International World Bank*, Washington, pp. 205-233.

Ernst. & Young (2003). Transfer pricing global survey, *Washington DC: Ernst and Young International* (Biennial
from 1995).
Fleischman, R. & Tyson, T. (2007_. The history of management accounting in the U.S, In: Ch. S. Stone, A. G. Hopwood, M. D. Shields, ed. 2007, *Handbook of management accounting research*, Elsevier Ltd., Vol. 2, pp. 1071-1089.
Gravelle, J. G. (2015). Tax havens: International tax avoidance and evasion, Congressional Research Service, available on https://www.fas.org/sgp/crs/misc/R40623.pdf, accessed on 15.11.2016
Grubert, H. & Mutti, J. (1991). Taxes, tariffs and transfer pricing in multinational corporate decision making, The review of economics and statistics, 73(2), pp. 285-293.
Hiemann, M. & Reichelstein, S. (2012). Transfer pricing in multinational corporations: an integrated tax perspective, *Fundamentals of international transfer pricing in law and economics*, Berlin, Springer, pp. 3-18.
Hirshleifer, J. (1957). On the economics of transfer pricing, *The Journal of Business*, 29(3), pp. 172-184
Horst, T. (1978). Exports, imports and the balance of payments, " in F. Bergsten, T. Horst and T. Moran, American Multinationals and the American Interest, *Washington D.C.: Brookings*, pp. 45-98.
Hyde, Ch., E., & Choe, Ch. (2005). Keeping two sets of books: the relationship between tax and incentive transfer prices, Journal of Economics, management and Strategy, 14(1)
KPMG (2011_. *Transfer pricing – issues and solutions for digital media 2011*, KPMG. [pdf] Available at: <https://www.kpmg.com/BR/PT/Estudos_Analises/artigosepublicacoes/Documents/Industrias_ICE/Transfer-Pricing-Digital-Media-2011.pdf> [Accessed 11 October 2016].
Li, D. & Ferreira, M.P. (2010). Internal and external factors on firm's transfer pricing decisions: Insights from organization studies, *Notas Economicas*, 23/28, pp. 24-39
Lipsey, R. &Weiss, M.Y. (1981). Foreign Production and Exports in Manufacturing Industries, *The review of economics and statistics*, 63, pp. 488-494.
Martini, J., T. (2005). Transfer pricing coordination and profit determination: an analysis of alternative schemes, *Bielefeld University*, Germany, Discussion Paper No. 534.
Mura, A., Emmanuel, C. & Vallascas, F. (2013). Challenging the reliability of comparables under profit-based transfer pricing methods, *Accounting and Business Research*, 43(5), pp. 483-505.
OECD (2010). *Transfer Pricing Methods.* [pdf]OECD.
Available at:<http://www.un.org/esa/ffd/tax/2011_TP/TP_Chapter5_Methods.pdf>[Accessed 11 October 2016].
OECD/G20 (2014). *Guidance on transfer pricing documentation and country-by-country reporting*, OECD/G20. [pdf] Available at: <http://www.pmstax.com/intl/OECD-BEPS/BEPS_Country-by-Country_140916.pdf> [Accessed 11 October 2016].
PwC (2013). *International transfer pricing*, PwC. [pdf] Available at: <https://www.pwc.com/gx/en/international-transfer-pricing/assets/itp-2013-final.pdf> [Accessed 11 October 2016].
Schuster, P. (2015). *Transfer Prices and Management Accounting*, Springer Briefs in Accounting.
Veres, T. (2011). Accounting aspects of pricing and transfer pricing, *Annals of the University of Petroșani, Economics*, 11(2), pp. 289-296

The digital economic chain – IT in the loop of the OECD regulations

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Abstract: *Taxation is today at the top of the agenda of international organizations, a reflection of governments' desire to gather as many taxes as possible into their jurisdictions. There is an assumption that there exist base erosion and profit shifting, carried out in some cases as a result of aggressive tax planning or, in other cases, as a result of the lack of coherence of the tax systems of various jurisdictions. Worldwide, there is an estimation that countries lost taxable income equivalent to between 4% and 10% of global revenues from corporate income tax. The Romanian ICT business is generating significant profits. This paper intends to analyse the information technology sector, in which businesses are rapidly growing, in line with technology for all sectors of activity and in line with the EU's strategy for promoting and supporting innovation. The objective of this paper is to analyse how the ICT sector may be affected by the new approach of allocating profits to various jurisdictions and how R&D activities may also need to be reanalysed, in terms of fees charged between multinationals. Romania can be proud of its ICT professionals and the business generating profits in the sector. The author has also analysed how other countries may benefit from profits from international transactions carried out in the sector and how Romania can continue to support it.*

Keywords: *OECD, BEPS, ICT, R&D, substance, value added, know-how, innovation, taxable profits*

1. Introduction

Today's economic reality shows an increased number of complex products, on the border line between products and services, an important component, which consists of knowledge, experience and know-how. More and more products and services involve digital content or are subject to digital transmission.

From a commercial point of view, globalization presents an opportunity for multinationals, as more and more emerging markets are penetrated, and thus, technology and innovation spread worldwide. From a taxation point of view, the multitude of international transactions give rise to the question as to whether each state receives the correct level of taxable profits as a result of commerce carried out worldwide.

After two years of work, 15 papers have been issued by the OECD and G20 countries addressing Base Erosion and Profit Shifting (BEPS). The underlying driver is each

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state's desire to ensure that a fair amount of corporate tax is paid in that country, as a result of various international transactions.

The objective of this paper is to analyse how the ICT sector may be impacted by the new approach of allocating profits to various jurisdictions and how the R&D activities may also need to be reanalysed when it comes to fees charged between multinationals.

The method upon which the global analysis will be based is, in fact, the splitting of profits among companies, based on the economic value they are deemed to create in the economic chain. The methodology which was previously used for assessing services is cost plus mark-up, according to which a mark-up is added to all the direct and indirect costs which are attributable to that activity, for that profit centre.

Focusing on a greater level of detail, the objective of this paper is to analyse and assess the magnitude of the taxable profits registered in the ICT sector in Romania and the impact which the new regulations launched by OECD through the issuing of the BEPS Actions may have upon the level of profits in this sector. Specifically, the importance of the Romanian ICT sector is determined via the taxable profits the industry obtains, as a contributor to the state budget. The analysis focuses on Romania and on several European countries. As ICT is essentially an innovative sector, the author extended the analysis of the Romanian ICT sector to include R&D activities. The interferences of the new OECD regulations regarding the transfer pricing approach with the ICT and R&D sectors are analysed by performing two case studies. The results of the research made via the two case studies reveals how the European countries will seek to increase the level of the taxable corporate income declared by the ICT and R&D companies registered in that specific tax jurisdiction.

The research methodology applied in this paper includes two steps:

1) The first step consists of a literature review of international and Romanian publications on transfer pricing. The author analysed how the attributable profits in a certain jurisdiction, for taxation purposes, are going to be realized, based on key concepts of transfer pricing encountered in the relevant publications. The new allocation of profits between companies is most likely to follow a rationale similar to the profit split method as it is defined in the Romanian Fiscal Code.
2) The second step consists of case study analysis performed in the ICT and R&D sectors, in order to anticipate the changes which may be seen in the future with respect to the allocation of profits from the sectors, between various countries. The author presented two case studies from the digital sector: one referring to complex advertising services with digital delivery, and the second referring to the research and development of new products which are to be commercialized. The author subsequently analysed the development of the ICT sector in Romania via the net margin indicator obtained by the providers. The comparison is made with a number of EU countries, thus revealing that the ICT sector is indeed a big contributor to the Romanian economy and to the taxes raised by the state. The purpose is to see how the new trends in international transfer pricing policies would affect the level of taxable profits in Romania, in the specific sector of ICT and R&D.

The literature review starts from the key transfer pricing concepts presented in the IBFD book named Transfer Pricing and Business Restructurings. The book also presents trends relating to business restructurings. In recent years, reorganizations of international operations were based not only on commercial factors, but also on the constraints imposed by the local transfer pricing regulations, in the country where the commercial activity is carried out. Business restructurings are a reaction to global competitive pressures and changing market demand. In response to market forces, multinational enterprises (MNEs) may be able to retain their profit margins only by undertaking a restructuring.

The review of the book Transfer Pricing - Between Tax Optimization and International Fiscal Evasion addresses the extreme approach that the tax authorities in any country may take in order to increase the profits considered as taxable in their jurisdiction, by considering that aggressive tax planning was made. Based on this approach, the case study was conceived, aligning the practical implications which may arise with the provisions of the OECD BEPS Actions.

While the wish of the OECD and G8 states is to avoid double non-taxation, as a result of transfer pricing adjustments made by the tax authorities in one jurisdiction, it is likely that an increased number of cases of double taxation will arise. The book issued by IBFD named Transfer Pricing and Dispute Resolution addresses the complexity of the administrative procedures which are in place, in order to allow multinationals not to face cases of double non-taxation. The issue of dispute resolution remains on the list of matters to be better addressed by the OECD.

This study is divided into 5 parts. Therefore, the first title presents general aspects, including the necessity of BEPS actions due to the globalization process. The second title contains the 3 pillars proposed by the OECD to be used in order to assess the right amount of corporate income tax to be paid, and also the most important concern of the OECD: double taxation or double non-taxation.

The third title contains an overview of Action 1 of BEPS, and also how the analysis approach of profits generated by advertising services, research and development and derived profits will change. The fourth title is a presentation of the profit generated by ICT in Romanian and other European countries. The final title contains the author’s conclusions regarding the new guiding approach introduced by OECD.

2. Substance, transparency, and coherence under the OECD’s BEPS Actions

The pillars of the new approach introduced by the OECD and the G8 (the most powerful 8 countries) of assessing the right level of corporate tax to be paid in a specific country are: substance, transparency and coherence.

2.1. Substance

Several years ago, Romania introduced rules allowing tax authorities to analyse the substance of a transaction, and potentially reclassify it, hence leading to the application of a different type of tax treatment.

Romania's legal system is quite straightforward with respect to the creation of companies, branches and partnerships. Each economic presence of an entity carrying out economic activity in Romania involves fiscal registration.

Classic transactions include financing operations, which may more reasonably be seen as capital infusion, and consequently financial expenses are often neglected by the tax authorities.

2.2. Transparency

Transparency involves access by the tax authorities to the financial data of the companies in a specific group, although they do not operate in that specific jurisdiction. Action 13 of BEPS introduced the Country-by-Country report, which makes private data transparent to the tax authorities of other jurisdictions. This data may then be used to carry out a deep analysis of the group's activity and of the profits taxable in each jurisdiction.

Certainty remains a goal, but has been rather reduced in practice as a result of the BEPS Actions. The whole approach of analysing transactions has changed, and the analysis has become increasingly extensive. The Actions do not provide solutions, but instead highlight points for attention and possible questions to be asked, based on specific scenarios.

2.3. Coherence

In the context of the magnitude of the ICT sector worldwide, OECD intends to intensify the coherence between the various taxation systems. The amounts involved in transactions between companies in the ICT sector, either independent or related parties, are significant and thus, the new guiding approach introduced by the OECD BEPS Actions have, as a declared objective, to ensure that the profits should be taxed in the countries where the value added is created. This means that Romania has a real opportunity in supporting the expansion of the ICT sector.

2.4. Double taxation versus double non-taxation

The OECD and G8 countries aim to avoid cases of double non-taxation, meaning that the recipient of profits does not pay tax under its domestic tax legislation in the country where it operates, while at the same time deducting related expenses for corporate tax purposes, based on the tax legislation applicable in the country where it has its headquarters.

Where payments are made, e.g. royalty payments (for transfer of know-how), the OECD and G8 aim to prevent companies choosing to locate intellectual property rights in specific countries which grant more favourable tax treatment, based on so-called "treaty-shopping". Some Double Tax Treaties provide for favourable tax regimes for royalty payments, and also for other type of payments. This is in addition to the corporate tax regime, where, various rates and regimes (for taxable or non-taxable revenues) may apply.

However, when the BEPS Actions are implemented, it will also be important to prevent double taxation. Each state will try to increase its taxable profits and the mechanism currently in place does not easily allow for an increase of taxable profits in one state to be recognized as an equivalent reduction of profits in another.

3. BEPS Action 1 – addressing the tax challenges of the digital economy

3.1. Digitalization and BEPS Action 1

Business models have evolved rapidly in recent years. Today, companies rely more on digitalization to enhance their activity, to be more visible on the market, to protect their data, etc. This has been possible because of development of the technology used and of the ICT (information and communication technology) sector. A further important element has been the fact that more and more people have access to information and that it is affordable (e.g. the Internet). Consequently, the development of the ICT sector has made technologies cheaper and more standardized, with innovation playing an important role for companies across all industries.

The main characteristics of the digital economy are: mobility (of intangible assets, users, and business functions), a strong emphasis on data ("data is king"), networking, multi-sided businesses and volatility (the increasing speed of technological development).

The development of companies' business models has an impact on the economy in general, and thus on local and international taxation.

Action 1 of the Base Erosion and Profit Shifting (BEPS) Action Plan focuses on the digital economy and its impact on corporate income tax and transfer pricing. It also mentions some VAT influences.

With respect to transfer pricing, Action 1 noted that the digital economy has also accelerated the spread of global value chains of multinational companies. The development of the ICT sector led to integration, making things like communication, transportation, and currency exchange rules easier and faster, allowing multinational companies to operate to a greater extent at a global level. The development of the ICT sector has even allowed small companies to operate and employ personnel in different countries, becoming so called "micro-multinationals".

3.2. Digitalized client contact and delivery – advertising services

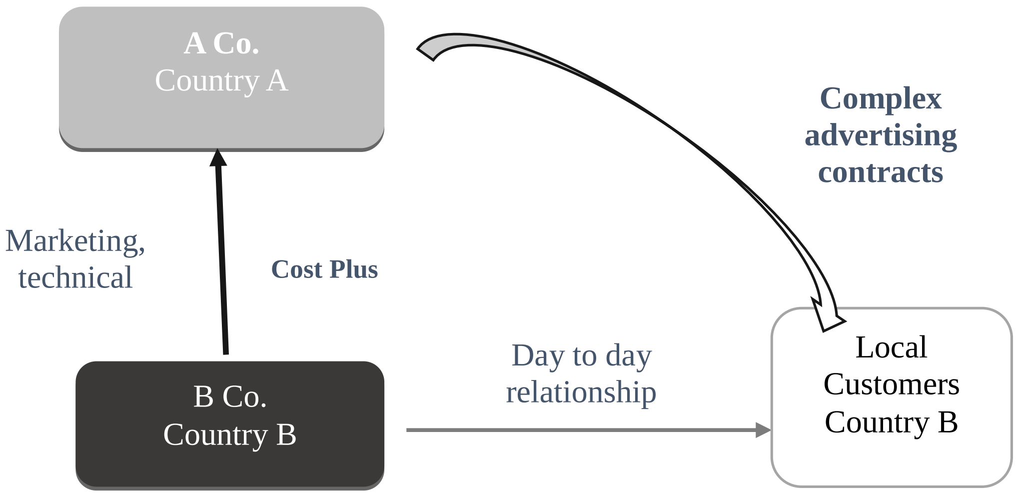
One important aspect of today's businesses is the mixing of almost any other activity with digital solutions, digital communication and digitally delivered products or services. For example, a big advertising group of companies sets up a subsidiary B Co. (a company) in country B. The business is conducted via A Co., a group company registered in country A, which enters the market of country B in the advertising sector. The aim of A Co. is to attract clients in country B and subsequently provide them with complex advertising solutions, including advertising spots and TV related advertising. A Co. has a wide range of resources: experienced professionals, equipment, and financing, as well as a reputable brand.

B Co., the company set up by the group in country B, has employees who deal with the local customers of the group, on the one hand by promoting the complex advertising services which may be rendered by A Co., and on the other hand by having one-on-one interaction with local customers, providing education and technical consulting to customers, when needed.

The commercial contracts are concluded between A Co. and the local customers directly. The revenues from the complex advertising services in country B are registered by A Co. and subject to corporate tax in Country A.

In country B, B Co. registers revenues charged to A Co. under a cost plus mechanism, i.e. cost plus a mark-up of 7%, where all its costs for employees, office related costs and other operating costs are included in the cost base. The profit margin results in taxable profits in country B.

Figure 1. **Example No. 1**



(*Source*: Author's processing)

The standard approach followed by the tax authorities and taxpayers up to now has been as described above. The central idea of the new approach would be that the tax authorities of country B may consider that B Co. is involved in creating the demand for services to be rendered by A Co. and thus in contributing to the creation of new business for A Co. This would mean that the tax authorities of country B may consider that B Co. creates value in the supply chain and is therefore entitled to receive a part of the profits earned by A Co. from the business carried out in country B. The standard approach in the past would have categorized the profits earned by A Co as so-called "business profits" which consequently should be taxed in Country A.

The OECD has aimed to reduce the burden of taxpayers with respect to the documentation needed for transfer pricing related to intra-group transactions, especially for SMEs (small and medium sized enterprises). However, by introducing the BEPS Actions, it has achieved the opposite effect: a higher burden is placed on companies operating in groups. The new approach is based on the guidance issued by the OECD, according to which profits should be allocated to the most important economic activities. The parties which contribute to the economic value of the group should have the profits allocated to them, and these should be taxable in their respective jurisdiction. The rule appears to be simple. However, its application is extremely difficult in practice. There is a degree of subjective judgment with respect to the level of value created by each entity in a business carried out worldwide by a group of companies. Even more difficult and subjective is the allocation of profits to a certain company, on the grounds that it creates value for the business within that group. This is even more surprising, given that the profit split method has, in the past, rarely been accepted, for instance in Romania, by the tax authorities. The measurement of the value created by each party of the group actually involves an allocation of profits between those companies, meaning, in effect, a profit split method being applied.

Detailing the concept of creation of value as one of the main drivers for being entitled to a particular share of profits, a company with 3 employees would by definition be a lower value creator compared with a company employing 100 professionals. Companies with a low number of personnel would be deemed not to receive large profits. The OECD emphasizes some critical sectors where countries consider that complex operations should no longer be analysed under the standard approach, but rather look to who is providing financing, and who has the personnel and the equipment, as well as the know-how and experience. When analysing the circumstances, focus should be placed on the available commercial opportunities, meaning that it is important to consider whether the company had other options to conduct the business or to enter into other commercial arrangements.

Standard methodology

Let the costs of B Co. be 1,000 m.u. (i.e. monetary units) per month, and let the services fees charged by B Co. to A Co. be 1,070 m.u. per month, meaning that the taxable profits (excluding the impact of taxation such as non-deductible expenses) would be 70 m.u.

The methodology used in this paper is to assess additional profits assigned to B Co., i.e. a portion of the profits earned by A Co. from the market in country B.

Let the profits earned by A Co. from the advertising contracts signed with customers in country B be 50,000 m.u. per month. The contracts are concluded between A Co. and the customers directly.

The research methodology undertaken in this paper

A complex question arises: which company contributes to the value of the group and to which level? There is no methodology provided by legislation in this respect, just guidance brought by BEPS Action 1 and BEPS Actions 8-10 with respect to how to determine the main drivers of value. The entity creating value is entitled to receive profits, as well as the entity providing the financing and, more importantly, the company taking the risks.

The authors' research in this paper seeks to identify the main components of the activity carried out which may be considered as creating economic value, and thus generating profits which should be subject to tax.

In the case of applying the profit split method for the above mentioned example, the functions carried out and risks taken can be found in Table 1.

Table 1. **Functions performed and risks taken**

Functions	***B Co.***	***A Co.***
Providing the know-how function	vvvv	n/a
Providing the expertize function	vvvv	n/a
Providing the strategy function	vvvv	n/a
Creativity function	n/a	vvvv
Promoting and marketing (in country B) function	vvvv	n/a
Technical consulting function	vvvv	n/a
Finding the local client function	vvvv	n/a
Keeping in touch with the local clients	vvvv	n/a
Negotiating the contracts	vv	vv
Risks	***B Co.***	***A Co.***
Market risk	vv	vv
Payment risk	vvv	v
Quality risk with respect to the services provided	vv	vv

Note: v = only carries out this function to a limited extent/bears a low risk
vv = does not fully carry out the function/bears moderate risk
vvv = carries out most of the function/bears most of the risk
vvvv = fully caries out the function/bears high risk
n/a = not applicable

(*Source*: Author's processing)

Table 2 is a summary of the main resources employed by the companies involved:

Table 2: **Resources employed by the companies involved**

Resources	B Co	A Co
Highly specialized personnel		vvvv
Equipment		vvvv
Know-how and experience		vvvv
Financing	n/a	vvvv
Innovative techniques		vvvv
Client relationship personnel	vvv	v

Note: v = only carries out this function to a limited extent/bears a low risk
vv = does not fully carry out the function/bears moderate risk
vvv = carries out most of the function/bears most of the risk
vvvv = fully caries out the function/bears high risk
n/a = not applicable

(*Source*: Author's processing)

Results of the research

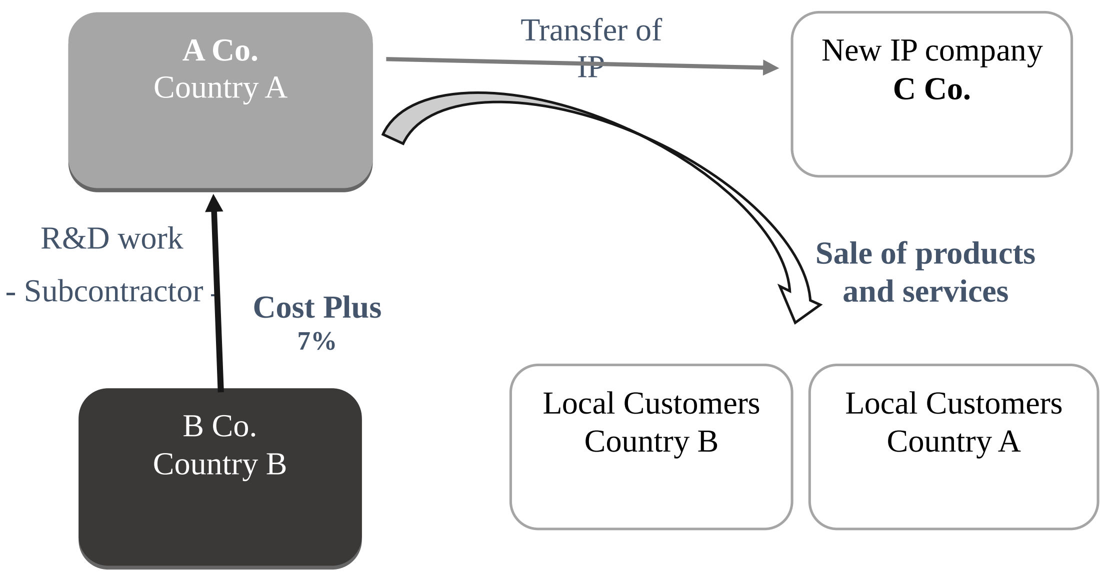
The tax authorities of country B could consider that more profits should be allocated to B Co. as compared to the 70 m.u. received as a result of the cost plus mechanism. The standard 5% rate could be applied to the overall profit derived from advertising services to customers located in country B, meaning 5% x 50,000 = 2,500 (m.u.).

The tax authorities of country A will try to argue that the level of profits which are taxable in Country A should be maintained, as A Co. has the idea, the main resources and the know-how. Such an approach is in contradiction with what authorities in country B seek. Hence, a divergence is expected to arise between the tax authorities' approach across the two countries. Moreover, more and more groups of companies will resort to the amicable procedure or arbitration, leaving the authorities of the two states to reach an agreement. This hampers the process and is expected to increase the tension level of the transfer pricing adjustments.

3.3. R&D activities and the derived profits

Besides the ICT sector, R&D activities are also one of the sectors where the analysis approach will be changed. If A Co. starts a major research and development activity and subcontracts to B Co. the day-to-day activities and tasks for that R&D project, the standard approach would be that B Co. would charge fees to A Co. under a cost plus method. The approach may remain the same, but additional questions arise. Who has the financing? Who assumes the risks of non-favourable results of the R&D process? Who decides if a specific R&D project will be continued or stopped? The taking of decisions and risks leads to the assumption that the respective company would be entitled to receive the excess profits from the realization of the R&D project. The level of profits which should be attributed to each company depends on the answers to these questions.

Figure 2. **Example No. 2**



(*Source*: Author's processing)

Standard methodology

Assuming that the costs of B Co. are of 1,000 m.u. per month, the services fees charged by B Co. to A Co. would be 1,070 m.u. per month, meaning that the taxable profits (excluding the impact of taxation such as non-deductible expenses) would be 70 m.u.

The methodology employed in this paper is to assess additional profits to B Co, namely a portion of the profits earned by A Co from the market in country B.

Let the profits earned by A Co. as a result of the sale of the innovative products to customers in country B be 100,000 m.u. per month. The contracts are concluded between A Co. and the customers directly.

The research methodology employed in this paper

Another complex question arises: which company contributes to the value of the group and to which level? Current legislation provides no methodology in this respect, while BEPS Action 1 and BEPS Actions 8-10 merely give guidance on how to determine the main drivers of value. The entity creating value is entitled to receive profits, as well as the entity providing the financing and, more importantly, the company taking the risks.

The authors' research in this paper seeks to identify the main components of the activity carried out, which may be considered as creating economic value, and thus generating profits which should be subject to tax.

In the case of applying the profit split method for the above mentioned example, the functions performed and risks taken can be found in the table below:

Table 3. **Functions performed and risks taken**

Functions	***B Co.***	***A Co.***
Providing the know-how function	v	vvv
Providing the R&D services function	v	vvv
Providing the strategy function	n/a	vvvv
Creativity function	vv	vv
Day to day tasks related to the R&D project	vvvv	n/a
The function of giving instructions	n/a	vvvv
Coordination function	n/a	vvvv
Owning the intellectual property (IP)	n/a	vvvv
Risks	***B Co.***	***A Co.***
Market risk	v	vvv
The risk of the R&D project	n/a	vvvv
Payment risk	vvv	v
Quality risk with respect to the services provided	vv	vv

Note: v = only carries out this function to a limited extent/bears a low risk
vv = does not fully carry out the function/bears moderate risk
vvv = carries out most of the function/bears most of the risk
vvvv = fully caries out the function/bears high risk

n/a = not applicable

(*Source*: Author's processing)

Table 4 is a summary of the main resources employed by the companies involved:

Table 4. **Resources employed by the companies involved**

Resources	***B Co.***	***A Co.***
Highly specialized personnel		vvvv
Equipment		vvvv
Know-how and experience		vvvv
Innovative techniques		vvvv
Client relationship personnel	vvv	v
Financing	n/a	vvvv

Note: v = only carries out this function to a limited extent/bears a low risk
vv = does not fully carry out the function/bears moderate risk
vvv = carries out most of the function/bears most of the risk
vvvv = fully caries out the function/bears high risk
n/a = not applicable

(*Source*: Author's processing)

In the research methodology applied in this paper, the most important issue is who takes the risk of the R&D project, as it may result in good or bad sales results. It is also important to establish who has the know-how, experience and expertise to effectively deploy the R&D project.

In the same context, where A Co. transfers the intellectual property deriving from the intangibles resulting from the R&D activities to C Co., an entity in country C, the arrangement would most likely be seen as lacking in economic substance, since the correct price paid for the transfer, as a one-off lump sum or as recurring sums is difficult to establish, because it is not easy to arrive at a valuation for intangible assets. The actual price depends on the profits that the sale of products or services developed through the R&D process would generate.

Results of the research

The tax authorities of country B could consider that more profits should be allocated to B Co. as compared to the 70 m.u. received as a result of the cost plus mechanism. The standard 5% rate could be applied to the overall profit derived from the sale of the innovative products to customers in country B, i.e. 5% x 100,000 = 5,000 (m.u.).

The tax authorities of country A will try to argue that the level of profits which are taxable in Country A should be maintained, as A Co. had the idea, the main resources and the know-how. More importantly, A Co. bears the risk of the failure of the R&D project: if sales are poor, A Co. bears the losses from the R&D project, while B Co. is guaranteed a profit of 70 m.u.

Because companies in the R&D and ICT sectors rely on innovation and development of know-how, there are many cases were intellectual properties (IPs) are registered. BEPS Action 1 expresses concern that the transfer of intellectual properties may not be at "arm's length" due to the difficulties in valuing and also because of the differences between tax administrations (when foreign transactions are carried out).

Furthermore, BEPS Action 1 sets out that there should not be inconsistencies between IP holders and the functions carried out, risks assumed and assets used on the value chain in a multinational group. Thus, the IP holder in the economic chain in a multinational group should be the company that created added value, innovates and develops know-how, irrespective of the tax burden in its country or whether that company is a "parent" company or not.

In this context, the tax authorities in country A would try to get back the profits earned by C Co. in country C, from owning the intellectual property created in A Co.'s R&D projects.

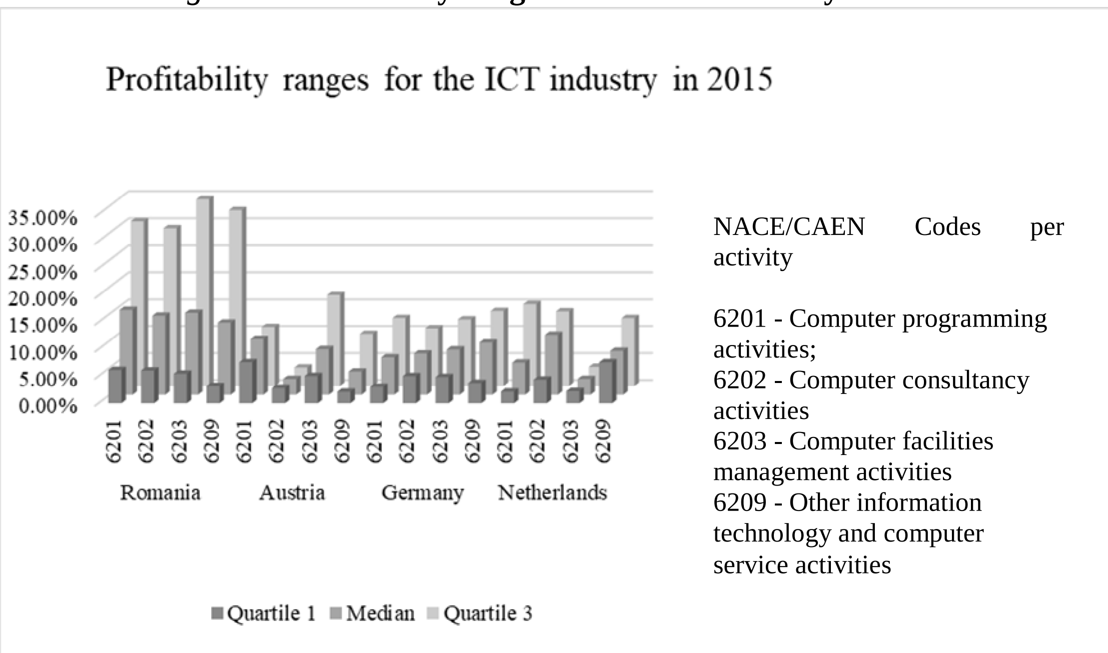
Such an approach would also create tensions between the tax authorities of the A, B and even C, countries, making the respective authorities most likely part of an amicable process of determining the level of profit in each country, the aim of the groups being to respect the well-established principle of international taxation, i.e. the avoidance of double taxation.

4. Profit earned by ICT companies in Romania and other European countries

4.1. The digital sector in European countries

Innovation is seen by the European Commission as vital for Europe in order to increase the competitiveness of European products and services, as well as to improve processes – business processes, production processes, as well as delivery and logistics processes. Many activities have the potential to become partially automatized, by inserting software components into their processes: to monitor flows, to carry out tasks, to process information and for many other activities.

Figure 3. **Profitability ranges for the ICT industry in 2015**



(*Source*: Amadeus Database, version December 2016)

Table 5. **Average of profitability ranges for ICT industries per NACE code in Romania, Austria, Germany and Netherlands**

NACE Code Rev. 2	1st Quartile	Median	3rd Quartile
6201	5.58%	10.96%	18.03%
6202	4.61%	8.37%	14.46%
6203	5.09%	10.64%	21.30%
6209	3.00%	9.07%	18.73%

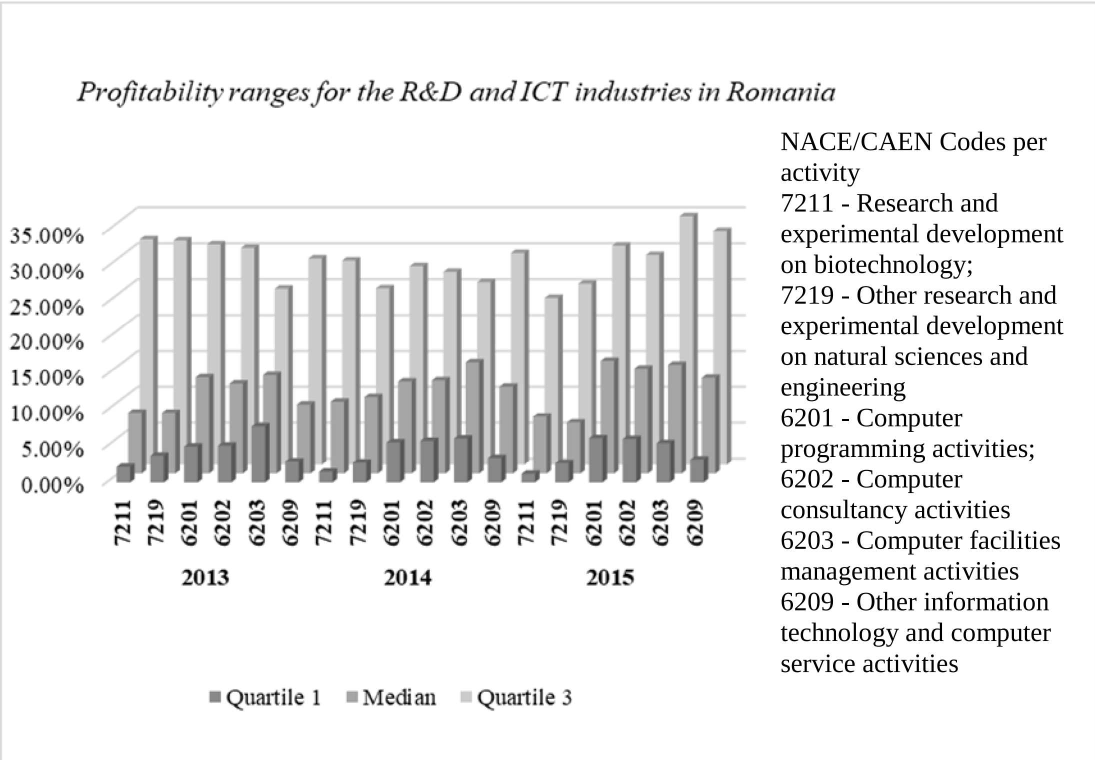
(*Source*: Amadeus Database, version December 2016)

It may also be an effect of the still low direct and indirect costs registered in Romania, as compared to the other countries, but nevertheless there is a significant volume of ICT projects in Romania, carried out as a direct result of the proficiency of local personnel who specializes in ICT.

4.2. The digital sector in Romania

Romania is the home for a concentration of micro-multinationals in various regions, such as in Cluj-Napoca, Iasi, Timisoara, in addition to well-known multinationals operating in the ICT sector. The development of the ICT sector is reflected in the analysis below, in which the profitability of the companies operating in Romania in this sector is presented as a graph.

Figure 3. **Profitability ranges for the R&D and ICT industries in Romania**



(*Source*: Amadeus Database, version December 2016)

The profit margin earned by Romanian registered companies which operate in sectors such as ICT or R&D is quite diverse. Statistically speaking, the less profitable ICT companies earn a margin of 2-3%, but it can be even lower. At the same time, most companies earn a margin of at least 7% and margins such as 20% or above can also be seen. Such high margins arise in cases where the know-how and innovation component plays an important role in the development of products.

Table 6. **Average of profitability ranges for the R&D and ICT industries per NACE code in Romania**

NACE Code Rev. 2	1st Quartile	Median	3rd Quartile
7211	1.59%	8.81%	27.72%
7219	3.02%	8.74%	27.03%
6201	5.55%	13.98%	29.66%
6202	5.62%	13.38%	28.80%
6203	6.43%	14.80%	28.21%
6209	3.14%	11.68%	30.30%

(*Source*: Amadeus Database, version December 2016)

Results of the search

The ICT sector is very important to Romania, as it brings significant profits for taxation, offers a big number of qualified jobs and moreover, the innovation and technology become resources for the Romanian economy which may be used for future increase of competitiveness.

5. Conclusions

Focusing to a greater level of detail, the objective of this paper is to analyse and assess the magnitude of the taxable profits registered in the ICT sector in Romania and the impact which the new regulations launched by OECD through the issuing of BEPS Actions may have upon the level of profits in this sector. Specifically, the importance of the Romanian ICT sector is determined via the taxable profits the industry brings as contributor to the state budget. The analysis focuses on Romania and on several European countries. As ICT is essentially an innovative sector, the author extended the analysis of the Romanian ICT sector with the R&D activities. The interferences of the new OECD regulations regarding transfer pricing approach in the ICT and R&D sector are analysed by performing two case studies. The results of the research undertaken via the two case studies reveals how the European countries will seek to increase the level of the taxable corporate income declared by the ICT and R&D companies registered in that specific tax jurisdiction.

The effect of government policies should also be considered. Specifically, there is a commitment to support R&D, as well as the ICT sector. Romania is aligned to the EU strategy of promoting innovation and the ICT sector is the most closed to creation of innovation as compared to others. Companies can see the support for ICT in Romania, thus being reflected also in higher margins obtained by Romanian registered companies as compared to highly technologized countries such as Austria, Germany, Switzerland, and the Netherlands.

Due to the fact that BEPS's main topic is corporate income tax, we should also take into consideration how countries react to this continuous market development and how can they adapt their indirect taxation in order to obtain a more successful rate of collection. Therefore, BEPS proposes to the countries to use in order to identify the place of taxation for the supplies of services between a company and a consumer, a criteria based on the place where the services are actually consumed in order to exempt imported goods with low value.

References

Bakker A. (2009). *Transfer Pricing and Business Restructurings*, IBDF;

Bakker A., Levey M. M. (2011). *Transfer Pricing and Dispute Resolution*, IBDF;

Lamensch M. (2015). *European Value Added Tax in the Digital Era*, IBDF.

Pătroi D., Cuciureanu F. & Radu V. (2013), *Transfer pricing. Between tax optimization and international fiscal evasion*, C.H. Beck Publishing House, Bucharest

OECD Transfer Pricing Guidelines for Multinational Enterprises and Tax Administrations (July 2010);

OECD/G20 Base Erosion and Profit Shifting Project – Action 1: Addressing the Tax Challenges of the Digital Economy (2015, Final Report);

OECD/G20 Base Erosion and Profit Shifting Project – Actions 8-10: Aligning Transfer Pricing Outcomes with Value Creation (2015, Final Report);

OECD Policy Brief, Taxing Multinational Enterprises (2015, October);

Order of the President of National Agency for Fiscal Administration no. 442/2016 regarding the value of transactions, the preparation deadlines, the content and the conditions under which a transfer pricing documentation file may be requested and presented and the procedure for adjusting/estimating transfer prices;

Order of the President of the National Agency for the Fiscal Administration no. 222/2008 regarding the content of the transfer pricing documentation file;

Romanian Fiscal Code introduced by Law no. 227/2015 applicable starting with January 2016;

Tax Convention Model on income tax and capital taxes;

https://ec.europa.eu/growth/industry/innovation_en

PS10 ACCOUNTING PROFESSION

Chairperson: Costel Istrate, Alexandru Ioan Cuza University of Iași, Romania

A survey on students’ perceptions towards the contribution of accounting disciplines to developing professional and personal skills

Ștefan Bunea

Student engagement in master’s programmes – evidence from accounting master students

Alina M. Irimescu

Lidia C. Manea

Mirela E. Nichita

The motivations of choosing accountancy as a profession in Romania

Cristina Florina Țicoi

A survey on students' perceptions towards the contribution of accounting disciplines to developing professional and personal skills

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Abstract: *Expectations of teachers and employers are not always confirmed by student response and performance. The objective of our research is to find out the perception of final-year undergraduate students towards the contribution of accounting disciplines to shaping and developing skills and competencies, but also to developing student personality. We have found that students prefer courses based on detailed rules rather than courses based on general principles and concepts which require ongoing recourse to professional judgment, scenarios, assumptions, tests, simulations, etc. Concerning professional judgment, students prefer judgments made in financial accounting rather than judgments made for management purposes, which are heavily based on the use of certain competencies such as communication skills, persuasion skills, critical thinking skills, interdisciplinary thinking skills, and decision-making skills.*

Keywords: *Accounting education, competencies, communication anxiety, writing skills, critical thinking*

1. Introduction

Syllabuses of accounting disciplines are the result of reconciling the perceptions of accounting academics, employers, and professional bodies towards the knowledge, abilities, and skills expected to be possessed and expressed by students at the end of their bachelor cycle. Such perceptions may significantly differ from the students' perception. The reasons are manifold: institutional constraints, personal skills, motivation level, student preferences for certain discipline area over others, the level of abstraction or interdisciplinarity which certain disciplines involve, performance anxiety, risk aversion in the context of communication and development of interpersonal relationships, the sometimes excessive requirements, low transparency of the evaluation method, the teaching instruments used, the teacher's discourse, etc.

In defining the specific and transversal skills related to the studied disciplines, the Faculty of Accounting and Management Information Systems of the Bucharest University of Economic Studies has taken into account:

- the needs expressed by the employers of accounting professionals;
- the IFAC requirements on the skills and competences that must be possessed by accountants who complete the initial phase of professional training (the bachelor cycle);

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- the requirements of national professional bodies (CECCAR and CAFR);
- requirements of ACCA;
- best practice models provided by prestigious universities.

Some studies indicate that employers seek graduates who possess a range of non-technical skills (teamwork, leadership and command sense, self-training, the ability to develop effective learning methods, ethical awareness, the ability to inspire confidence, capacity for dialogue, exchange and negotiation, the desire for personal success) whereas students perceive that the decisive skills in a professional accounting career are the technical skills (Klibi and Oussii, 2013, Jones and Abraham, 2008).

The above findings are also validated by research conducted in Romania on international economic relations graduates (Nicolescu and Păun, 2009). Graduates rely rather on technical knowledge, while employers rely mostly on the individual's moral and physical qualities. Practical abilities are also important, but they rank second among their requirements, and their acquisition should result from actual professional experience rather than from academic studies.

2. Literature review

2.1. International topics and findings

Lawson *et al.* (2014) develops a conceptual framework for integrating competencies in accounting education. The basis is represented by the foundational competencies (communication, quantitative competencies, analytical thinking and problem-solving, interpersonal relationships, technological competencies). Two other categories evolve from these: accounting competencies and broad management competencies. Accounting competencies include: external reporting, planning, analysis and control, taxation, management information systems, assurance and internal control, professional values, ethics and attitudes. Broad management competencies imply leadership, ethics and social responsibility, process management and improvement, governance, risk management and compliance, and additional core management competencies.

Carr (1998) analyses the skills that the learning process should strengthen: technical skills (knowledge of the subject matter addressed and critical thinking), communication skills (speech, writing, and listening), interpersonal skills (group activities and leadership), and personal skills (self-confidence, ethics and community support, emotional intelligence).

Communication skills have become, for employers of young accounting professionals, at least as important as technical skills (Jackling and De Lange, 2009). Nevertheless, the stereotype of the unsociable accountant, unable to communicate with others, persists (Byrne and Willis, 2005).

Meixner *et al.* (2009) indicates that oral and written communication skills are perceived as less important for accounting students than for students preparing for a career in finance, marketing, or management.

The concern for improving communication skills among accounting professionals must be a priority (IFAC, 2005).

Communication skills are defined as the individual's level of fear or anxiety exhibited in either real or imaginary communication with other people (McCroskey, 1997, cited by Coetzee *et al*., 2014). Horowitz (2001) refers to this anxiety as a hidden syndrome, as those who have it most frequently do not recognize it and do not speak about it. A possible explanation of oral communication anxiety may be that individuals choose their career also relying somewhat on the stereotypical representation of that career. For example, stereotypes portray accountants as 'introvert', 'standoffish', 'lonely', 'harsh, humourless', 'demanding, shy' people, 'obsessed with minimizing costs' (Cory, 1992).

In order to reduce oral communication anxiety a behavioural approach and a pedagogical approach may be used (Simons *et al*., 1995).

Among other things, the behavioural approach includes decreasing personal sensitivity, cognitive change, and visualisation. Decreasing sensitivity is achieved by relaxing exercises associated to oral communication aimed at changing the negative perception of communication, seen as a threat or punishment (Ayres *et al*., 2000). Cognitive change focuses on the speaker's beliefs. Visualisation allows the speaker to imagine the successful accomplishment of the oral communication task.

The pedagogical approach is different from the behavioural approach in that it focuses more on communication tasks and on the ability to communicate efficiently (skills training and actual public speaking).

Some students have poor communication skills and avoid communication even though no anxiety is associated with it. Others do have communication skills, but also have high anxiety towards speaking in public. There is also a third category of students who do not possess communication skills and possess a high level of anxiety towards speaking in public.

The larger and less familiar the audience is, the higher the anxiety to speaking in public (Shanahan, 2013). Students with a below-average level of communication anxiety who perform in public presentations rather fear technical issues such as coherence of ideas, fluency, relevance of information, etc., whereas students with high anxiety levels are struggling more with the effects of such anxiety than with the technical difficulties of the presentation.

Students know the concepts and rules better than they manage to convey in writing (Grimm and Hoag, 2012). Write-to-learn assignments help students master the concepts and associate them with real-world examples.

Studies conducted by Lin *et al*. (2005) in China and by Kavanagh and Drennan (2008) in Australia indicate the existence of a significant difference between employers' perception and expectations and students' perception. While both groups recognize the importance of written communication skills, employers appreciate such abilities much more than students do.

Springer Sargent and Borthick (2013) show that students who experiment problem-solving and conflictual tasks greatly develop their critical thinking and perform better than students who learn according to the traditional model, which places less emphasis on such ability.

Critical thinking is recognized as one of the generic skills required by employers taking into account today's business environment (Camp and Schnader, 2010). It is associated with the ability to understand, to evaluate, to make value judgments, to produce information and knowledge, to make decisions in both familiar and unfamiliar circumstances, to be rational, logical, and coherent (Stark *et al*., 1988). Brigham Young University (BYU) (1998) included critical thinking in the curriculum by two components: the ability to solve unstructured problems and the ability to read, criticize and judge the value of written works (Thompson and Washington, 2015).

Learning through internships in certain entities is crucial to students before graduation. Nevertheless, learning at the internship site is not sufficiently structured (Stanley, 2013). One hundred hours of work will certainly enhance student learning by integrating the concepts and theories learned in the sociocultural context.

Experience offers accounting professionals certain advantages that other business professionals do not have. They master the figures and develop solutions to difficult problems for the benefit of their clients. Business simulation helps accounting students refine their competences by an increased affinity for financial and non-financial information, as well as a propensity to analyse problems in a structured manner. Simulations challenge the students to work in unstructured situations as well, developing a tolerance to assessing ambiguities (Riley *et al.,* 2013). Ambiguity is defined as a lack of information that would facilitate understanding of a situation and making a decision with predictable effects (McLain, 2009).

Orientation towards problem-solving activities and case studies taken from or inspired by reality creates a learning environment where the interdisciplinary approach is inherent (Herrington and Herrington, 2006).

There are three stages of reflective judgment (King and Kitchener, 2004): pre-reflective thinking, which presumes that knowledge is certain, quasi-reflective thinking, according to which knowledge is contextual and subjective, and reflective thinking, where knowledge is uncertain, but may be constructed through observation and judgment.

Ryack *et al.* (2015) conclude that, in most situations, the teacher will want to teach students principle-based accounting first, and rule-based accounting afterwards, in order to offer to students the possibility to use principles in their professional judgment where clarifications of the standards are less clear and precise. They have tested the way students make use of the knowledge acquired during the first course to make professional judgment in the case of lease agreements during the second course. Some students first studied lease-related issues in the application of US GAAP and then IFRS, while others first studied IFRS and then US GAAP. The conclusion was that the order in which the classification of lease agreements was studied did not significantly affect the correct classification of such agreements in accordance with the second referential studied. They have noticed that, once the US GAAP rules are presented as applications of general principles, it will be much more difficult for students to “forget” the rules and be more flexible in applying principles in the context of studying IFRS.

Some researchers (Hail *et al.*, 2010) suggest that, in the absence of detailed rules in IFRS standards, accountants are turning to the detailed rules in US GAAP.

Accounting academics should use the results of scientific studies and research in their teaching approach. Research in accounting provides arguments, validates patterns and behaviours, connects the concepts and practices studied with a perception of the professional environment, etc. Research in accounting education helps teachers identify the appropriate and tested means and methods whereby they can convey knowledge and competencies to students more easily and with more powerful effects (Kent *et al*., 2009).

2.2. Local topics and findings

The accounting profession in Romania is characterized by a disruption between the interests of academics and practitioners, determined by a lack of communication between the two parties. Though the academia tends to focus lately rather on research (possibly due to the university ranking and funding system), the accounting teaching should not be disregarded. The adjustment of the teaching methods in accounting and the orientation of the curricula towards the development of a critical reasoning, the creation of a vision beyond the technical dimension of accounting and the cultivation of the capacity to question the information are the prerogatives of academia. The teaching component should be the driver of the relationship between academia and practice, through the proper formation of (current or future) accounting practitioners (Grosu *et al.*, 2015).

Albu and Toader (2012) indicate that practitioners and researchers have divergent interests, agendas, and motivations. Whereas practitioners are oriented towards local and short-time specific issues, academics are encouraged by the academic evaluation system to focus on the expectations of journals which, sometimes, are of no immediate concern to practitioners. Both academics and practitioners could benefit from a closer relationship: academics could have access to real data and the possibility to explain things more logically, to enhance their reputation and use real data and research based on real data in teaching, while practitioners could receive ideas which might contribute to the efficiency of their organizations.

In Romania, due to differences in their educational backgrounds, chartered accountant trainees perceived certain barriers preventing their access to the accounting profession (Bunea *et al.*, 2013). The self-assessed competence level of trainees in fields such as accounting, taxation, or IT was appreciated as at least good, while the competences regarding organizations and businesses, international financial reporting, corporate governance, and financial markets were appreciated as modest. The need for professional training is assessed by trainees considering the immediate practice and not the expectations regarding future career development or future evolutions of accounting practices. The trainees do not consider necessary any investment in competences that they cannot use immediately at the level required by small and medium-sized businesses they work for.

Stereotypes are developed mainly in relation with the national context, and therefore teaching international financial reporting standards is affected by the perceived role of accounting and accountants in society. The stereotypes affect the students' attitude towards accounting courses and indirectly, the accounting education process. (Albu *et al*., 2012).

The students’ viewing the accountant as liberal and independent, also view the manager as confident (independent, optimistic and flexible) (Bogdan *et al*., 2016).

3. Research methodology

The research objective is to probe the perception of students in the final year of undergraduate degree studies at the Faculty of Accounting and Management Information Systems concerning the contribution of speciality disciplines towards shaping and developing skills and competencies, but also towards developing student personality.

Sometimes, teachers’ expectations are not confirmed by student response and performance. There are multiple causes: either that teachers do not explicitly mention the use of the issues taught and their correspondence with reality, either that students have a personal hierarchy of the competencies they pursue, or that there are institutional constraints which hinder the development of certain competencies (working with large classes of students makes it difficult to develop oral and written communication skills, critical thinking, exercise of persuasion skills, etc.).

The sample includes third-year undergraduate students of the Faculty of Accounting and Management Information Systems, at the time of completing their studies. Out of the total population of 550 students, the questionnaires were distributed to 474 students present at the final exams of the June 2016 session. The questionnaires were filled in on the day of the exam, in the classroom. 26 questionnaires were cancelled as they were not fully completed, and 442 questionnaires were validated. The response rate, taking into account the validated questionnaires, was 93.24%. As against the total population, the rate is 80.36%.

Table 1. **Respondents’ Profile**

Gender	**Internship experience**	**The most frequent grade received during college**
Female: 73.07%	Up to 6 months: 57.46%	Grade 6: 14.25%
Male: 26.96%	Between 6 months and 1 year: 17.17%	Grade 7: 21.71%
		Grade 8: 28.73%
	Over 1 year: 11.99%	Grade 9: 18.55%
	No internship experience: 13.34%	Grade 10: 16.75%

(*Source*: Author’s processing)

The questionnaires included 24 questions, grouped as follows:

- 3 questions about the respondent’s profile;

- 18 questions concerning the students' perception towards the contribution of speciality disciplines to developing knowledge, skills, and competencies, but also their importance in developing their own professional profile;
- 3 questions on the impact of the disciplines studied on developing student personality.

In order to analyse the perception of undergraduate students, we have selected 10 disciplines corresponding to the competencies required by the above-mentioned stakeholders: introductory accounting, financial accounting according to IFRS, financial accounting according to European regulations, management accounting, performance management and measurement, taxation, internal auditing, external auditing, accounting policies and options (advanced IFRS course), and accountant in business.

The questions conceived were based on the results of scientific studies that we deemed relevant, given the set objective.

4. Results

We have tested the respondents' perception towards the products provided by accounting in terms of certainty, uncertainty, subjectivity, contextual. We found that almost half of the respondents (47.96%) believe that accounting products are characterized rather by certainty. The other half have divergent perceptions: 26.92% of the respondents believe that accounting products are rather contextual and subjective, while 25.11% of them believe that they are rather uncertain, but comprehensible through observation and judgment.

We asked the respondents to position themselves as to the way they take risks in everyday life. More than half of the respondents (59.04%) said they took risks only in critical situations. 24.22% of the respondents take risks easily, whereas 16.94% declared that they had a strong aversion to risk. No significant differences result from the analysis by gender, but it is interesting to note that men declared to take risks in critical situations (63.03% men as compared to 57.59% women) rather than to take risks easily (20.17% men as compared to 26.63% women).

Next, respondents were asked to select the attributes that best correspond to the changes that the studies in accounting and management information systems have brought upon their own personality. Let us mention a few of the contemplated attributes: I have become more responsible; I have become more organized and more disciplined; I have become more intolerant to lies; I have become more cautions in dealing with others; I take risks more easily; I communicate more easily; I make judgments more easily and more frequently; I manage my time better; I enjoy a higher reputation among my acquaintances; I have higher self-esteem; I have lower self-esteem; I have become an ethical person and I am more sensitive to injustice.

Most of the respondents believe that college has made them more responsible (68.09%), but also more organized and more disciplined (51.35%). Almost half of them believe that they make judgments more often and more easily (47.01%). Other significant features identified by the respondents were:

- I have become more sociable and more open in dealing with others (41.62%);
- I manage my time better (40.39%);
- Ethics is important to me (36.42%).

A significant part (33.03%) state that they have become more cautious in dealing with others. Most students do not believe college has affected their self-esteem. Only 3.16% declare to have lower self-esteem, while 17.87% believe to have higher self-esteem. Moreover, most of the respondents do not associate their college years with personal reputation (only 9.72% believe to enjoy a higher reputation).

Some speciality disciplines studied within the faculty are based rather on detailed rules provided by the application of accounting standards or regulations. Others are based rather on concepts, general principles and techniques requiring frequent recourse to judgment, scenarios, assumptions, tests, simulations, etc. Students were asked to specify whether or not, during college, they appreciated more the courses based on detailed rules than the ones based on concepts and general principles. A significant majority of students appreciated the courses based on detailed rules (74.88%). The percentage of those who appreciated the courses based on concepts, general principles and techniques requiring frequent recourse to judgment, scenarios, assumptions, tests, simulations is much lower (25.12%).

Possible explanations for this situation are, in our opinion, the following:

- In the first two years of study, certain disciplines are addressed which place a strong emphasis on the acquisition and application of rules: introductory accounting, financial accounting according to IFRS (within which the component of professional judgment is beginning to take shape, but it is not the dominant component), financial accounting according to European regulations (a course mostly based on the technical application of accounting policies by using the standardized chart of accounts), accounting and tax planning (a course focusing on the understanding and application of the tax code);
- Courses developing to a larger extent the professional judgment component (such as, for example, the course of management accounting, the course of performance management and measurement, the course of auditing, etc.) are heavily based on the use of certain skills such as communication skills, persuasion skills, critical thinking skills, interdisciplinary thinking skills, and decision-making skills. Such skills are difficult to acquire because both the courses and seminars are held to large classes of students (the courses based on detailed rules rather develop the students’ execution skills, as they understand and apply the provisions of the regulation concerned).

This is one of the reasons why we wanted to find out the students’ perception towards the competencies which were the most demanded in studying the speciality disciplines.

The most demanded competencies were, on a scale from 1 (a skill very little used) to 4 (a skill very much used): memorization skills (3.75), comprehension skills (3.45), and problem-solving skills (3.18). The skills the least used were the ability to identify and exploit relevant sources (2.97), communication skills (2.63), persuasion skills (2.46), and decision-making skills (3.13).

In real life, the accounting professional prepares reports, statements, declarations, and other written materials. Students state that the ability to prepare professional written materials was rather weakly developed during their college studies – on a scale from 1 (very weak contribution) to 4 (very high contribution). The disciplines perceived as having a higher contribution towards developing writing skills are taxation (3.13), introductory accounting (3.13), financial accounting according to IFRS (3.02), financial accounting according to European regulations (2.99), and external auditing (2.93). The other disciplines were perceived as having a weak or very weak contribution to developing their writing skills.

This perception is understandable because the great majority of students assimilate professional work with preparing tax declarations, keeping accounting records, and preparing financial statements. Whereas preparing an auditing report is perceived as professional work, preparing the accounting policies manual, preparing internal auditing procedures, or manufacturing costing are not always perceived in the same manner.

The students were asked to rank the speciality disciplines by the contribution they believed such courses had towards developing professional judgment. The scale was from 1 (very weak contribution) to 4 (very high contribution). The result analysis indicates that on top of the list we have the discipline of introductory accounting (3.56), followed by the disciplines of financial accounting according to IFRS (3.31) and financial accounting according to European regulations (3.21). Therefore, we note that students consider as very important in their education the basic concepts of accounting and financial reporting, and the judgments which develop from capitalizing on such concepts.

The above statement is also validated by the students' ranking of the disciplines by the importance they perceived such disciplines had in their education. On a scale from 1 (very little important discipline) to 4 (very important discipline), the most important disciplines were believed to be introductory accounting (3.50), financial accounting according to IFRS, financial accounting according to European regulations (3.29), taxation (2.96), accounting policies and options (2.74), and external auditing (2.66). The disciplines perceived as less important were accountant in business (1.85), performance management and measurement (2.07), and internal auditing (2.13). We wanted to verify whether the disciplines perceived by students as the most important for their professional profile were also those in which they invested the highest efforts. The ranking above was confirmed, with some minor, insignificant variations. However, we noticed that for some of the students, a course developed by IFRS prevailed over the taxation course. Immediate reality creates the expectation that most of the students of the faculty of accounting and management information systems will work in the areas of bookkeeping, financial reporting, and taxation. Slightly less will work in auditing, and even less in areas such as management accounting or performance management and measurement. Hence their massive orientation towards certain types of knowledge, skills, and competencies.

We believe that the assimilation of basic concepts in the first accounting course had the highest psychological impact on the students, as they were able to validate the usefulness and robustness of such concepts by concepts and judgments developed later on, during the financial accounting and consolidated accounting courses. However, it is also possible that some of the respondents may believe that understanding and applying certain technical rules prescribed by accounting regulations or standards means making professional judgment.

Various topics are addressed and covered in more depth in several speciality disciplines. We wanted to find out whether or not students perceived the existence of significant differences of discourse concerning the same topic and whether such differences have made them feel insecurity or fear. Most of the respondents said they encountered differences in their teachers' discourse on certain topics addressed (58.37%). This perception may have, in our opinion, two causes:

a) a lack of coherence in the succession of the disciplines studied

For example, the first accounting course (introductory accounting) is based on local regulations. The second accounting course (accounting according to IFRS) is based on IFRS standards. The third accounting course (accounting according to European regulations) is based on local regulations. The fourth accounting course (consolidated accounting) is based on IFRS standards. This alternation brings certain disciplines before the students, which are addressed in different manners because they have different sources of regulation (e.g., the term 'residual value' has one meaning in IAS 17 'Leasing', and another meaning in the local regulations; the applications of the present value or fair value in IFRS are different than in local regulations, etc.).

b) the existence of differences in terms of teaching, which can generate slight variations in the way certain concepts are explained and exemplified and their assimilation in a different manner

A frequently encountered case is the judgment of recording transactions and events in accounting in accordance with local regulations, on the one hand, and in accordance with IFRS, on the other hand. Another example is that some teachers define provisions as contingent liabilities, although the wording of IAS 37 stipulates that a provision is a current liability whose maturity and/or size are uncertain. It is not the liability that is uncertain, but its maturity. An insignificant uncertainty may also be attached to the value assigned to the provision in the context of estimating.

Another example is that of justifying recognition of subsidies for investments as deferred income, in total liabilities. Some teachers relate to the criteria for recognition of the liability, while others take into account the objective of connecting costs to revenues. Examples may continue.

Starting from the literature confirming that, where both local and IFRS rules are being studied, the order of studying them does not significantly facilitate a better understanding of the second referential studied, we have tested the students' perception of this report. 72.85% of the students said that studying IFRS accounting first did greatly facilitate their comprehension of detailed rules in the course of financial accounting according to European regulations.

In our experience, this is not about facilitating comprehension of different rules, but rather assimilating the same rules in the context of local regulations. There is a significant degree of convergence between certain IFRS standards and interpretations and national regulations. Rules in IAS 2, IAS 17, SIC 15, IAS 40, IAS 16, IAS 37, IFRIC 1, IAS 8, IAS 10, IAS 20, IAS 18, etc. have been massively taken over in the national regulation. The fact that students have already assimilated them at the IFRS course allowed a faster coverage of the same rules at the course based on local rules. Where differences occur either in terms of terminology or of rules because the takeover of certain IFRS accounting policies was partial or limited, students already encounter comprehension difficulties. For example, it is easier to understand a cash flow statement in national regulations after having studied IAS7, but it is not so easy to understand the manner of recognizing revenue from services, from construction contracts, from interest and dividends because certain criteria have not been taken over from IAS 18 or IAS 11.

As a result of a large amount of rules taken over from IFRS, the teacher who teaches financial accounting based on local rules is tempted to refer to IFRS standards and interpretations. Students said that during the course of financial accounting according to national regulations, teachers referred to IFRS either frequently (51.35%), or occasionally (47.96%). In our view, such references are justified for two reasons. The first reason is that it does not clearly result from the national regulations that certain texts were taken over from certain IFRS standards and interpretations. The source of the rules is not visible because there is no basis for conclusions to accompany the national regulations and in which the accounting regulating authority indicates its source of inspiration in defining certain rules and judgments which justified the choice of such solutions. Students will be able to separate more easily the rules taken over from IFRS from rules having other regulating sources.

Another reason is that in the course of financial accounting in accordance with IFRS certain standards and interpretations were detailed in different manners by different teachers. For example, one class of students studied IAS 17, and another class did not. One class studied IAS 37 and IAS 40 in greater detail, and the other did not. References to IFRS help the teacher who teaches accounting in accordance with local rules to identify the knowledge possessed by students and make decisions concerning the teaching method and the level of detail and explanation of the knowledge taught.

In order to develop skills and competencies, but also to ensure the relevance and credibility of explanations, cases solved, etc., the teacher is required to refer to real-life situations, to address real cases or cases that have a correspondent in reality. Students were asked to rank speciality disciplines by the references made by the teacher to real-life situations and cases – from 1 (very few references) to 4 (very frequent references). The disciplines where references to reality were the most frequent were external auditing (3,87), management accounting (3.81), taxation (3.61), financial accounting according to IFRS (3.41), internal auditing (3.52) and financial accounting according to European regulations (3.19). The courses perceived as less connected to reality were accountant in business (2.14), accounting policies and options (2) and performance management and measurement (2.44).

In financial accounting courses, the connection to reality was made in most cases by studying accounting policies from annual reports of certain companies considered as models for good reporting practices. It is less likely that real accounting records of certain entities were used. Sometimes real data are used, but the name of the entity is concealed under the phrase ‘ALPHA Entity’. In such circumstances, students may believe that the teacher built the example with fictitious data and has no correspondence in reality.

The most challenging task in connecting course material to reality belongs to those teachers who teach disciplines where inside or confidential information has a large share. To increase the students’ awareness of a connection to reality, the teacher should explicitly indicate that a certain case is connected to the preparation of the accounting policies manual or that it is part of the accounting journal or part of the assessment procedure, etc. The usefulness of case studies and their connection to reality must be justified on an ongoing basis, so that students do not associate issues linked to reality with purely theoretical issues or exercises based on fictitious data.

Certain speciality disciplines require a deeper knowledge of how an entity works, of business models and the business environment. Students were asked to rank them on a scale from 1 (very few references) to 4 (very frequent references), by the emphasis placed on business models, operation of markets, operation mechanisms of an entity, etc. The students’ perception was that frequent references were made to such issues during the courses of management accounting (3.75), financial accounting according to European regulations (3.69), financial accounting according to IFRS (3.62), external auditing (3.55) and accountant in business (3.27). Fewer references were made in disciplines such as accounting policies and options (2.32), taxation (2.52) and internal auditing (2.57).

We have also tested the degree of abstraction perceived by students with regard to the disciplines studied. Some disciplines are more abstract than others and not all the students have the same ability to assimilate abstract knowledge. On the same scale from 1 (a course with a very low abstraction level) to 4 (a course with a very high abstraction level), the courses considered the most abstract were: accounting policies and options (3.72), management accounting (3.71), external auditing (3.66), and financial accounting according to IFRS (3.44). The following courses were perceived as less abstract: introductory accounting (2), taxation (2.55), internal auditing (2.52) and financial accounting according to European regulations (2.49).

In some courses, the teacher refers to scientific studies and research in order to give reasons for certain situations or to confirm certain circumstances or events. We were interested to find out in which courses such scientific studies were invoked the most frequently and to what extent teachers referred to literature in their discourse. Students noticed the presence of references to literature in all the courses on our list. A higher frequency of such references was perceived in disciplines such as financial accounting according to IFRS (3.78), accounting policies and options (3.38), external auditing (3.38) and accountant in business (3.22). Fewer references were associated with the disciplines of performance management and measurement (1.96), internal auditing (2.21), introductory accounting (2.33) and taxation (2.38).

The manner of holding a class, the teaching tools used and the teacher's discourse often make a difference as to the way students relate to a discipline and the importance it has to them. Some courses are more oriented towards debate or case studies. Others are based on lectures which rarely leave room for debate. We sought to find out whether students were more attracted to courses based on debate and case studies rather than to lecture-type courses. Most students (76.92) appreciated more the courses based on discussions and case studies. A minority of the students (23.07) declared to feel more comfortable with lecture-type classes. We noticed that this latter group mostly included students who stated that the grade which best described their academic performance was 6 or 7. The few highly-performing students who claimed to prefer lecture-type classes were rather students who either exhibit a strong aversion to risk or take risks only in critical situations.

Our experience indicates a permanent presence of very good students who are extremely nervous at the idea that a teacher would initiate a conversation with them. They perform optimally in written tests, and rather poorly in public presentations.
In order to ensure the prerequisites for good assessment results, the teacher must at least reasonably cover the syllabus, but also get students acquainted, along the way, with examination requirements and provide guidance on how to address and how to prepare a written work. Most students (76.92%) do not believe it is important that a teacher should cover the entire syllabus at the risk of not having time to develop personal skills for students (communication skills, writing skills, persuasion skills, etc.). The minority who does believe that might yet be considered somewhat significant (23.08%). Most of the students in this latter category identify themselves rather with grades 6 or 7 than with 9 or 10.

A possible explanation, in our opinion, is that these students resent being burdened with the responsibility of covering the disciplines topics themselves. For those few very good students who fall into this category, the explanation would be that for them there is great pressure for achieving performance. Besides, at the end of the undergraduate cycle, students take an exam for admission to the master's level. These students may believe that their task of preparing the admission exam would be greatly facilitated if teachers covered the entire syllabus.

Students perceive that in certain disciplines requirements may become exaggerated and the difficulties in complying with them create anxiety and sometimes fear. An overwhelming majority (86.42%) have developed anxiety and fear over exaggerated requirements or sources of uncertainty associated with the upcoming assessment.

This perception confirms a high performance anxiety in students of the Faculty of Accounting and Management Information Systems and this will represent a research topic that we will further investigate in the near future.

5. Discussion and conclusions

Students of the Faculty of Accounting and Information Management Systems rather prefer courses based on detailed rules than courses based on general principles and concepts which require ongoing recourse to professional judgment, scenarios, assumptions, tests, simulations, etc. As regards professional judgment, students prefer those judgments which are made in a regulated accounting framework rather than those which are made for management purposes and which are heavily based on the use of certain skills such as communication skills, persuasion skills, critical thinking skills, interdisciplinary thinking skills, and decision-making skills.

The fact that students favour financial reporting at the expense of company performance analysis is scientifically confirmed by relatively recent studies (Klibi and Oussii, 2013).

Most of the students of the faculty see themselves working in accounting and financial reporting, in taxation or external auditing. Fewer are projecting themselves in positions involving management accounting and entity performance measurement.

Throughout their studies, the competencies used the most were memorization skills, comprehension skills, and problem-solving skills. The less used competencies were the ability to identify and capitalize on relevant sources, communication skills, persuasion skills, and decision-making skills.

Further skills which were less developed among students are writing skills. The discipline perceived as having a greater contribution towards developing writing skills are taxation, introductory accounting, financial accounting according to IFRS, financial accounting according to European regulations, and external auditing. The other disciplines were considered to have had a poor or very poor contribution to the development of writing skills.

Students associate at least a medium level of abstraction to the content of the speciality disciplines they have studied. The disciplines which were considered the most abstract were accounting policies and options, management accounting, external auditing, and financial accounting according to IFRS. The disciplines considered less abstract were: introductory accounting, taxation, internal auditing, and financial accounting according to European regulations.

We believe that some respondents may not have been quite clear on what abstract content means and part of them may assimilate difficulties in the comprehension of clear rules with a higher level of abstraction. We tend to consider more complicated something that we do not understand. This is the conclusion we have reached after finding that students with a medium level of performance tend to consider as more abstract such disciplines which, for higher-performing students, have a low abstraction level. For instance, to a student graded 6 in the IFRS introductory course (financial accounting according to IFRS), the course of accounting policies and options (advanced IFRS course) may seem very abstract. A 10-graded student will not have the same perception. Furthermore, courses which require an interdisciplinary approach and advanced knowledge tools, unstructured and sometimes ambiguous situations seem to be more abstract even to higher-performing students.

Most students said that studying accounting according to IFRS first had greatly facilitated their understanding of detailed rules in the course of financial accounting according to European regulations. In our experience, this is actually not about facilitating the understanding of different rules, but rather about assimilating, in the context of local regulations, the same rules. Where differences occur in terms of terminology or in terms of rules because the takeover of certain IFRS accounting policies was partial or limited, students already encounter comprehension difficulties.

Some courses are more oriented towards debate and case studies. Others are based on lectures which rarely leave room for debate. Most students rather prefer the courses based on debate and case studies. A minority of students feel more comfortable with lecture-type courses. We noticed that the latter category mostly included students claiming that the grade which best described their academic performance was 6 or 7. The few high-performing students who prefer lecture-type courses are mostly students who either exhibit a high aversion to risk or take risks only in critical situations.

The majority of students do not believe it is important that a teacher should cover the entire syllabus at the risk of not having time to develop personal skills for the students (communication skills, writing skills, persuasion skills, etc.).

Students perceive that in certain disciplines requirements may become exaggerated and the difficulties in complying with them create anxiety and sometimes fear. An overwhelming majority have developed anxiety and fear over exaggerated requirements or sources of uncertainty associated with the upcoming assessment.

Most of the respondents believe that college has made them more responsible, but also more organized and more disciplined. Almost half of them believe that they make judgments more often and more easily. Other significant features identified by the respondents were: I have become more sociable and more open in dealing with others; I manage my time better; ethics is important to me.

6. Limitations

Perception studies have a number of limitations as to the way respondents define and explain certain concepts. In the case of our study, such limitations are:

- students may perceive the term ‘abstract’ in different ways (concepts with are accessible but difficult to assimilate may appear as abstract to some students);
- some students may associate professional judgment with the application of clear rules in structured situations, whereas others may believe that professional judgment is exercised in unstructured situations and where rules are less detailed;
- students may believe that the disciplines in which they achieved better results more easily are more useful to them in their carrier;
- some students may mistake insecurity caused by lack of knowledge for oral and written communication anxiety;
- students may not always perceive the connection with reality in the context of certain case studies where teacher uses real data belonging to entities whose names are replaced with a generic name;
- some students may not develop high adhesion to the knowledge conveyed if they perceive that the teachers are not practitioners and are unable to provide training as practitioners would do, etc.

Despite all these limitations, the results of our research are consistent with the results of certain previous studies (Nicolescu and Păun, 2009; Klibi and Oussii, 2013; Jones and Abraham, 2008; Shanahan, 2013; Hail *et al.*, 2010).

References

Albrecht, W. & Sack, R. (2000) *Accounting Education: Charting the Course through a Perilous Future*, Sarasota, FL: The American Accounting Association

Albu, N., Albu, C.N. & Gîrbină, M.M. (2012) "Educating accounting students in an emerging economy - an analysis of the importantance of stereotypes in teaching IFRS", *International Journal of Academic Research*, vol. 4, no. 3: 51-57

Albu, C.N. & Toader, Ș. (2012) "Bridging the gap between accounting academic research and practice: some conjectures from Romania", *Journal of Accounting and Management Information Systems,* vol. 11, no. 2: 163–173

Ayres, J., Hopf, T. & Will, A. (2000) "Are reductions in CA an experimental artefact? A Solomon four-group answer", *Communication Quarterly*, vol. 48**(**1): 19-26

Bogdan, V., Săveanua, T., Bana, O.I. & Popa, D.N. (2016) "Profiles. The way MA students perceive professional accountants and managers", *Journal of Accounting and Management Information Systems,* vol. 15, no. 4: 732–756

Bunea, S., Săcărin, M. & Gîrbină, M.M. (2013) "An analysis of the perception of chartered accountant trainees regarding access to the accounting profession and professional training needs", *The Annals of the University of Oradea. Economic Sciences,* vol. 22: 1154-1165

Byrne, M. & Willis, P. (2005) "Irish secondary students' perceptions of the work of an accountant and the accounting profession", *Accounting Education: An International Journal* vol. 14, no.4: 367–381

Camp, J. M. & Schnader, A. L. (2010) "Using debate to enhance critical thinking in the accounting classroom: The Sarbanes-Oxley act and U.S. tax policy" *Issues in Accounting Education*, vol. 25, no. 4: 655-675

Carr, J. (1998) *Service-learning in accounting: A role for VITA programs. In Learning by Doing: Concepts and Models for Service-Learning in Accounting*, Washington, DC: AAHE

Coetzee, S.A., Schmulian, A. & Kotze, L. (2014) "Communication apprehension of south african accounting students: the effect of culture and language", *Issues in accounting education*, vol. 29, no. 4: 505-525

Cory, S.N. (1992) "Quality and Quantity of Accounting Students and the Stereotypical Accountant: Is There a Relationship?" *Journal of Accounting Education,* vol. 10: 1-24

Grimm, S. & Hoag, D. (2012) "International accounting convergence: A writing assignment", *Advances in Accounting Education: Teaching and Curriculum Innovations,* no 13: 383–404

Grosu, C., Almășan, A.C. & Circa, C. (2015) "Difficulties in the accounting research–practice–teaching relationship: Evidence from Romania", *Journal of Accounting and Management Information Systems*, vol. 14, no. 2: 275–302

Hail, L., Leuz, C., & Wysocki, P. (2010) "Global accounting convergence and the potential adoption of IFRS by the U.S. (Part II): Political factors and future scenarios for U.S. accounting standards", *Accounting Horizons*, vol. 24, no. 4: 567–588

Hassall, T., Arquero, J.L., Joyce, J. & Gonzalez, J.M. (2013) *Communication apprehension and accounting education. In The Routledge Companion to Accounting Communication*, New York, NY: Routledge: 166–176

Herrington, A. & Herrington, J. (2006) *Authentic Learning Environments in Higher Education*, London, U.K.: Information Science Publishing.

Horwitz, B. (2002) *Communication Apprehension: origins and management*. Albany, NY: Singular-Thomson Learning: 1

International Federation of Accountants (IFAC) (2015) "The Roles and Domain of the Professional Accountant in Business. PAIB Committee." available on-line at: https://www.ifac.org/publications-resources/roles-and-domain-professional-accountant-business

Jackling, B., & De Lange, P. (2009) "Do accounting graduates' skills meet the expectations of employers? A matter of convergence or divergence", *Accounting Education: An International Journal*, 18 (4–5): 369–385.

Jones, G. E. & Abraham, A. (2008) "Preparing accountants for today's global business environment: The role of Emotional Intelligence in accounting education", *11th Annual International Conference of the American Society of Business and Behavioral Sciences*, Honolulu, Hawaii, September: 25-27

Kavanagh, M. H. & Drennan, L. (2008) "What skills and attributes does an accounting graduate need? Evidence from student perceptions and employer expectations", *Accounting and Finance* 48: 279– 300

St. Pierre, K., Wilson, R.M.S., Ravenscroft, S.P. & Rebele, J.E. (2009) "The Role of Accounting Education Research in our Discipline—An Editorial", *Issues in accounting education*, vol. 24, no. 2: 123–130

King, P. M. & Kitchener, K.S. (2004) "Reflective judgment: Theory and research on the development of epistemic assumptions through adulthood", *Educational Psychologist*, vol.39, no. 1: 5–18

Klibi, M. F. & Oussii, A. A. (2013) "Skills and Attributes Needed for Success in Accounting Career: Do Employers' Expectations Fit with Students' Perceptions? Evidence from Tunisia", *International Journal of Business and Management*, vol. 8, no. 8: 11-12

Lawson, R. L., Blocher, E., Brewer, P.C., Cokins, G., Sorensen, J.E., Stout, D.E., Sundem, G.L., Wolcott, S. & Wouters, M.J.F. (2014) "Focusing accounting curricula on students' long-run careers: Recommendations for an integrated competency-based framework for accounting education", *Issues in Accounting Education,* vol. 29, no. 2: 295–317

Lin, Z. J., Xiong, X. & Liu, M. (2005) "Knowledge base and skill development in accounting education: Evidence from China", *Journal of Accounting Education*, vol. 23: 149–169

Meixner, W. F., Bline, D., Lowe, D.R. & Nouri, H. (2009) "An Examination of Business Student Perceptions: The Effect of Math and Communication Skill Apprehension on Choice of Major", *Advances in Accounting Behavioral Research,* vol. 12: 185-200

McLain, D.L. (2009) "Evidence of the properties of an ambiguity tolerance measure: the multiple stimulus types ambiguity tolerance Scale-II (MSTAT-II)", *Psychological Reports,* part 1, vol. 105, no. 3: 975

Nicolescu, L. & Păun, C. (2009) "Relating Higher Education with the Labour Market: Graduates' expectations and employers' requirements", *Tertiary Education and Management,* vol. 15, no. 1: 17–33

Ryack, K.N., Mastilak, M.C., Hodgdon, C. D. & Allen, J.S. (2015) "Concepts-Based Education in a Rules- Based World: A Challenge for Accounting Educators", *Issues in Accounting Education,* vol. 30, no. 4: 251–274

Riley, R.A., Cadotte, E.R., Bonney, L. & MacGuire, C. (2013) "Using a Business Simulation to Enhance Accounting Education", *Issues in accounting education*, vol. 28, no. 4: 801–822

Riley, T.J. & Simons, K.A. (2013) "Writing in the Accounting Curriculum: A Review of the Literature with Conclusions for Implementation and Future Research", *Issues in accounting education*, vol. 28, no. 4: 823–871

Shanahan, D. (2013) "High Oral Communication Apprehensives: How Can Students Be Helped to Reduce Their Fear of Public Speaking?", *Irish Journal of Academic Practice,* vol. 2, no 1: 19

Simons, K., Higgins, M. & Lowe, D. (1995) "A profile of communication apprehension in accounting majors: implications for teaching and curriculum revision", *Journal of Accounting Education,* vol.13, no. 2: 159-176

Stanley, T. (2013) “Bridging the gap between tertiary education and work: situated learning in accountancy”, *Issues in accounting education*, vol. 28, no. 4: 779-799

Stark, J.S., Lowther, M.A., Ryan, M.P. & Genthon, M. (1988) “Faculty reflect on course planning”, *Research in Higher Education*, vol. 29: 219-240

Thompson, F. & Washington, H.L. (2015) “Critical thinking skills and teaching accounting: A comparative study”, *Journal of Finance and Accountancy*, vol. 19: 3

Student engagement in master's programmes – evidence from accounting master students

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Abstract: *This paper aims to assess the extent to which accounting students are engaged in master's programme by referring to number of hours for attending classes, active participation in classes, self-studying, and work in teams for projects and assignments against activities endorsed by syllabuses. The previous researches strongly express that intrinsic motivation and academic teachers' skills are the key factors in determine the students' engagement. In order to achieve the objectives, a positive research was constructed by conducting an empirical study during 2016-2017 with the students of accounting master's programme organized by Accounting and Management Information Systems Faculty. This paper tests two hypothesis related to students' engagement in master activities. The findings from the current research emphasize that the professors and the research community need to pay more attention to students' engagement and skills to enhance it.*

Keywords: *Students' engagement, group projects, teaching-learning methods, active attendance, syllabus, modern education*

1. Introduction

The purpose of education in today's world is to prepare students for the challenges of life in the career world. Because of the many different footpaths to success that exist today, different students need different results and values from their experiences in the educational system.

Moreover, the economic environment changes every day, decisions are made in a few seconds and the world largely depend on technologies. As a professional in this world, it is essential to be well prepared and manifest greater flexibility to face all the challenges with higher effectiveness and minimum of effort. In this context, the connection between higher education and economic environment is increasing and the challenging for universities is to prepare students to perform better in business nowadays than in the past. The integration of young graduates on the labour market is a very important goal and represented the focus point for many researchers (Dodescu *et al.*, 2011; Săveanu and Săveanu, 2012; Plăiaș *et al.*, 2011; Ciuhureanu *et al.*, 2011).

Thus the higher education process is changing to achieve better learning outcomes by improving the effectiveness of student learning activities.

Assessing the student engagement is an important indicator to improve student learning. The National Survey of Student Engagement (NSSE) annually surveys

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students from USA and Canada to assess the extent to which they engage in educational practices associated with high levels of learning and development. Thus, colleges, universities and other organizations have access to important information to improve the student learning that became a primary goal.

This paper is measuring the accounting students' level of engagement in master's programme.

2. Literature review

For decades, the researchers have manifested a great interest for assessing the students' engagement in higher education. There are seven principles for good practice in undergraduate education (Chickering and Gamson, 1987): encourages contact between students and faculty; develops reciprocity and cooperation among students; encourages active learning; gives prompt feedback; emphasizes time on task; communicates high expectations; and respects diverse talents and ways of learning. All these factors influence the student engagement degree in undergraduate education, but two of them are of great importance for our research: develop reciprocity and cooperation among students and encourage active learning. Engagement refers to the magnitude of a student's active involvement in a learning activity. With the purpose of clarifying "student engagement" concept, a multidimensional approach is appropriate: from effort, persistence, and prosocial classroom conduct (behavioural engagement) to high interest and enthusiasm with low anxiety and boredom (emotional engagement) to concentration, strategic thinking, sophisticated learning strategies and self-regulation (cognitive engagement) to intentional acts of agency to enrich one's experience with the learning activity, subject matter, or school experience (agentic engagement) (Veiga *et al.*, 2014). Student engagement has been defined as "*participation in educationally effective practices, both inside and outside the classroom, which leads to a range of measurable outcomes*" (Kuh *et al.,* 2007), and as "*the extent to which students are engaging in activities that higher education research has shown to be linked with high-quality learning outcomes*" (Krause and Coates, 2008). Higher Education Academy, UK (HEA) proposes a framework for developing a "partnership engagement" where students and teachers work together and learn from each other; the partnership is sustaining by the following values: authenticity, inclusivity, empowerment, and trust, challenge (HEA, 2014).

Within learning and teaching, the student engagement concept can be divided into two comprehensive extents:

- student engagement as the way in which students invest time and energy in their own learning, and
- the ways in which students are involved and empowered by institutions to shape their learning experiences (Healey *et al*., 2014)

As any teaching method, the engagement student approach has its own benefits and downsizes (Trowler, 2010):

Table 1. **Student engagement – advantages and disadvantages**

	Positive engagement	**Non-engagement**	**Negative engagement**

	Positive engagement	Non-engagement	Negative engagement
Behavioural	Attend classes and participate with enthusiasm	Skip classes without excuses	Disrupt lectures
Cognitive	Meet / exceed assignments	Assignment late or missed	Redefine parameters for assignments
Emotional	Interest	Bored	Reject

(*Source:* Trowler, 2010)

Lizzio and Wilson (2009) analyses in their research the relationship between intrinsic/extrinsic motivation and personal/system focus by creating a matrix of them (as shown in Table 2):

Table 2. **Motivation and focus matrix**

	Extrinsic motivation		
Personal focus	System positioning	Compliance with authority	**System focus**
	Personal development	System advocacy	
	Intrinsic motivation		

(*Source:* Authors' interpretation, based on Lizzio and Wilson, 2009)

Engagement is perceived as a set of relationships between: the student and the school community; the student and adults at school; the student and peers; the student and instruction, and the student and the curriculum (Yazzie-Mintz, 2010).

There are many factors that influence the student engagement degree in education (Chickering and Gamson, 1987), two of them being of remarkable importance: developing teamwork skills and cooperation among students ***and*** encouraging active learning. These will be investigated in our research as key drivers for enhancing students' engagement.

2.1. Develop reciprocity and cooperation among students

Enhancing cooperation and constructing higher responsibility are possible through the **collaborative learning** activities including asking other students for help with course material or explaining it to others, preparing for exams by discussing or working through course material with other students, working on group projects or team assignments (National Survey of Student Engagement, 2016). The benefits of group projects are indisputable, helping students to develop team work skills that are increasingly important in the professional world (Caruso and Woolley, 2008; Mannix and Neale, 2005). Developing the collective work skills properly has become an important goal, allowing students to: analyse complex tasks by steps; improve self-respect; be able to construct self-esteem; strengthen the role of group member; develop stronger communication skills; and delegate role and responsibilities.

Team building activities should be used in all the scientific disciplines (Laberge, 2013); especially in areas in which students may feel less confident (Ekimova and Kokurin, 2015) and may be represented by various forms, including games in order to increase values of teamwork and responsibility of the students (Eliasa, 2014).

2.2. Active learning

The time is changing; the teaching-learning methods are changing from classic to modern, from teaching to learning; from learning as absorption and memorizing the facts to interactive learning; from delivering the knowledge to explore the knowledge, from professor as the central key in traditional approach to the student having the primarily role in modern approach. The active learning methods involve action, creativity, and desire to know, to explain, to explore, and to discover (Cergit, 2008).

Besides, the interest for learning methods was materialized in a program that was designed to produce significant and sustainable results for Romanian universities, being a shift from the learning by reproduction of information model to learning by doing (Botezat, 2013; Hatos, 2011). Dodescu *et al.* (2013) stated that such model allows students to become “insiders to the labour market”.

From other perspective, modern teaching/learning approach is based on the use of information technologies (Ionescu *et. al.*, 2012). Other authors preoccupied of using information technology in learning are Mihai *et al.* (2011), Țugui (2011) and Păcuraru (2011). The researchers have shown great interest to E-learning as a particular issue in a world where technology is developing faster than ever before (Herlo, 2011, 2012; Brandabur and Aldea, 2012; Mandušić and Blašković, 2012; Burlacu, 2011; Mițariu, 2012; Negruț *et al.*, 2012; Soyemi *et al.*, 2012; Păcuraru and Grecu, 2013).

3. Methodology of research

A survey research was conducted, aiming to measure the student’s engagement level in master’s programme by analysing the time per week the students spent on scheduled courses and seminars or outside of class activities, their active participation in both courses and seminars and their implication in working on group projects. The hypotheses about student’s engagement are tested for validity using ANOVA analysis.

The paper tries to identify if there is any relationship and what kind of relationship between the following:

- Time for self-study study actually employed by the master students (quantified as number of hours per week);
- Time for self-study recommended by syllabuses;
- Attendance and active participation in courses and in seminars activities;
- Active involvement in preparing group projects and participation in courses and seminars;
- Knowledge for immediate use at workplace.

3.1 Data description

The data of the research are collected by organizing and survey with students from 1st and 2nd year from master programs organized by Accounting and Management Information Systems Faculty from The Bucharest University of Economic Studies, Romania *(Accounting, Control and Expertise*, *Accounting and Taxation of Economic Entities* and *Financial Analysis and Evaluation*); the data were collected by direct distribution of questionnaire at the end of first semester of 2016-2017 academic year. The data set consists of 135 questionnaires, from which 129 were identified as valid.

Other data of the paper are extracted from Syllabuses of subjects taught during the master program: number of hours for preparing projects, number of hours for self-study, number of hours for homework (as shown in Appendix 1).

3.2 Method of analysis

This paper uses descriptive statistical indicators such as the media, median, sample variance and the coefficient of variation in order to analyse if students are interested in participating to course and seminar classes and if they are motivated to spend their time preparing case studies, projects, essays outside of class.

It was also used a simple regression model to analyse the intensity of the correlation between the students active learning style in courses and seminars, but also their engagement in team projects work.

For this purpose, two hypotheses were tested:

H_1 - The active participation of students in courses (APC) is positively related to active learning in seminars (APS).

The seminar activities offer the proper conditions for an appropriate active learning style due to the reduced number of students and to the number of seminars that are exceeds the courses. The relationships in a smaller group are stronger; the students know each other very well and interact by changing materials, by asking for help to understand the materials. They act like a group of friends. The challenge comes from courses, were the number of students is higher, and making the students feel uncomfortable in playing an active role. The hypothesis is based on the assumption that students being familiarized to the active style from seminar activities will reach to pass through emotions and will provide answers and ask questions or participate in course to debates in a natural way, without feeling fear for a wrong question or answer or for public speaking.

H_2 - The active involvement in preparing group projects (AIG) is positively related to the team work assignments in seminars (TAS).

Engaging the entire group of students attending the seminar activities produces a friendly environment where each of them is able to share ideas, opinions and judgements in solving assignments. Based on this approach, the students will become more actively involved in preparing team projects.

4. Analysis and discussion of results

The outcomes of research are discussed in terms of insights achieved through adopting methods of analysis that preserve the multidimensional assessment of master students' engagement.

4.1. Attendance in scheduled course and seminar activities

The results of the descriptive analysis show that the students in the first year of master programme are interested in courses and seminars, so they attend such activities. With second year master students the results are different: they are not motivated to attend such activities, as shown in Table 3:

Table 3. **Attendance in scheduled course and seminar activities**

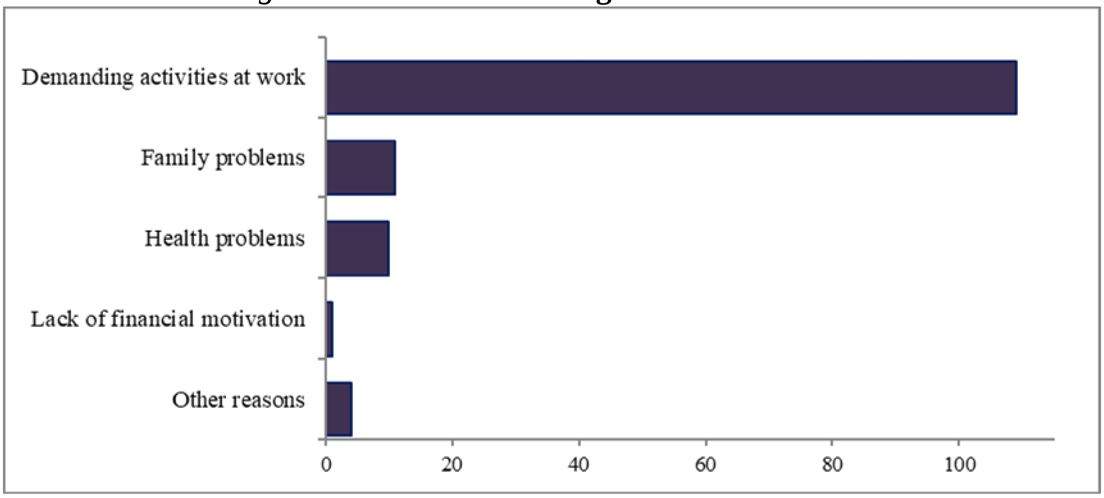
First year master students		**Second year master students**	
Mean	6.97	Mean	4.51
Sample variance	5.16	Sample variance	9.63
Standard deviation	2.27	Standard deviation	3.10
Coefficient of variation	32.59	Coefficient of variation	68.74

(*Source:* Authors, based on the survey)

For further analysis, the number of hours the students should spend weekly on scheduled class was needed. The value was computed on data extracted from the syllabus of the subjects studied in the accounting master programmes. The average of hours from curriculum was 10.22 for the first year master students and 9.00 for the second year master students. By comparing the mean of attendance in scheduled courses and seminars with the value computed from curriculum, the students from the first year are attending 2/3 of the scheduled activities, while the interest of the second year master students is decreasing to half of the time they should spend in class.

The lack of attendance to course and seminar activities is largely due to the fact that the accounting students are integrating in the business environment since college. According to their answers, the master students are full time employees in a proportion of 84% and the main reason they are missing classes is closely related to demanding activities as time and effort at work (for 81% of the master students) as illustrated in figure 1. This results is in agreement with NSSE Report findings (2006) which underlines that, students with part-time jobs have less contact with faculty, are less active, have minimum collaborative learning activities and sub-standard educational experiences.

Figure 1. **Details for missing scheduled activities**



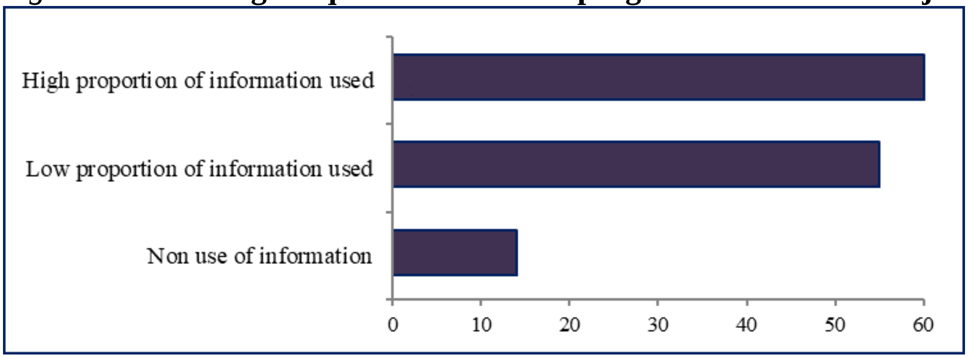
(*Source:* Authors, based on the survey)

On one hand, being employed is a reason for non-attendance in scheduled activities, and on the other hand, the students' jobs are closely related to the skills and concepts they learn in the master's program as illustrated in Figure 2. Almost 90% of students use information in their current job in higher or lower proportion and those who do not use such information argued that their job is temporary or not in the accounting field.

These observations are consistent with the reason that the students had when decided to complete their higher education with a master degree: the main reason for 90% of students was to deepen their knowledge gained in Bachelor's Degree.

The discrepancy between the first year and the second year attendance option may be explained by factors such as: the second year master students are involved in preparing the final thesis; the students get used to the exam routine; the university did not provide incentives (as scholarship) for second year students.

Figure 2. **Knowledge acquired in master's program used at current job**



(*Source:* Authors, based on the survey)

Based on responses to the questionnaire the master students are managing their time very carefully and they tend to make a choice between course and seminars activities. According to the survey, they choose to miss courses instead of seminars (94%). The reasons may be as follows: the courses have theoretical background and the students are interested in practices offered mostly in seminar activities, and the active learning style is possible mostly in seminars.

4.2. Work on case studies, essays, projects and other assignments outside of class

If the students' options related to attendance were different, their options associated with preparing the materials for course and seminar activities are the same, but in a negative way. Both categories of master students, first and second year, are not interested in spending their time working on case studies, essays, projects outside the class, as exposed in table 4.

Table 4. **Work on case studies, essays, projects and other assignments outside of class**

First year master students		**Second year master students**	
Mean	3.95	Mean	3.35
Sample variance	10.23	Sample variance	14.26

Standard deviation	3.20	Standard deviation	3.78
Coefficient of variation	80.90	Coefficient of variation	112.83

(*Source:* Authors, based on the survey)

According to the syllabus, the distribution of time for individual study includes study by the textbook, lecture notes, references and student's own notes; additional documentation in the library, on specialized online platforms and in the field; preparation of seminars, labs, assignments, portfolios, and essays, and other activities.

As the research survey focused on the time spent on preparation of seminars, labs, assignments, portfolios, and essays, the average number of hours the master students should spend on such activities was compared to their actually spent time and it seems that they allocate only 38% of time due. The low level may be explained, on one hand, that these activities are time consuming and the master students being employed cannot be involved properly in preparing the materials outside the classes. But on other hand, although in the syllabus is specifically written the number of hours for the preparation of seminars, labs, assignments, portfolios, and essays, and other activities, it is actually not applied in course / seminar activities. The professors, by trying not to ask too much from students and discourage them, actually contribute to the student's lack of involvement.

4.3. Students' active participation in master activities

To measure the active involvement of students in the master activities the analysis is expended to active participation to courses and seminars; students' involvement in scientific sessions or research projects; and working on group projects.

For further correlation the data are tested for homogeneity. Table 5 summarizes the indicators and the coefficient of homogeneity is below the threshold of 35%, in most of the cases.

According to the data of survey, the master students are not interested in participating at scientific session or to collaborate with professors in research projects, both being extra-curricular activities.

Table 5. **Descriptive statistical indicators**

Statement	**Mean**	**Standard deviation**	**Coefficient of homogeneity (%)**
Active participation to courses	1.96	0.68	35.14
Active participation to seminars	2.19	0.74	33.75
Participating at student scientific session	1.15	0.42	36.62
Collaboration with professor developing research projects	1.24	0.51	41.28
Team work assignments in seminar	3.14	0.82	26.07
Involvement in preparing group projects	3.41	0.79	23.35

(*Source:* Authors, based on the survey)

4.3.1. Active participation to courses and seminars

There are well known the benefits of *active* participation of students, but active student *participation* does not happen naturally neither in courses, nor in seminar activities. More than half questioned students (65%) are reluctant to participate in an active way to courses and seminars. In this context, the professor has the key role in selecting the methods of teaching with implications on the number of students involved, on the usage of creative and critical thinking, and on the development of communication skills.

In seminar activities is easier to apply active participatory methods than in courses, since the materials discussed are based on more case studies, the number of students is less, and the students know each other much better so they can interact in an effective way. Increasing the student's involvement in classes should start from seminar activities, where the conditions are more auspicious and should be expanded to courses.

To test the hypothesis *H_1 - The active participation of students in courses (APC) is positively related to active learning in seminars (APS)*, a regression model is used. Running the single variable regression model, the equation is:

APC = 0.27 + 0.76 APS

In conclusion, P-value $\leq$ 0.05, the coefficients of regression are statistically significant.

The relationship between the two variables is direct. The active participation of students in courses is influenced by practicing the active learning in seminars in a great proportion (68%). The model is valid with a significance level of 0.05; being active during the seminars activities will shape the behaviour of being active in courses, too, as a natural approach for any class activity.

4.3.2. Preparing group projects

To test the hypothesis *H_2 - The active involvement in preparing group projects (AIG) is positively related to the team work assignments in seminars (TAS),* a regression model is used. The result of single variable regression model is the following equation:

AIG = 0.81 + 0.82 TAS

The coefficients of the regression equation are statistically significant (P-value $\leq$0.05). The intensity of the relationship between the two variables of the model used is measured by a multiple correlation ratio equal to 0.85; there is a direct relationship between variables, from medium to high intensity. The independent variable explains 72% of variation in active engagement of students on group projects, the difference of 28% representing the influence of other factors. The model that captures the relation between the two variables is valid, with a significance level of 0.05 (Significance F $\leq$ 0.05).

Students who have to prepare group projects were active involved in their preparation, which is an emblem of maturity and commitment.

The main conclusion of the regression model is that team work assignments during the seminars activities is influencing in a significant way (by 72%) the active implication of master students in preparing the group projects.

The coefficients of regression models are summarized below:

Table 7. **Parameters of regression models**

HYPOTHESES	**H1**	**H2**
Coefficient of determination	0.68	0.72
Coefficient of correlation	0.82	0.85
Fisher Test	273.35	332.98
Regression coefficients		
Intercept	0.27	0.81
Coefficient of regression	0.76	0.82

(*Source:* Authors, based on the survey*)*

5. Conclusions

Our research goal is to identify if master students are engaged in learning during master programme by analysing hours allocated to attending and active participating in classes, self-study, work in teams for projects, essay and other assignments. Contemporary studies in modern education area (Pargaru, 2009; Patil, 2012; Stosic, 2015; Fogarty *et al.*, 2016; Diaz, 2016) focus on ability to collaborate, work in teams; ability to use technology; chance to learn about new career opportunities; critical thinking skills; oral presentation skills and written communication skills.

The research focused on activities in class and outside the class and how students accomplish their team projects and assignments; the paper concentrates on four topics considered relevant for our goals:

a. Attendance in scheduled course and seminar activities
b. Work on case studies, essays, projects and other assignments outside of class
c. Active participation to courses and seminars
d. Preparing group projects

The findings of the study based on the methodology applied are as follows:

- The second year students of master program are not interested in attending the scheduled courses and seminars;
- Both categories of students (first and second year) are not interested in work on case studies, essays, projects and other assignments outside of scheduled activities;
- Active participation style from seminars significantly influences the active participation style in courses; and
- Team work assignments at seminars influences the active involvement of students in group projects.

Attendance in courses and seminars activities varies between the first and the second year and the reasons may be different: although, both categories of students are active on labour market, the first year students are not content about theoretical approaches of teachers, and the second year students are preparing their graduation papers.

Students use only 38% of compulsory time established by syllabuses to solve case studies or other assignments; reasons that can explain the value of this indicator may be: either students are not committed to academic and they treat homework superficially or professors did not use proper teaching methods to determine and inspire students to do home assignment or they don’t set tasks as many as written in syllabuses or jobs are more important than learning.

Students are reluctant to be active during courses and seminars and they not initiate discussions or questioning topics. A regression model is used to disclose that active participation in course activity significantly depends on active participation during seminars.

Team project activity is the central key in developing behaviour and acceptance attitude for future at workplace. Communication skills and collaborative assertiveness may create a solid background for foreseen projects at workplace. The regression model discloses that students are reasonably involved, but they are not challenged in doing group projects, leading to the assumption that professors should construct their teaching syllabuses adding team projects.

The findings of research are consistent with conclusions of Astin (1984) and Axelson and Flick (2011) which state that highly involved student generally dedicate a large amount of time and energy towards studying, are active in student organizations, spend a large amount of time on campus, and frequently engaged and interacted with faculty members and other students.

The limits of research refer to: firstly, the surveys almost always carry the risk of selection bias. It is possible that students with relatively high levels of engagement may have chosen to complete the survey, thereby skewing results in the direction of greater engagement than actually exists and vice-versa. Self-reported data also carry certain risks of misperception and confusions; in this case, may be related to the ways in which students perceive the questions and how assess the value reported. Secondly, the research has only focused on some of master programmes organized by Accounting and Management Information Systems during academic year 2016-2017.

The future research will attempt is to distribute the questionnaire to the students that are currently in the first year of master program and to all students registered in all master programs organized by Accounting and Management Information Systems faculty and to continue with next cohorts in order to develop a consistent and reliable data base for future robust researches.

To go over the main points, our research is proving an overview about master students’ engagement in academic activities and extra-curriculum activities; being full – time employee, they reschedule learning activities and try to focus only on immediate benefits; this is consistent with NSSE Report findings (2006) which emphasized that, part-time students who are working had less contact with faculty and participated less in active and collaborative learning activities and enriching educational experiences.

Altogether, the professors involved in master programs should redesign their teaching methods by adding group projects, cases based on practice and questioning topics to boost student interest in active participation and continuous learning.

References

Astin, A.W. (1999) "Student involvement: A developmental theory for higher education", *Journal of College Student Development*, vol. 40, no: 518-529

Axelson, R.D. & Flick, A. (2011) "Defining student engagement", *Change*, 38-43, Available on-line at www.changemag.org, http://nur655sect2jan12teama.pbworks.com/w/file/fetch/50933853/defining%20student%20engagement.pdf, accessed 23 January, 2017

Botezat, E.A. (2013) "Managing change in economic education through learning by doing program (Practeam)" Analele Universității din Oradea - Științe Economice, 2: 561-571

Brandabur, R.E. & Aldea, R.E. (2012) "Perception of e-learning among university students" *Analele Universităţii Ovidius. Seria Ştiinţe Economice, XII* (2): 632-636

Burlacu, S. (2011) "Characteristics of knowledge-based economy and new technologies in education" *Administrație și Management Public*, no. 16: 114-119

Caruso, H.M. & Wooley, A.W. (2008) "Harnessing the power of emergent interdependence to promote diverse team collaboration", *Diversity and Groups*, vol. 1: 1245-1266

Cerghit, I. (2008) *Metode de învăţământ*, Iasi: Polirom

Chickering, A.W. & Gamson, Z.F. (1987) "Seven Principles for Good Practice in Undergraduate Education", Available on-line at: http://files.eric.ed.gov/fulltext/ED282491.pdf, accessed 23 January, 2017

Ciuhureanu, A.T., Gorski, H. & Balteş, N. (2011) "Study on the needs of competencies and abilities for the graduates' adaptation to the requirements of the labour market in the context of Europe 2020 strategy" *Annals of the University of Petroșani – Economics*, 11(III): 35-46

Diaz, M.C. (2016) "Assembling the opinion: An active learning exercise for audit students", *Journal of Accounting Education*, no. 34: 30-40

Dodescu, A.O., Hatos, R.E., Borza, A.F. & Săveanu, T.G. (2013) "The Practeam Model regarding school to active life transition. Students' expectancies" *Analele Universităţii din Oradea - Ştiinţe Economice*, 1: 455-464

Dodescu, A., Pop Cohuț, I. & Borza, A. (2011) "The integration of young economists on the labour market. The profession option – a decision for career and for a lifestyle" *Analele Universităţii din Oradea - Ştiinţe Economice*, 1: 179-185

Ekimova, V. & Kokurin, A. (2015) Students' Attitudes Towards Different Team Building Methods, *Procedia - Social and Behavioral Sciences*, no. 186: 847 – 855

Eliasa, E.I., (2014) "Increasing values of teamwork and responsibility of the students through games: integrating education character", *Lectures Procedia - Social and Behavioural Sciences*, no. 123: 196 – 203

Fogarty, T.J., Zimmerman, A.B. & Richardson V.J., (2016). "What do we mean by accounting program quality? A decomposition of accounting faculty opinions", *Journal of Accounting Education*, no. 36: 16-42

Hatos, R. (2011) "A possible model for analyzing the practical needs of students in economics-Practeam model", *Analele Universităţii din Oradea - Ştiinţe Economice*, no. 1, 201-205

Healey, M., Flint, A. & Harrington, K., (2014), "Engagement through partnership: students as partners in learning and teaching in higher education", Available on-line at: www.heacademy.ac.uk/students-as-partners

Herlo, D. (2011) "E-learning tools for teaching and learning" *Educația Plus*, VII (2): 110-115

Herlo, D. (2012) "E-learning tools for teaching and learning-II part" *Educația Plus*, VIII (1): 15-19

Ionescu, I.M., Ionescu, B.Ș, Mihai, F. & Tudoran, L. (2012) "Improving the learning methodology for the higher accounting education in Romania" *Analele Universității din Craiova, Seria Științe Economice*, vol. 2. Available on-line at: http://feaa.ucv.ro/annals/v2_2012/art2.pdf, accessed 23 January, 2017

Krause, K. & Coates, H. (2008) "Students' Engagement in First-Year University", *Assessment and Evaluation in Higher Education*, no. 33 (5): 493–505

Kuh, G.D. (2007) "How to Help Students Achieve", *Chronicle of Higher Education*, no. 53 (41): B12–13

Laberge, R.P. (2013) "Teamwork in crossdisciplinarity", *Procedia - Social and Behavioural Sciences*, no. 106: 2566 – 2574

Lizzio, A. & Wilson, K. (2009) "Student Participation in University Governance: The Role Conceptions and Sense of Efficacy of Student Representatives on Departmental Committees", *Studies in Higher Education*, no. 34 (1): 69–84

Mandušić, D., & Blašković, L. (2012) "Strategy for evaluation and selection of systems for Electronic learning" *Analele Universității Constantin Brâncuși din Târgu-Jiu, Seria Economice*, vol. II, no. 4: 69-72

Mannix, E., & Neale, M.A. (2005) "What differences make a difference? The promise and reality of diverse teams in organizations", *Psychological Science in the Public Interest*, no. 6(2): 31-55

Mihai, F., Stanciu, A. & Aleca, O. (2011) "Changing learning environment through technology", *Annales Universitatis Apulensis Series Oeconomica*, vol. I, no. 13: 48-56

Miţariu, C.A. (2012) "A mix beyond time: e-learning and socrate's maieutics" *Anale. Seria Stiinte Economice. Timișoara*, *XVIII* (Supplement): 95-102

Negrut, V., Pavel, C., & Negrut, L. (2012) "E-learning - an alternative to traditional education" *Analele Universităţii Ovidius. Seria Ştiinţe Economice*, vol. XII (2): 463-467.

Păcuraru, R.O. (2011) "Learning in a virtual university" *Analele Universităţii Ovidius. Seria Ştiinţe Economice*, vol. XI (1). Available on-line at: http://stec.univ-ovidius.ro/html/anale/RO/cuprins%20rezumate/rezumate2011p1.pdf, accessed 23 January, 2017

Păcuraru, R.O., & Grecu, I. (2013) "Using blackboard learn to develop educational materials" *Analele Universităţii Ovidius. Seria Ştiinţe Economice*, vol. XIII (1): 605-610.

Pârgaru, I., Gherghina, R., Duca, I. (2009), "The role of education in the knowledge-based society during the economic crisis", *Annales Universitatis Apulensis Series Oeconomica*, vol. 2, no. 11, Available on-line at: http://www.oeconomica.uab.ro/upload/lucrari/1120092/04.pdf, accessed 23 January, 2017

Patil, N.P. (2012), "Role of education in social change", *International Educational E-Journal*, Vol. I, Issue II: 205-210

Plăiaş, I., Pop, C.M., Dabija, D.C. & Băbuț, R. (2011) "Competences acquired by graduates through marketing higher education – findings from the employers' perspective" *Analele Universității din Oradea - Științe Economice*, no. 2: 762-769

Săveanu, T.G. & Săveanu, S.M. (2012) "School engagement, work values and students training for the labour market" *Analele Universității din Oradea - Științe Economice*, no. 1: 414-420

Soyemi, J., Ogunyinka, O.I. & Soyemi, O.B. (2012) "Integrating self-paced e-learning with conventional classroom learning in Nigeria educational system", *Educația Plus*, vol. VIII (1): 195-203

Stosic, L. (2015) "The importance of educational technology in teaching", *International Journal of Cognitive Research in Science, Engineering and Education*, vol. 3, no.1: 111-114

Trower, V. (2010) "Student engagement literature review", *The Higher Education Academy*, Department of Educational Research Lancaster University, Available on-line at: https://www.heacademy.ac.uk/system/files/studentengagementliteraturereview_1.pdf, accessed 23 January, 2017

Țugui, A. (2011) "Educational technologies oriented towards calm technologies" *Analele Științifice ale Universității Alexandru Ioan Cuza Iași - Secțiunea Ştiințe Economice*, Special Issue: 279-285

Veiga, H.F., Reeve, J., Bahía, S., Galvão, D., Tagarro, M. & Forno, L. (2014) "Students' Engagement in School: International Perspectives of Psychology and Education", *International Perspectives of Psychology and Education*. Lisboa: Instituto de Educação da Universidade de Lisboa, Available online http://repositorio.ul.pt/bitstream/10451/18036/1/E-Book_ICIEAE_assessing%20students%20engagement.pdf, accessed 23 January, 2017

Yazzie-Mintz, E. (2010) "Charting the path from engagement to achievement: A report on the 2009 high school survey of student engagement", Bloomington, IN: Center for evaluation and education policy. Available on-line at: http://ceep.indiana.edu, accessed 23 January, 2017

*** NSSE National Survey of Student Engagement, USA and Canada, Available on-line at: http://nsse.iub.edu, accessed 23 January, 2017

*** HEA (2014) "Students as Partners", Available on-line at: www.heacademy.ac.uk/students-as-partners, accessed 23 January, 2017

Appendix 1. **Number of hours allocated for self-study**

Semester	Master program	Total hours (teaching and self-study)	Courses (no of hours/semester)	Seminars (no of hours/semester)	Self – study	
					TOTAL, out of which	preparing seminars, homework, assignments, essays/semester
Year 1, Semester 1	Accounting and taxation of economic entities	750	140	84	526	112 (21.29%)
Year 1, Semester 2		750	140	112	498	69 (13.85%)
Year 2, Semester 1		750	112	70	568	120 (21.11%)
Year 1, Semester 1	Accounting, Control and Expertise	750	140	84	526	178 (33.84%)
Year 1, Semester 2		750	140	84	526	170 (32.31%)
Year 2, Semester 1		750	112	84	554	124 (23.57%)
Year 1, Semester 1	Financial Analysis and Evaluation	750	112	84	554	143 (49.38%)

(*Source*: Authors, based on syllabuses)

The motivations of choosing accountancy as a profession in Romania

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Abstract: *As nowadays accountancy is a profession in evolution in Romania, the necessity of a complete study of the profession has arisen. The accounting system "went through complex accounting reforms of more than two decades" (Mustață et al., 2011) so, very important challenges have been inevitably attempted to the profession. Quite new as a profession on the Romanian market-based economy, less than 3 decades, since 1989 when the private property has been authorized by the new formed state, after fifty years of communism, it seems that a social identity is established by accountant professionals. This paper aims to examine the motivations of choosing accountancy as profession in Romania. The study uses a survey based approach. In the first part, this work is a review of the most relevant literature of the past 7 years. The second part is the result of data analises that were collected via questionnaires. Overall, the paper supports the view that the most important group of factors regroups the intellectual motivations in choosing the accountancy career: intelligence, intellectual satisfactions, wide possibilities for further professional developments. The results from this paper are expected to contribute to the evolution of the profession by providing key elements in understanding which are the driving forces behind the professional accountants' results.*

Keywords*: Accountancy, accountant, career, motivation*

1. Introduction

This paper explores the motivation of choosing the accountancy as a profession in the context of Romania, a former communist country. "1989 represented the starting point for an extremely difficult and complex process and reforms, affecting multiple areas of the economic activity, including accounting" (Filip and Raffournier, 2010: 84) cited in (Mustață *et al*., 2011). In the last decades, the accounting system "went through complex accounting reforms of more than two decades" (Mustață *et al*., 2011). In this context, accounting professionals are considered "an important factor in the evolution of the Romanian accounting system" (Mustață *et al*., 2011).

I used quantitative and qualitative studies:

a. the review of the Romanian and international literature of the past 7 years; even if the Romanian literature lacks such studies, I still found some studies that gave us already some indications, even if not specifically regarding the motivations. The international literature seemed more furnished with papers researching the perceptions of the profession between the students and sometimes professionals;

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b. the survey of 237 students and professionals in order to uncover their motivations in selecting accounting as a profession.

The data was obtained via questionnaires completed by accounting students undertaking accounting courses both for Bachelor’s Degree or Master Courses and accounting professionals belonging to different Branches of The Body of Expert and Licensed Accountants of Romania. The data was collected at the beginning of 2017 and includes demographic data and measures of the motivation in choosing accountancy profession in seven areas: education, personal, financial, social, intellectual, relational and creative.

The research indicates that, overall the respondents consider the intellectual motivations as the most important group of factors: intelligence, intellectual satisfactions, wide possibilities for further professional developments resulted to be the main motivations for choosing the accountancy profession. Relational and financial variables were scored on the next places as motivations for the accountancy career.

The study is organized as follows: a short introduction in the profession history is followed by the description of the research method and the literature review. The data collected via questionnaires are analysed further on.

2. Literature review

2.1. Motivations for choosing accountancy as a profession at the international level

The image of the accounting profession and how new members are attracted represent a topic of interest for different researchers in countries all over the world (Albu *et al*. 2014; McDowall and Jackling, 2010). Some authors underline that the image (or stereotype) held by prospective members influences their decision (Holland, 1966; 1973, cited in McDowall and Jackling, 2010). Other studies investigate other factors associated with the decision of selecting the profession, such as material benefits (Sugahara *et al*. 2009). Most of the studies conducted in this area utilize data collected through surveys.

For example, McDowall and Jackling (2010) survey 131 Australian and international undergraduate students (74 females and 57 males; 74.4 % were international students). Their results confirm the findings from previous studies that the accounting profession is well-respected, enjoyable for themselves as a career and that studying accounting is pleasant. The attitude towards accounting was measured on a 10-point Likert scale and the mean values were higher than 7.50 for most of the dimensions investigated. The comparison between the two groups of students reveals that local students are more appreciative regarding the profession than the international students. The most representative difference regards the attitude towards the profession, mirrored in the means given to the following affirmations: “accounting is a profession, on par with medicine and law”, “accountants are number-crunchers; they seldom work with people”

The responses did not reveal significant differences by gender except the higher female students score (7.43) than male students score (6.39) regarding the item “accountancy is a profession on a par with medicine or law”.

Another study, developed in Australia by Andon *et al.* (2010), investigate through the personality preferences of accounting and non-accounting graduates the preference in seeking to enter the profession.

The research was conducted using an updated version of a questionnaire developed using a Jungian theory, the MBTI with high validity and reliability. The sample was formed by 100 postgraduate students of Masters of Professional Accounting Program which consciously changed their career from non-accounting to accounting and 93 undergraduate students in accountancy.

The study shows that the common aspect between the accounting and non-accounting graduates who access the accounting profession are the personality preferences that have been classified in 16 types. For example, thinking and judgement was preferred by 35.1% of the non-accounting group and 38.8% of the accounting students group. The first group revealed to base their decisions on “logic and impersonal analyses of cause and effect” while the accounting group seems to choose more technical methods of decision making.

Dalton *et al*. (2014) studied the factors influencing both American students and professionals in pursuing tax rather than audit career. “To our knowledge, this is the first study to examine the fundamentally important audit-tax career decision” (Dalton *et al*., 2014).

In order to reach the results, the study uses a belief elicitation procedure and a theoretical framework, The Theory of Planned Behaviour (TPB), in order to predict various behaviours. The study developed in two different stages: one regarding the student survey and one regarding the practicing professionals survey.

As advantages of the approaches for tax the students appreciated less travel, stable daily routine, help clients to save money, develop specialized skills in quite equal percentages from 22 to 29 and for audit travel opportunities (69 percent), more clients’ interaction (57 percent) and better future job opportunities (53 percent). Despite the students’ opinions, the professionals “disagreed that auditors have more opportunities for client interaction”.

Further studies developed in Greece (Manganaris and Spathis, 2015), studied the relationship between students’ perceptions about courses in accounting and interest in accounting profession. In this purpose, the surveys were conducted on students attending introductory accounting courses at the beginning and at the end of the semester. A number of 500 students were enrolled, and 231 questionnaires were considered representative to the research.

The research used two questionnaires handed out in the two periods and “certain statements of the second questionnaire were reworded appropriately to reflect past tense” (Geiger and Ogilby, 2000) cited in Manganaris and Spathis (2015). The first questionnaire contains 11 statements and the answers were valuated with a five-point

Likert scale. The sample was 54.8% female and the results show that except one item "look/enjoy" the perceptions of the students about the introductory accounting courses do not change by the end of the semester. Also, students not interested in accounting resulted more satisfied with the acknowledgments achieved during the courses than the ones that were interested in accounting in first place and "had stronger stereotypical views (…) than those who were interested in accounting".

The results of this paper suggest that the image of the profession diminished especially for the group not interested in accountancy.

Further studies research similarities and differences than Malaysian and English students have about the perception of the accounting profession and their intentions to follow the accounting career (Germanou *et al.*, 2009).

The data have been collected by administrating questionnaires to both groups, students attending their last year of study. The questionnaire proposed 52 questions on a five point Likert scale regarding attributes of the profession and 5 items regarding the intention to follow the profession.

The study shows that there is a strong relation between the perceptions of different attributes of the profession and the choice of the career. Particularly, the attributes intrinsic and social, were found to relate with the English students' intentions to pursue the career and all four categories (extrinsic, intrinsic, prestige and social) were related significantly to the Malaysian students' intention to follow accountancy as career (Germanou *et al.*, 2009).

English students are more into "economic benefits" and "contribution to well-being of society", while Malaysian perceived the profession for "job security, advancement and an interesting job", accordingly to Auyeung and Sands (1997) and Tan and Laswad (2006).

The research findings clearly demonstrate that the fingerprint of "educational life, business-economic conditions and socio-political system" speaks through students' perceptions about accounting profession.

The purpose of the following study is to reveal the factors who have a great impact on Malaysian students (male and female) concerning the intention to enrol accounting programs. There are three dimensions analysed: "attitudes toward choosing the program, subjective norm and amount of information on accounting" (Zandi *et al.*, 2013).

The data were collected using a questionnaire on a sample of 400 male and female students in International Islamic University Malaysia and Tunku Abdu Rahman College in Malaysia.

In this findings, Zandi *et al.* (2013), the author shows that "attitude and subjective norm" have highest role on "behavioural intention on both males and females". The amount of information on accounting have important effect on males but not on females.

The intelligence in the students' perception acquired from accounting information can help them "to make more informed decisions" with the career which "can affect their job satisfaction and quality of life" (Zandi *et al*., 2013).

Sugahara and Boland (2006) "investigate tertiary business students' perceptions of becoming a CPA" in Japan and how these perceptions might influence their career choices. The study was developed as the unpopularity of the profession in Japan became problematic and aims to inspire educators and CPA to reconsider the accounting market as profession.

Different studies like Obata (2006) revealed that "lower economic benefit may discourage students" from being a CPA and Tamaki (2005) argues that low job vacancies might be one of the reasons of the reduction of CPA candidature. As a reform of the system, in Japan, anyone can attempt the CPA exam and as long as they pass it, they can practice as the professionals.

The findings from this research were collected by questionnaires from 200 universities from Japan completed by students from graduate and undergraduate levels.

One of the most important skills for the CPA resulted to be the communication skill which was considered less important by the non accouting students that tend to miss understand the nature of the profession and might for this reason disconsider the career (Sugahara and Boland, 2006).

The study indicates that one of the major factor influencing the student's career choice are the professional practicioners which in different states like Australia are hosting "several functions per year where students are invited to join up as social members and they can network with practitioners" (Sugahara and Boland, 2006).

The study revealed more positive perceptions about the CPA career in accounting students compared to non-accounting students (Sugahara and Boland, 2006).

A further study, Sugahara *et al*. (2009) used a sample of 349 students from 13 accounting schools in Japan. The sample was divided in two categories of students: those who want a CPA career and those who only intend to "brush up on their accounting skills" but do not have the intention to enter the profession.

Since the beginning of the 21 century, the conditions for becoming an accountant in Japan have changed from the mandatory competitive exams "based on technical knowledge requiring mechanical memorizations" to the new accounting educational method of Accounting School Institute which "aims to attract and educate as many CPA candidates as possible from a wide variety of backgrounds and personalities and who have developed certain levels of well-balanced generic competencies".

Using Saemann and Crooker (1999) model, with different labels i.e. work experience (students with no work experience, students that have previously worked in the past and students working in the present) the study shows that students who work presently were more reluctant to become a CPA.

The study shows that non-CPA students tend to avoid its opportunity costs more than CPA students, which are encouraged by their will in pursuing the career regardless the costs. The results show that neither the age or gender of the students did not influence their choice of the profession.

The study also revealed that interest is the only important factor who pursue student's perception about CPA accounting career, among structure and solitary work environment.

2.2. Accountancy profession in Romania – an overview

Even if the research revealed a scarcity of topics regarding the motivation of choosing the accountancy as profession, the study conducted by Albu *et al*. (2014) has examined the factors influencing the student's perceptions about the role of accountancy as profession. For example, Albu ***et al.*** (2014), investigate on a sample of 50 students attending the second year of Master Course within the Accounting Faculty of Bucharest, Academy of Economic Studies, both the role and professional skills of the accountants as profession and their actual perceptions about the profession and motivations in choosing accountancy as profession. Using the Likert scale, the study shows that the perception of the students is that the most important roles that the accountants are covering are financial reporting and financial administration and attribute less importance to the role of "consultant" or "analyst for the management".

Further developments of the analyse the authors made, confirm that the most important role of the accountant is the traditional one, related to "the area of the financial and fiscal reporting", followed by the strategical and organizational support that they provide to the companies.

Regarding the motivation in choosing the accountancy as career, the respondents consider as first argument "the importance of the profession in the society" followed by "intellectual satisfactions" and the third "financial satisfactions".

3. Results

3.1. Research approach. Data collection

The data elaborated in this study was obtained via questionnaires completed by accounting students and accounting professionals. The questionnaire is composed by two sections, the first one contains demographic questions related to different characteristic of the respondents like gender, age, place of residence and experience; the second section contains questions about the motivation in choosing accountancy profession in seven areas: education, personal, financial, social, intellectual, relational and creative.

Respondents were asked to rate on a 5-point Likert scale (from 1 "strongly disagree" to 5 "agree") seven sets of questions divided per seven areas, 21 questions in total, related to main factors determinants in choosing accountancy as career: educational factors, personal factors, financial factors, social factors, intellectual factors, relational and creative factors.

The questionnaires were filled in the first months of 2017 and were delivered on line using Google Forms and on paper. In case of the students I used to deliver the questionnaires during accountancy classes and for the professionals during courses and various meetings of The Body of Expert and Licensed Accountants of Romania, CECCAR. I distribute a total of 248 questionnaires and 11 were discarded as were incomplete and too many answers were missing.

Two demographical questions and relative answers were eliminated from the questionnaire as were not considered eloquent for the purpose of the study. One hierarchy question regarding the profession was also eliminated as the answers could not be validated. A total of 237 questionnaires were used in order to elaborate the data in this paper.

The first sample contains 112 students undertaking accounting courses both for Bachelor's Degree or Master Courses. The students attended Bucharest Academy of Economic Studies, București, Romania courses were 52 and the students attending Ovidus University in Constanța Romania courses were 60. The second sample contains 125 professionals belonging to The Body of Expert and Licensed Accountants of Romania, CECCAR. From this sample, 18 professionals are belonging to the Bucharest Branch of the Body and 107 to other Branches in Romania of the same Body. The demographic data are shown in Table 1.

Table 1. **Demographic Data**

	Students	**N%**	**Professionals**	**N%**	**Total**	**N (%)**
Gender						
Male	11	9.82	48	38.40	59	24.89
Female	101	90.18	77	61.6	178	75.11
Total	**112**		**125**		**237**	
Residence						
Bucharest	52	46.43	18	14.40	70	29.54
National	60	53.57	107	85.60	167	70.4
Total	**112**		**125**		**237**	

(*Source*: Author's processing)

Table 2 shows that the respondents have on average 25 years experience median 3 with 9.49 mean and their age is between 20 and 83 years old, median 31 and a mean of 35.54.

Table 2. **Quantitative Data**

	Minimum	**Maximum**	**Median**	**Mean**
Experience	0	50	3	9.49
Age	20	83	31	35.54

(*Source*: Author's processing)

3.2. Data analysis techniques and results

In order to interpret the respondents' motivation in choosing the profession, the answers were analysed with descriptive statistics. To perform eloquent comparisons, the sample was divided by type of the respondents in students and professionals and by gender in male and female. Non parametric tests were used to determine differences in mean motivations in choosing the profession between students and professionals and between male and female.

Table 3. **Mean scores - motivations in choosing accountancy as profession**

VARIABLES	MEAN	MED.	SD
INTELLECTUAL_INTELLICENCE	4.008	4.000	1.228
INTELLECTUAL_SATISFACTIONS	3.916	4.000	1.183
INTELLECTUAL_SPECIALIZATION	3.848	4.000	1.198
INTELLECTUAL_MEMORISATION	3.489	4.000	1.209
INTELLECTUAL_ROUTINE	2.924	3.000	1.293
INTELLECTUAL_AVERAGE	3.637	3.800	0.846
RELATIONAL_COMMUNICATION	3.561	4.000	1.232
RELATIONAL_TEAM	3.637	4.000	1.155
RELATIONAL_COMFORT	3.650	4.000	1.081
RELATIONAL_AVERAGE	3.616	3.667	0.929
FINANCIAL_SATISFACTION	3.481	3.000	1.072
FINANCIAL_JOB	3.688	4.000	1.195
FINANCIAL_INTEGRATION	3.641	4.000	1.208
FINANCIAL_AVERAGE	3.603	3,667	0.990
SOCIAL_RESPECT	3.540	4.000	1.195
SOCIAL_BENEFITS	3.582	4.000	1.175
SOCIAL_AVERAGE	3.561	4,000	1.053
PERSONAL_TEACHERS	3.025	3.000	1.292
PERSONAL_PROFESSIONALS	3.030	3.000	1.668
PERSONAL_FRIENDS	2.295	2.000	1.422
PERSONAL_SKILLS	4.000	5.000	1.279
PERSONAL_AVERAGE	3.088	3.000	0.798
EDUCATIONAL_ACCESS	2.506	2.000	1.377
EDUCATIONAL_EXAMS	2.186	2.000	1.228
EDUCATIONAL_COSTS	2.338	2.000	1.247
EDUCATIONAL_AVERAGE	2.343	2.333	1.117

(*Source*: Author's processing)

The results in Table 3 shows that the most important group of factors regroups the intellectual motivations for selecting the accounting profession. In order to analyse the intellectual motivations, 5 variables were identified as relevant in choosing the profession: intelligence, intellectual satisfactions, wide possibilities for further professional developments, rule-memorizing, routine. The highest mean score (4.008) was obtained by the intelligence factor which resulted to be the most important factor in choosing accountancy as profession both for the intellectual variables then for all variables analysed in this study. This result is consistent with the results of another study conducted by Sugahara and Boland (2006) showing that the ranked mean of accounting students regarding the affirmation that "AP challenges you intellectually" is 4.33. The other variables resulted to be motivating in choosing the profession and the mean scores are: 3.916, 3.848, 3.489. Lower than the average was considered the routine variable which was mean scored at 3.924.

On the second place of importance are the relational plan factors; three variables were identified: interactional perspectives and communication, team working and work conditions (comfort). The working comfort registered the higher mean score (3.650) and both communication (3.561) and team working (3.637) obtained a score that classifies them as eligible variables for motivating factors. The importance of this factor is in line with the results of previous studies like Sugahara and Boland (2006), showing that the mean score ranked by the Japanese accounting students regarding the perceived skills needed for success in accouting profession, like “excellent communication skills” was 4.66, ranked on the fourth place from a top 10 of skills. The result is not in line with the conclusions of a study made on Malaysian sample that scored the work conditions of the accoutants at a 2.70 mean (Germanou *et al*., 2009).

The questions regarding the choice of the profession from a financial point of view, were related to arguments like: the economic benefits, the job security and opportunities. This group of motivating factors resulted to be the third classified. The mean scores 3.481, 3.688, 3.641 show that the financial aspects of the profession are motivating in choosing accountancy as profession. This is consistent with the results of an examination made on Malaysian and English students that mean ranked the Economic benefits at 3.42 (Germanou *et al*., 2009).

In the educational plan, three questions have been addressed to the respondents asking to evaluate the difficulty of the access exams, of the graduation exams, and the costs that the accounting studies involve. The value of the mean shows that the respondents disagree on the fact that they’ve chosen the profession because the exams were easy and the costs were low. The average of the mean 2.343 confirms that this motivation cannot be considered. This is not consistent with the Japanese accounting students’ perceptions analysed in a similar study that ranked the “opportunity costs” with a mean between 4.39 (It costs a lot of money to become CPA) and 4.67 (It requires difficult entry qualification).

In the personal plan, I asked the respondents to scale motivations of choosing the profession like the teachers’ appreciations, known professionals as models, choice made in the group of friends or personal skills. The respondents disagreed with the fact that the motivation of choosing the profession was a “peer choice”, with a mean score of 2.295. This result is consistent with the conclusions of the study about the attitudes towards the accounting profession (McDowall and Jackling, 2010). The respondents, Australian students, were asked to score different questions regarding the profession and the mean score registered by the question “My peers would think I made a good career decision if I became an accountant” was 6.41, SD 2.12. Personal skills were considered to be the most important motivation from this set of questions (mean 4.000) followed by the teachers’ appreciations (mean 3.025) and by the professionals’ models (mean 3.030).

Regarding the social plan, the respondents were asked to score two aspects in choosing accountancy as profession: accountancy is a well-respected profession that offers an important position in the society and that accountants contribute with benefits to the society. The mean scores 3.540 and 3.582 shows that we can consider the social aspects as motivating factor for choosing the profession. This is consistent with the mean score (3.19) of variable “Contribution for the society” suggested in a study completed by Germanou *et al*. (2009).

Creativity was scored 3.160, still motivating but at a lower mean then the other variables. The creativity skills have been analysed also in other studies like Hermanson *et al*. (1995) as important factors for a successful career in accountancy, that have been emphasized by the accounting students.

3.3 Gender differences in choosing accountancy as profession; differences between students and professionals motivations for accountancy career.

Table 4. **Identifying differences between men and women & between students and professionals' motivations**

VARIABLES	GENDER		TYPE	
	S 1 G	S 2 G	S 1 T	S 2 T
EDUCATIONAL_ACCESS	2.525	2.500	2.571	2.448
EDUCATIONAL_EXAMS	2.458	2.095*	2.036	2.320
EDUCATIONAL_COSTS	2.576	2.258*	2.277	2.392
EDUCATIONAL_AVERAGE	2.520	2.290	2.295	2.387
PERSONAL_TEACHERS	3.034	3.022	2.946	3.096
PERSONAL_PROFESSION	3.271	2.949	2.696	3.328***
PERSONAL_FRIENDS	2.627	2.185**	2.018	2.544***
PERSONAL_SKILLS	4.271	3.910*	4.036	3.968
PERSONAL_AVERAGE	3.301	3.017***	2.924	3.234***
FINANCE_SATISFACTION	3.508	3.472	3.580	3.392
FINANCE_JOB	3.644	3.702	3.786	3.600
FINANCE_INTEGRATION	3.780	3.596	3.741	3.552
FINANCIAL_AVERAGE	3.644	3.590	3.702	3.515
SOCIAL_RESPECT	3.373	3.596	3.616	3.472
SOCIAL_BENEFITS	3.763	3.522	3.482	3.672
SOCIAL_AVERAGE	3.568	3.559	3.549	3.572
INTELLECTUAL_INTELLICENCE	4.119	3.972	4.080	3.944
INTELLECTUAL_SATISFACTIONS	4.017	3.882	4.000	3.840
INTELLECTUAL_SPECIALIZATION	4.102	3.764*	3.813	3.880
INTELLECTUAL_MEMORISATION	3.593	3.455	3.563	3.424
INTELLECTUAL_ROUTINE	2.983	2.904	3.125	2.744**
INTELLECTUAL_AVERAGE	3.763	3.596	3.716	3.566
RELATIONAL_COMMUNICATION	3.814	3.478**	3.196	3.888***
RELATIONAL_TEAM	3.780	3.590	3.482	3.776**
RELATIONAL_COMFORT	3.814	3.596	3.696	3.608
RELATIONAL_AVERAGE	3.802	3.554*	3.458	3.757**
CREATIVITY	3.407	3.079*	2.866	3.424***
CREATIVITY_AVERAGE	3.407	3.079*	2.866	3.424***

(*Source*: Author's processing)

In order to identify the differences between men and women and between students' and professionals' motivations in choosing accountancy as profession, I divided the main sample using the gender criteria and the type criteria.

After applying the gender criteria to the main sample, I obtained two samples: the first one is composed of 58 male divided in 11 students and 48 professionals and the second sample composed by 178 women divided in 101 students and 77 professionals.

Non parametric tests have been applied to both samples, for each variable representing a motivation for choosing the accountancy career. I used the two sample comparison of variances function, setting the signifiance level at 10% (alpha 0.1). I obtained the p-values using the Mann-Whitney test. The data obtained are shown in table 4.

Men and women have statistically significant differences only for a few factors, that obtained a p-value score less then 0.1: the difficulty of the exams (2.095) and the opportunity costs (2.258), personal skills (3.910), future development opportunities (3.764) and creativity (3.079). In all cases, these factors represented a lower motivation for women than for men.

The analyze made by appying the type criteria diveded the respondents in two samples containing 112 students and 125 professionals. The descriptive statistics shows that 66.07% of the students have no experience and that the professionals have experience between 0 and 50 years, with a mean of 17.416, median 15. Four of the professionals respondents have no experience.

Statistically medium significant differences between students and professionals motivations in choosing accoutancy as career have been obtained only for the following factors, with a p-value score less than 0.05: the routine of the profession wich resulted lower motivation for professionals that for students and working in team that also resulted less important for professionals than for students.

4. Conclusions

To my knowledge, this research is the first one interrogating on the motivations that drives students and professionals in choosing the accountancy career in Romania. Thoroughgoing study to be elaborated in the next period are aiming to investigate further characteristics about the profession and professionals' profiles. The research aims to contribute to the development of the profession offering efficient instruments for improving image and results obtained by the accounting professionals in Romania.

The findings in this study shows that from the seven main factors identified as determinants in choosing accountancy as career - educational factors, personal factors, financial factors, social factors, intellectual factors, relational and creative factors - the most important group of factors regroups the intellectual motivations for selecting the accounting profession. The intelligence factor obtained the highest mean score (4.008), result consistent with the results of another study conducted by Sugahara and Boland (2006).

On the second place of importance are the relational plan factors like interactional perspectives and communication, team working and work conditions (comfort) which registered the higher mean score (3.650) being inconsistent with the conclusions reported by the study conducted by Germanou *et al*. (2009) on Malaysian students.

Variables as economic benefits, job security and opportunities grouped as financial motivations in choosing accountancy as profession, were ranked as third category of motivating factors.

Statistically relevant gender differences were found only for a few factors like the difficulty of the exams and the opportunity costs, personal skills, future development opportunities and creativity that in all cases, represented a lower motivation for women than for men.

Statistically medium significant differences between students and professionals motivations in choosing accoutancy as career have been obtained for the routine of the profession as intellectual factor and working in team, that have been scored as lower motivation for professionals than for students.

References

Albu, N., Feldioreanu, I. A., Drug, R. E., Florea, O. A., Gherge, R. G. & Ghițescu, D. (2014) "Percepția studenților asupra imaginii profesiei contabile în România", ***Contabilitatea, expertiza și auditul afacerilor***, No. 3, March 2014: 5 – 10

Andon, P., Chong, K. M. & Roebuck, P. (2010) "Personality preferences of accounting and non-accounting graduates seeking to enter the accounting profession", *Critical Perspectives on Accounting,* vol. 21: 253-265

Dalton, D. W., Buchheit, S., Jeffrey, J. & McMillan, J. J. (2014) "Audit and Tax Career Paths in Public Accounting: An Analysis of Student and Professional Perceptions", *Accounting Horizons*, Vol. 28, No. 2: 213–231

Germanou, E., Hassall, T. & Tournas, Y. (2009) "Students' perception of accounting profession: Work value approach", *Asian Review of Accounting*, Vol. 17, no. 2: 136 – 148

McDowall, T. & Jackling, B. (2010) "Attitudes towards the accounting profession: An Australian perspective", *Asian Review of Accounting*, Vol. 18 no. 1: 30 – 49

Mustață, R., Fekete, S., Matiș, D. & Bonaci, C. G. (2011) "Motivating accounting professionals in Romania. Analysis after five decades of communist ideology and two decades of accounting harmonization", *Accounting and Management Information Systems*, vol. 10, no. 2:169–201.

Manganaris, P. & Spathis, C. (2015) "Greek Students' Perceptions of an Introductory Accounting Course and the Accounting Profession", *In Advances in Accounting Education: Teaching and Curriculum Innovations*, Published online: 59-85.

Sugahara, S. & Boland, G. (2006) "Perceptions of the certified public accountants by accounting and non-accounting tertiary students in Japan", *Asian Review of Accounting*, vol. 14, no. 1/2: 149-167

Sughara, S., Hiramatsu, K. & Boland, G. (2009) "The factors influencing accounting school students' career intention to become a Certified Public Accountant in Japan", *Asian Review of Accounting*, vol. 17 no. 1: 5-22

Zandi, G., Naysary, B. & Kwan, S. S. (2013) "The behavioral intention of Malaysian students toward accounting discipline", *Accounting and Management Information System*, vol. 12, no. 3: 471-488

PS11 INTEGRATED REPORTING

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Alina Bratu

The materiality matrix – an emerging tool for sustainability performance disclosure

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Abstract:

The purpose of this study is to examine the evolution of sustainability performance disclosure in the context of a global move toward integrated reporting. Our paper adopts a content analysis approach for examining the reports of Coca-Cola Hellenic Bottling Company (Cola-Cola HBC). We analyse the concept of materiality matrix and its use for disclosing the sustainability performance of the company. The results are interpreted in terms of disclosure's changes within the integrated reports, from one year to another, following the research questions identified in the literature review. Our findings validate the idea that companies are starting to think about their current disclosure practice in terms of sustainable strategy, by empowering a two-side perspective of the sustainability performance: company and stakeholders.

Keywords: *Materiality matrix, stakeholder engagement, sustainability performance, integrated reporting.*

1. Introduction

In line with GRI Guidelines (GRI, 2011) and IIRC Framework (IIRC, 2013) the sustainability approach of materiality is not limited only to those topics that have a significant financial impact on the organization. Material topics should relate to the economic, environmental, and social short, medium and long term impacts. Accordingly, the reporting organization should identify its stakeholders and explain how it has responded to their reasonable expectations and interests. Systematic stakeholder engagement enhances the receptivity and the usefulness of the report and the information on sustainability performance should be placed in context (Caraiani *et al.*, 2015).

In this study, we examine current practice in terms of the key concepts that empower the two-side perspective of the sustainability performance: company and stakeholders. We propose a model of analysis that may explain the link between identifying and understanding the material issues, as a basis for sustainability performance disclosure. This model is grounded on the relationship: stakeholder engagement ® material issues ® sustainability performance, that a company could establish by using the materiality matrix. The study responds to our objective of examining the evolution of sustainability performance disclosure on the case of an international company, that adopted the integrated reporting concepts in 2012.

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Research argues (O'Donovan, 2002; Cho and Patten, 2007) that companies which provide social responsibility information are, on average, larger in size, have a higher systematic risk and place stronger emphasis on the long term than companies which do not disclose this information. To respond to a number of three research questions generated by our main objective, a content analysis of a representative company in term of integrated reporting, Coca-Cola HBC, is performed. We base our case study research on the company's integrated reports focusing on the key elements linked to materiality matrix design and disclosure. Thoroughly discussed by Eccles and Krzus (2015:147), the matrix is considered a corporate reporting instrument "used for purposes of external reporting, stakeholder engagement, and resource commitment". The results are analysed in terms of disclosure's extent within the integrated reports, from one year to another, following the research questions identified in the literature review.

Further, interpretation by reference to legitimacy and signalling theories shaped the model the company uses to enhance its sustainability performance reporting from one period to the subsequent. The materiality of business activities signals the entity existence on the market, while the materiality of outcomes and outputs shape the information reported by the entity. *Signalling theory* suggests that organizations may send signals about achieving both financial and non-financial dimensions of sustainability performance when communicate with stakeholders (Razaee, 2017; Dainelli *et al.*, 2013). However, the corporate performance need to be regarded as a rather non-linear concept incorporating projections of past, present and future connected information.

The strategy underlying the business model may generate performance only whether it legitimate stakeholders in relation to their needs and interests. Discussing the organizational legitimacy gained by the IIRC, Dumitru and Gușe (2017:30) argue that "different groups of stakeholders grant different types of legitimacy". Linking the *legitimacy theory* to the sustainability concept, the current integrated reporting trend gained interest due to its variability across corporations and industries, the debate on its various drivers and its potential role as a responsibility and accountability mechanism (Mahadeo *et al.*, 2011; Gray, 2010; Owen, 2008). Fostering the passage toward sustainable development Dao *et al.* (2011) endorsed the idea of over time performance of organization through harmonizing with environmental, social and economic objectives. The validation of company's performance by its stakeholders is accomplished through corporate disclosure (Dumitru *et al.*, 2014). Adams and Whelan (2009) bring alternative arguments that stakeholder groups, including the government, academics, and NGOs can influence the disclosure of sustainability performance.

The remainder of this paper advances as follows: the next section introduces the research questions in the context of prior research. A subsequent section describes the research method. Then, we analyse the descriptives of Coca-Cola HBC in terms of the spread along the integrated reports, for the key concepts related to performance disclosure: materiality, stakeholders, and performance. Next, we report on the qualitative aspects of sustainability performance and the results of our content analysis of the integrated reports published by the company. Finally, there is a discussion of the theoretical and practical implications of the case study, conclusions, and directions of future research.

2. Literature review and research questions

The materiality is the core concept in identifying, understanding and using the information that affects the company's actions and relationships to stakeholders (IIRC, 2013). First released in 2003, the AccountAbility Report on materiality raised the need for broadening the financial definition of materiality in order to include the stakeholders' concerns in corporate reporting. The declared objective was "for its stakeholders to be able to make informed judgments, decisions and actions" (Zadek and Merme, 2003: 3). IIRC Framework (2013: 4) identifies the company's stakeholders as: providers of financial capital (internal stakeholders) and employees, customers, suppliers, business partners, local communities, legislators, and regulators policy-makers (external stakeholders). This list is regarded as an inclusive one, a guideline for the company that is encouraged to identify the stakeholders according to its business model.

GRI 102 General Disclosures (GRI, 2016b) identifies the following groups of stakeholders: civil society, customers, employees and workers who are not employees, trade unions, local communities, shareholders and providers of capital and suppliers. The relationships between the entity and its stakeholders underpin the extent the organization achieves its strategic objectives. GRI standards (GRI, 2016a; b; c) specify the organization's approach to stakeholder engagement to include frequency, method of engagement, type and stakeholder groups. Stakeholder engagement is referred to in IIRC Framework (2013: 17) as the process of understanding, considering and responding to "the legitimate needs and interests" of the stakeholders. This process implies the day-to-day activity of the company along with its specific actions. According to IIRC Framework (2013: 17-18), stakeholder engagement process is useful as it "can assist the organization to:

- Understand how stakeholders perceive value;
- Identify trends that might not yet have come to general attention, but which are rising in significance;
- Identify material matters, including risks and opportunities;
- Develop and evaluate strategy;
- Manage risks;
- Implement activities, including strategic and accountable responses to material matters".

The idea is reinforced by the research conducted over time. Frias-Aceituno *et al.* (2013) consider that the stakeholder engagement facilitates reducing information asymmetry and increasing the monitoring of company' performance. Adams *et al.* (2016) identify a substantial stakeholder engagement process for 2009 sustainability reporting at Heineken, consistent with the Guiding Principles contained in the IIRC Framework. The company substantially reduced its' sustainability report, introducing a *Concise Stakeholder Engagement and Partnership Strategy*, and extended discussion of value creation in its operations.

Taking all this into account, our first research question is:

RQ_1: Does the company identify its stakeholders and disclose a dedicated policy to engaging with them?

The materiality concept, extending the financial reporting approach, is required by GRI Guidelines (2013) as a step in the process of stakeholder inclusiveness. The material aspects are meant to help the company identify, prioritize and validate its stakeholders. They are defined in relation to sustainability through "the organization's significant economic, environmental and social impacts" and "substantively influence the stakeholders' assessments and decisions" (GRI, 2013: 90). The materiality determination process is characterized in the IIRC Framework (IIRC, 2013) by identifying, evaluating and prioritizing those material issues that could affect the value creation process. According to IIRC Framework, the disclosure of material issues is determined by the relative importance from both internal and external perspectives. The way the company engages their stakeholders (financial capital providers and others) should be reflected in the material issues chosen to be disclosed.

GRI 102 *General disclosure* (GRI, 2016b) identifies material topics as those that reflect an organization's significant economic, environmental and social impacts, or that substantively influence the assessments and decisions of stakeholders. The approach an organization uses to manage material issues is settled by the GRI 103 *Management Approach* (GRI, 2016c). It includes explaining the significant impacts on stakeholders' interest and provides quantitative information to stakeholders. The stakeholders' feedback is considered a mechanism for monitoring the effectiveness of the management approach. Thus, the stakeholders' perception may be considered a primary source in management approach to identify the material issues (Kuokkanen *et al.,* 2016). The literature stream tackles the link between the material issues identification and stakeholders' interests. Eccles and Youmans (2015: 5) suggest introducing a first step in the process of materiality determination based on stakeholders' identification, "their interests (including where they conflict), and the relative weight attached to each".

Our second research question generated by the discussion above is:

RQ_2: Does the company explain how it identifies material issues in relation to its stakeholders?

For the last fifteen years, more and more companies have been tried to synthesize the extent of reported information that could be important for decision-making purposes. According to Eccles and Krzus (2015) the two-dimension materiality approach need to be taken into account: importance to the company and importance to society using the materiality matrix construct. The most recent development of GRI referential (GRI, 2016a; b; c) presents an example for the materiality matrix, including the two dimensions for assessing whether a topic is material. The matrix shows how a topic is material based on each of company and society dimensions. Empirically, although variate, the design embraces the use of two axes graph, that connects the importance of different sustainability issues from the perspectives of both the company and stakeholders.

A practice-driven instrument, the materiality matrix was first created by British Petroleum (BP) in its 2004 sustainability report. It was a consequence of integrating the requirements listed by AccountAbility Report (Zadek and Merme, 2003). The company's endeavour was to better select and prioritize the information to be presented in a sustainability report. The related BP materiality matrix synthesised the importance for internal and external users using a code-colour graph. Through the materiality matrix, "the company can set the context for specific engagements so that each stakeholder sees its issue from the company's holistic perspective" (Eccles and Krzus, 2015: 149). In order to assess company's performance, the projection of company's strategy concentrates on stakeholders' information needs.

In the 2006 Materiality Report issued by AccountAbility, a Materiality Framework was designed to include both company's and stakeholders' information needs in the process of materiality assessment. Material "issues are plotted on the matrix within zone, representing their level of significance to the organisation and to its most significant stakeholders. Each zone should correspond to a commitment to address issues in an appropriate way" (AccountAbility, 2006: 40). The two perspectives combined would be fulfilled only through integrated reporting that would ensure at the same time a very high stakeholder engagement, information on major innovation that would imply advance approach on reporting expenses' budgeting process (Eccles and Krzus, 2015). The information outside the two perspectives may be considered immaterial and no requirement for specific reporting should be considered.

Keeping the industry-oriented requirements, SASB created a materiality map to guide the companies to identify the performance indicators (accounting metrics) likely to be material at industry level (SASB, 2017). The new GRI standards (GRI, 2016a) require the company to present its performance in order to communicate its impact in the context of sustainability. This involves examining the limits and demands placed on economic, environmental or social resources, at the sectorial, local, regional, or global level.

Our third research question generated by the discussion above is:

RQ_3: Does the construction of the materiality matrix contribute to the sustainability performance disclosure?

3. Research method

Given the main objective for this research, we use a qualitative case study documented by thematic content analysis, used also by Adams *et al.* (2016). We collect and analyse data on the evolution of disclosing a number of key concepts related to sustainable performance and their connection to stakeholder engagement process explained by a given company. As such, we examine various aspects of the narratives contained in the integrated reports, paying particular attention to their frequency, phrases used in, and discussion in the context of sustainability performance.

Using Eccles and Krzus (2015) combined with Eccles and Serafeim (2014) methodology for materiality matrix review, we examine current practice of an international company. We observe the key concepts that use the disclosure of material issues to create a link between stakeholder engagement process and the sustainability performance of a company. Next, we propose a model of analysis that may explain the current practice of companies in terms of performance reporting policies. This model is based on the relationship: *stakeholder engagement ® material issues ® sustainability performance.* Specifically, our analysis followed three broad categories: materiality matrix construction, stakeholder engagement, and sustainability performance disclosure.

To respond our research questions, a content analysis of Coca-Cola HBC is performed. The toolkit used for performing the content analysis is AntConc© developed by Laurence Anthony (Anthony, 2014) Content analysis research method has been used extensively to investigate corporate reporting (Caraiani *et al.,* 2015; Tilling and Tilt, 2010; Cho, 2009). It is considered a technique for gathering data that consists of codifying qualitative information in anecdotal and literary form into categories in order to derive quantitative scales of varying levels of complexity (Abbot and Monsen, 1979). By definition, content analysis is both qualitative and quantitative technique, employing qualitative data which are subsequently quantified, and concentration on either approach may lead researchers to overlook the challenges arising from the method's multifaceted character (Gephart, 2004). The extent of disclosure can be taken as an indication of the importance of the researched topic to the reporting entity (Unerman, 2000; Krippendorf, 1980).

The company chosen for this research is Coca-Cola HBC for a sum of reasons. First, the integrated reporting experience of Coca-Cola HBC started in 2012 and continued each year, with the most current integrated report (2016) being published by the company in March, 2017. Second, starting with first year of integrated reporting, the company has included the materiality matrix tool of measuring and communicating the sustainability performance.

We established the key concepts that empower the two-side perspective of the sustainability performance, company and stakeholders, disclosed by the company using the materiality matrix. These concepts are: *material issues, materiality, stakeholders, stakeholder engagement,* and *performance*. The information for analysing the materiality matrix was collected from company's website and its integrated reports. The materiality matrix was located either separately on the company's website or in one of its reports. We gathered information associated with materiality matrix from the graph itself and the surrounding text.

4. Coca-Cola HBC's descriptives: materiality, stakeholders and sustainability performance

Actual trends in corporate reporting advance new metrics to assess performance in order to take into account the causality between internal decision and external stakeholders needs and interests. Integrated reporting fits this new trend for our case study company, Coca-Cola HBC. The diversity and permanent changes in the integrated reporting policies are pursued in our empirical research. Therefore, our primary purpose is to outline a number of characteristics and their evolution in time (2012-2016) for the key elements affecting the corporate performance's disclosure (Table 1).

Table 1. **Coca-Cola HBC descriptives**

Characteristics of Integrated Report (IR)	**2012**	**2013**	**2014**	**2015**	**2016**
Title	Building a stronger Coca-Cola Hellenic	The best is yet to come	It's Good to Share – Building Trust, Spreading Happiness	Refreshing business	Entering the growth era
Content	Introduction Strategic performance Operating review Our performance	Overview Strategic performance Operational and financial sustainability Governance	Strategic Report Corporate Governance Financial Statements Supplementary information Swiss Statutory Report	Strategic Report Corporate Governance Financial Statements Supplementary information Swiss Statutory Report	Strategic Report Corporate Governance Financial Statements Swiss Statutory Report Supplementary information
No of pages	68	77	212 including Financial statements (65p.) and Swiss Statutory report (15p.)	220 including Financial statements (59p.) and Swiss Statutory report (17p.)	216 including Financial statements (69p.) and Swiss Statutory report (24p.)
Where in the IR the category is disclosed?					
Materiality matrix	Introduction (Business model)	Governance (Engaging with stakeholders)	Strategic Report (Managing our material issues)	Strategic Report (Managing our material issues)	Strategic Report (Managing risk and materiality)
Stakeholder engagement	Our performance (Country summary; Corporate Governance; Auditors' validation)	Governance (Engaging with stakeholders; Auditors' validation)	Strategic Report (Managing our material issues) Corporate Governance Supplementary information	Strategic Report (Managing our material issues) Supplementary information	Strategic Report (Managing risk and materiality)
Performance	Introduction (Reporting roadmap) Strategic performance (Strategic framework)	Strategic performance Governance (Auditors' validation)	Strategic Report (Managing our material issues)	Strategic Report Corporate Governance Supplementary information	Strategic Report Corporate Governance
How many references to the categories are in the IR?					
Material issues/Materiality	22	23	39	62	40
Stakeholders	48	50	83	112	10
Stakeholder engagement / engaging stakeholders / stakeholder	7	10	15	10	2

Characteristics of Integrated Report (IR)	2012	2013	2014	2015	2016
involvement					
Performance	78	83	148 (including 14 related strictly to financial statements)	357 (including 38 related strictly to financial statements)	156 (including 21 related strictly to financial statements)

(*Source*: Authors' processing)

The title given to the report, the structure and the content, and the policy to disclose material issues, stakeholder engagement and the sustainability performance have an interesting evolution over time (Table 1). They seem to correlate the international requirements for integrated reporting and the company's performance strategy. The content of the report highlights the signalling of company's focus on expanding the changing approach of performance towards responding to corporate governance requirements.

The length of the Coca-Cola HBC's Integrated Report published each year recorded a sharp slope from 2012 to 2013. The concise information specified by the previous sustainability reporting endeavours, is embraced by Coca-Cola HBC for the years 2012 and 2013. A deeper research showed that prior to 2014 the company's policy was to publish a number of reports each year (annual report, integrated report, statutory report, GRI COP report). In 2014, the company delisted from New York Stock Exchange and de-registered with the U.S. Securities and Exchange Commission. Consequently, starting with this year the company has chosen to present all the information within a single report. This generated significant high length of the report.

> "2014 Integrated annual report 'It's Good to Share – Building Trust, Spreading Happiness' is our third integrated report, providing, for the first time, information on all aspects of business, governance and sustainability performance and celebrating the relationships and partnerships key to its success" (http://coca-colahellenic.com/en/investors/reports/?year=2014).

The differences and similarities identified in company's descriptives support our further content analysis organised around the three research questions identified and introduced in the *Literature Review and Research Questions* section of this paper.

5. Results

In this section, we report on the qualitative aspects of sustainability performance and the results of our content analysis of the integrated reports published by Coca-Cola Hellenic Bottling Company, here referred to as Coca-Cola HBC. The company links the sustainability approach to company's performance by subsequently introducing aspects related to material issues and stakeholders' engagement. Assigning a high importance to materiality, Coca-Cola HBC addresses those issues both on company's reports and on the company's website, within a dedicated section, *Sustainability* (http://coca-colahellenic.com/en/sustainability/sustainability-approach-and-performance/material-issues/).

RQ$_1$: Does the company identify its stakeholders and disclose a dedicated policy to engaging with them?

General principles and form of stakeholder engagement are presented in *Sustainability* dedicated subsection on the company's website. The company states its policy of stakeholder engagement as "identify, understand and prioritise our stakeholders" (Coca-Cola HBC Integrated Report, 2012: 54). In 2012 Integrated Report, the company clearly addresses the stakeholder engagement's issue in relation with materiality, having as purpose increasing the performance through value creation:

> "Other key stakeholders will also be interested in our performance and we have addressed the issues we feel are material to them." (Coca-Cola HBC Integrated report, 2012: 3). "We aim to provide a deeper understanding of the many aspects of our business, including performance, long-term prospects, governance and how we create and deliver value to our stakeholders." (Coca-Cola HBC Integrated report, 2012: 6).

The stakeholders' opinions and insights provide a better understanding of future drivers of the business. Further, by measuring, managing and understanding material elements, the decision-making process would be improved that, in turn, will increase the company's performance. In the 2013 Integrated Report the company states: "The importance of creating value for stakeholders is enshrined in our Company's mission and values" (Coca-Cola HBC, Integrated report, 2013: 56). The integrated thinking and reporting would create a bidirectional impact between decision making process and performance.

> "We have integrated corporate responsibility and sustainability into the way we run our business. We identified the material issues to our business and our stakeholders (see Engaging with stakeholders) and developed ambitious strategies and commitments, along with rigorous governance" (Coca-Cola HBC Integrated report, 2013: 20).

The most important stakeholders are listed as "partners, customers, suppliers and community members and employees" on the company's website. The identified stakeholders are related to the company's initiatives designated for each and every of them. The general policies related to stakeholder engagement briefly referred to in 2012, are presented with details in 2013 Integrated Report. Enhancing the quality of its integrated reporting, the company creates in the 2013 Integrated Report a dedicated section related to stakeholder engagement, under the Governance section. A new policy of stakeholder engagement disclosed in 2013 is using the data gathered at national level in order to enrich its international policy.

> "If the significant inputs from the national stakeholder engagements were implemented into the sustainability strategy, it could add value to the entire group" (Coca-Cola HBC Integrated report, 2013: 71).

The company explicitly presents extended lists of its stakeholders within yearly integrated reports (Table 2) within diagrams explaining material issues related to sustainability performance. Additional details (e.g. academia, civil organisations) may be found in descriptive explanations next to the diagrams.

Table 2. **Coca-Cola HBC stakeholders' list presented in the integrated reports**

2012	2013	2014	2015	2016
Customers, Investors, Employees, Governments and regulators, Communities, Consumers	Employees, Consumers, Customers and suppliers, Non-governmental organisations (NGOs), Governments and communities	Shareholders and analytics, Employees, Customers, Consumers, Suppliers, Governments and regulatory authorities, NGOs and IGOs, Communities	Shareholders and analytics, Employees, Customers, Consumers, Suppliers, Governments and regulatory authorities, NGOs and IGOs, Communities	Shareholders/investors, Employees, Customers, Consumers, Suppliers, Governments and regulatory authorities, NGOs and IGOs, Communities

(*Source*: Authors' processing)

The list of company's stakeholders is presented in conjunction with the materiality matrix in order to highlight the disclosed information's importance to stakeholders. In 2014 Integrated Report the bidirectional causality is stated:

> "We create value for our stakeholders which, in turn, builds value for our business over time" (Coca-Cola HBC Integrated Report, 2014: 9).

A stronger focus on the relationship with the company's stakeholders may be found in 2015 Integrated Report:

> "By running a profitable, sustainable, responsible business, we create value which is subsequently retained by our business, making it stronger, and shared with all of our stakeholders" (Coca-Cola HBC Integrated Report, 2015: 9).

RQ$_2$: Does the company explain how it identifies material issues in relation to its stakeholders?

Coca-Cola HBC provides a general description of how material issues are identified and prioritized and how the most important ones are yearly mapped in the materiality matrix. The information is presented directly on the website, and also in yearly integrated report. The company's policy is to consider material those issues related to its purpose, mission and strategy, the brands, the economic, environmental and society's impact of each country they operate in. Two perspectives are then identified: the importance to stakeholders and the extent to which company is able to influence that issue.

> "Engaging stakeholders helps us to identify and prioritise our material issues, supporting our CSR management" (Coca-Cola HBC Integrated Report, 2012: 54). "A systematic materiality process […] helps us to determine on what issues we should focus our resources – as well as the issues and information to include in our reporting" (Coca-Cola HBC Integrated Report, 2013: 56).

In the 2014 Integrated Report, references to the process of assessing materiality are added by indicating the methods of benchmarking and ongoing trend analysis, interviews, country-based surveys.

> "To determine which issues are material, or of greatest concern and significant potential impact, we conduct benchmarking and ongoing trend analysis. We also seek input by interviewing internal decision makers, engaging with external stakeholders on an ongoing basis. Both employees and external stakeholders identified in each of the countries and for the Group as a whole are surveyed online for input to the materiality matrix" (Coca-Cola HBC Integrated Report, 2014: 22).

The process of disclosing the material issues is extended in 2015 Integrated Report by including detailed references to how the material issues are identified and prioritized with the purpose of increasing the company's performance and of creating added value for the stakeholders. The company presents details about the instruments (input from Annual Stakeholder Forum and from employees' survey) and methods (ongoing trend analysis) used to identify the material issues.

> "We prioritise material issues on the basis of their relative importance to value creation…Our prioritized list of material issues is used in ongoing evaluations of our long-term objectives and strategic priorities, in internal resource allocation decisions, and in determining what issues are most material to include in our external reporting" (Coca-Cola HBC Integrated Report, 2015: 16).

The identification and prioritisation of material issues and their link to stakeholders' engagement continues to be presented in 2016 Integrated Report. This time, they are presented in the context of risk management. A comprehensive table structured on twelve material aspects identified by the company is used to integrate information on materiality, risks, potential impact, and key mitigations.

RQ_3: Does the construction of the materiality matrix contribute to the sustainability performance disclosure?

Starting with its first integrated report, in 2012, Coca-Cola HBC approached the materiality aspects within the *Introduction* section, where the business model is presented. However, the synthesised manner of presenting the information on materiality allows the reader (stakeholder) to easily link the stakeholders' engagement with the material issues and the way the company manage them in order to clearly disclose the value creation process.

> "The Coca-Cola Hellenic business model is fundamental to our ability to create value and to build sustainable competitive advantage" (Coca-Cola HBC Integrated Report, 2012: 8).

The epistemic approach of sustainable materiality matrix has its genesis in the company's need to reshape the content and format of corporate performance disclosure. The arguments for a sustainability performance business resides in the disclosure of a number of material issues selected according to their impact on the value created and shared with the company’s stakeholders. The material issues are explicitly presented as a list (Table 3), but within a comprehensive diagram (the materiality matrix), using various visual elements. They are linked to the company’s functions (production, bottling and distribution, sales and customers, consumers and community). Eccles and Serafeim (2014, p.14) observed that “the report identifies the most material issues across the Coca-Cola HBC value chain and ties them back to the company’s ability to create value”.

Table 3. **List of material issues (in alphabetical order)**

2012	**2013**	**2014**	**2015**	**2016**
Consumer health, Cost leadership Customer relationship, Employee engagement, Energy use, Free cash flow generation, Licence to operate, People development, Procurement, Product innovation, Revenue growth, Safety, Water use, Winning in the marketplace, Working capital management	Agricultural impacts, Air pollution, Anti-corruption, Biodiversity loss, Climate change, Cold drink equipment, Corporate governance, Employee engagement, Energy use, Foreign exchange, Healthy products, Human rights, IT Infrastructure, Labour rights, Landfilled waste, Littering, Loss prevention, Macroeconomics, Non-discrimination, Obesity, Packaged water, Packaging recovery, Packaging use, Quality & Food safety, Redundancies, Responsible marketing, Safety at work, Transports, Wastewater, Water footprint, Water governance, Water habitats, Water use	Business ethics/anti-corruption Carbon and energy Community engagement Direct/indirect economic impacts Emerging market strategies Employee engagement Employee safety and wellbeing Healthy and safe products Human rights and diversity Influencing public policy Obesity/sugar sweetened beverages Packaging waste management Responsible marketing Sustainable procurement Transparency on corporate governance Water stewardship	Carbon and energy Community investment and engagement Corporate governance, business ethics and anti-corruption Direct and indirect economic impacts Employee wellness and engagement Health and nutrition Human rights and diversity Packaging recycling and waste management Product quality and integrity Responsible marketing Sustainable sourcing Water stewardship	Carbon and energy Community investment and engagement Corporate governance, business ethics and anti-corruption Direct and indirect economic impacts Employee wellness and engagement Health and nutrition Human rights and diversity Packaging recycling and waste management Product quality and integrity Responsible marketing Sustainable sourcing Water stewardship

(*Source*: Authors’ processing)

The materiality issues are also related to different capital typologies, even before the publication of the IIRC Framework in 2013. Financial, human, intellectual, social and relationship capitals are distinctly presented in 2012 Integrated Report. A diagram continues to be used in the subsequent years, with improvements in terms of capital typologies and indicators of shared values to the stakeholders. Thus, the manufacturing capital is added in 2013 Integrated Report, while social and relationship capitals are merged. The natural and partnering capitals are added in 2014, while in 2015 and 2016 Integrated Reports the company choses to disclose only the six capitals required by IIRC (2013). The focus on skills and knowledge transfer increases, opening the floor to the integration of innovation within the performance reporting process. Connectivity to the list of performance metrics is ensured in the 2015 report through links to GRI indicators list disclosed within the integrated report. For the 2016 Integrated Report the management dropped that connectivity list and linked the material issues to the performance matrix only in the diagram related to business model, disclosed in the *Strategic Report* section.

The 2012 material issues' diagram (Appendix A1), although connected with stakeholders, does not integrate the level of stakeholders' engagement. However, an explanatory summary presented on the first page of the report may be considered to answer this requirement. A definition of material issues is first presented in 2013 Integrated Report by relating the materiality concept to the value creation process: "These are the economic, environmental and social issues which could affect our ability to create value over the short, medium and long term" (Coca-Cola HBC Integrated report, 2013: 56).

For Coca-Cola HBC, the year 2013 is the first year to use the materiality matrix syntagma. The concept is explicitly presented and explained and the link to understanding and managing the reporting process emerges within the integrated report:

> "A systematic materiality process […] helps us to determine on what issues we should focus our resources – as well as the issues and information to include in our reporting" (Coca-Cola HBC Integrated report, 2013: 56).

The 2013 Integrated Report discloses the material issues using a two-axes graph to integrate the business' and stakeholders' benefits (Appendix A2). Presenting in detail the material issues considered from the two-side perspective: relevance to stakeholders & relevance to company, Coca-Cola HBC uses a 3x3 matrix (low/moderate/high) including a number of 33 material issues. The disclosure of the matrix is preceded by general aspects of how the material issues are identified and by the statement that they are prioritised based on both company's and society's interest, without further analytical details.

The company continues to disclose the materiality matrix in 2014 and 2015. However, the format of the matrix changed from one year to another. The two axes are maintained with the impact on the business on X-axis and relevance to stakeholders on Y-axis. The boxes used to separate the material issues in 2013 report, are no longer used. Instead, the material issues are placed on a scale between important to highly import in the next year report in 2014 (Appendix A3). Scores between 7 and 10 are allocated to the two axes of the materiality matrix in both 2015 and 2016 reports (Appendix A4 and Appendix A5).

While the number of material issues disclosed by the company is decreasing from year to year, with 16 material issues in 2014 and 12 in 2015 and 2016, the details on identification process are more extensive, ensuring an increasing understandability for the reader. Thus, in 2014 the 16 material issues are presented in connection to the five perspectives of the Play to Win Strategic Framework, some of them (healthy and safe products, obesity or economic impacts) impacting more components. In 2015, the materiality matrix is not presented as singular information. The process of identification and presentation of material issues is taken to a higher level, that of using the information to manage and report the sustainable performance. The 12 material issues identified for 2015 are classified by the three economic, environmental and social dimensions, are explained in terms of importance, their connection to stakeholders and the way the company addresses the issue.

Similar details are presented in 2016 Integrated Report. However, the format of disclosure is changed. Additional information specific for the 2016 report is the rank attributed for each of the 12 material issues. Thus, in 2015 the interpretation of the place for each material issue is at readers' choice, as some issues had a higher score for stakeholders and a lower score for the company (Appendix A4) and no clear connectivity between different issues may be identified. In the 2016 matrix (Appendix A5), for example, the *Corporate governance, business ethics and anti-corruption* is placed on the second rank, higher than *Health and nutrition*, even if its score for company's impact is lower than the score for importance to stakeholders.

5. Conclusions

The purpose of this study is to examine the evolution of sustainability performance disclosure in the context of a global move toward integrated reporting. Our paper adopts a content analysis approach to examining the reports of Coca-Cola Hellenic Bottling Company (Cola-Cola HBC). We analyse the concept of materiality matrix and how could it be used to disclose the sustainability performance of the company. Interpretation on the results is focused on the three research questions we address, referring to the process of stakeholder engagement designed by the company in order to identify and prioritise the material issues, and to the construction of materiality matrix and its use to explain the company's performance. The results are analysed in terms of their extent of disclosure within the integrated reports, from one year to another main, following the research questions identified in the literature review. Our findings validate the idea that companies are starting to think about their current disclosure practice in terms of sustainability performance and are linking it to their strategy by empowering a two-side perspective: company's and stakeholders'.

Eccles and Krzus (2015) suggest that the connectivity of information required by IIRC Framework (2013) is the most challenging to demonstrate or explain. Based on the case of GSK company, Adams *et al.* (2016) suggest that different ways of connecting company's performance and value creation process to the impact on stakeholders' needs and interest result in diverse reporting practices. This supports our idea that the disclosure of sustainability performance may be influenced by the integration of stakeholder engagement process in the management strategy.

Despite the diversity and changing in international reporting requirements, a number of trends were identified for Coca-Cola HBC over the analysed period (from its first integrated report to the newest one). The company's descriptives show that the company' s strategy to disclose its performance for stakeholders' use reached a coherency in terms of disclosing policy. Similar findings are identified by Eccles and Krzus (2015) in their study based on 124 companies that adopted the integrated reporting requirements. Their conclusion is that even if some companies use the relationship between stakeholder engagement and the material issues, its integration in the companies' disclosure policy is poorly represented.

However, more are to be developed in terms of information intelligibility to ensure a proper understanding for stakeholders. The process of legitimating the stakeholders' needs and interests is responded to, rather by customised information for each stakeholder group and not necessarily by repeatedly addressing over the report some key phrases like material issues, stakeholder engagement, or performance indicators. Thus, our case study validates the positive aspects of incorporating stakeholders needs and interests into the value creation process established for the company's policy of sustainable performance disclosure.

For future research, the results of content analysis conducted at group level may be used in order to debate on increasing the relevance of local reports. The company's global experience could be a pillar for its subsidiaries to better communicate their local issues related to their purposes of external reporting, stakeholder engagement, and resource commitment. Another direction of future research may be the focus on how the changes in corporate reporting practice impact the stakeholder engagement process.

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References

Abbot, W. & Monsen, R. (1979) "On the measurement of corporate social responsibility: self-reported disclosure as a measure of corporate social involvement", *Academy of Management Journal*, vol. 22: 501-515

AccountAbility (2006) *The Materiality Report: Aligning Strategy, Performance and Reporting*, AccountAbility, available on-line at http://www.zadek.net/wp-content/uploads/2011/04/The_Materiality_Report_Aligning_Strategy_Performance_Reporting_November2006.pdf [10.01.2017]

Adams, C.A. & Whelan, G. (2009). Conceptualizing future change in corporate sustainability reporting. *Accounting, Auditing and Accountability Journal*, *22*(1), 118–43.

Adams, C.A., Potter, B., Singh, P.I. &York, J. (2016) "Exploring the implications of integrated reporting for social investment (disclosures)", *The British Accounting Review*, vol. 48: 283-296

Anthony, L. (2014). AntConc (Version 3.4.3) [Computer Software]. Tokyo, Japan: Waseda University, available on-line at http://www.laurenceanthony.net/ [27.01.2017]

Caraiani, C., Lungu, C. I., Dascălu, C., Colceag, F. (2015) *Green Accounting Initiatives and Strategies for Sustainable Development*, IGI Global (Idea Group Publishing)

Cho, C.H. & Patten, D.M. (2007) "The role of environmental disclosures as tools of legitimacy: A research note", *Accounting, Organizations and Society*, vol. 3, no. 7-8: 639–647

Cho, C.H. (2009) "Legitimation strategies used in response to environmental disaster: A French case study on Total SA's Erika and AZF incidents", *European Accounting Review*, vol. 18, no. 1: 33-62

Coca-Cola Hellenic Bottling Company (Coca-Cola HBC) (2012) Integrated Report 2012, available on-line at coca-colahellenic.com/media/1203/2012_iar.pdf [3.02.2017]

Coca-Cola Hellenic Bottling Company (Coca-Cola HBC) (2013) Integrated Report 2013, available on-line at coca-colahellenic.com/media/1180/annual_integrated_report_2013.pdf [6.02.2017]

Coca-Cola Hellenic Bottling Company (Coca-Cola HBC) (2014) Integrated Report 2014, available on-line at coca-colahellenic.com/media/1202/annual-integrated-report_2014.pdf [7.02.2017]

Coca-Cola Hellenic Bottling Company (Coca-Cola HBC) (2015) Integrated Report 2015, available on-line at coca-colahellenic.com/media/2390/coca-cola-hbc_2015-integrated-annual-report.pdf [10.02.2017]

Coca-Cola Hellenic Bottling Company (Coca-Cola HBC) (2016) Integrated Report 2016, available on-line at coca-colahellenic.com/media/2736/cchbc_integrated_annual_report_2016.pdf [20.03.2017]

Dainelli, F., Bini, L. & Giunta, F. (2013) "Signalling Strategies in Annual Reports: Evidence from the Disclosure of Performance Indicators", *Advances in Accounting, Incorporating Advances in International Accounting*, vol. 29, no. 2: 267-277

Dao, V., Langella, I. & Carbo, J. (2011) "From Green to Sustainability: Information Technology and an Integrated Sustainability Framework", *Journal of Strategic Information Systems*, vol. 20: 63-79

Dumitru, M., Albu, N., Dumitru, V.F, Albu, C.N (2014) "Practices regarding the forms of communication with the consumers used by a multinational company at global and local level", *Amfiteatru Economic*, vol. XVI, no. 35: 41-57

Dumitru, M. & Guse, G. R. (2017) "The Legitimacy of the International Integrated Reporting Council", *Journal of Accounting and Management Information Systems*, vol. 16, no. 1: pp. 30-58

Eccles R.G. & Krzus M.P. (2015) *The Integrated Reporting Movement: Meaning, Momentum, Motives, and Materiality*, Hoboken, New Jersey: John Wiley & Sons

Eccles, R.G. & Serafeim, G. (2014) "Corporate and Integrated Reporting: A Functional Perspective", *Harvard Business School Working Paper*, No. 14-094, April 2014, available at http://www.hbs.edu/faculty/Publication%20Files/14-094_30b9b0a2-4acb-47ec-bddc-8c1d810e3cde.pdf [6.02.2017]

Eccles, R.G. & Youmans, T. (2015) "Materiality in Corporate Governance: The Statement of Significant Audiences and Materiality", *Harvard Business School Working Paper*, No. 16-023, September 2015, available at http://www.hbs.edu/faculty/Publication%20Files/16-023_f29dce5d-cbac-4840-8d5f-32b21e6f644e.pdf [7.02.2017]

Frías-Aceituno, J.V., Rodriguez-Ariza, L. & Garcia-Sanchez, I.M. (2013) "The role of the board in the dissemination of integrated corporate social reporting", *Corporate Social Responsibility and Environmental Management*, vol. 20: 219-233

Gephart, R.P. (2004) "Normal risk: Technology, sense making, and environmental disasters", *Organization & Environment*, vol. 17: 20-26

Gray, R. (2010) "A re-evaluation of social, environmental and sustainability accounting: An exploration of an emerging trans-disciplinary field?", *Sustainability Accounting, Management and Policy Journal*, vol. 1, no. 1: 11–32

GRI (Global Reporting Initiative) (2011) *Sustainability Reporting Guidelines*, Version 3.1, Amsterdam: Global Reporting Initiative, available on-line at https://www.globalreporting.org/resourcelibrary/G3.1-Quick-Reference-Sheet.pdf [9.01.2017]

GRI (Global Reporting Initiative) (2013) *G4 Sustainability Reporting Guidelines*, Amsterdam: Global Reporting Initiative, available on-line at https://www.globalreporting.org/resourcelibrary/GRIG4-Part1-Reporting-Principles-and-Standard-Disclosures.pdf [9.01.2017]

GRI (Global Reporting Initiative) (2016a) *GRI 101 Foundation standard*, Amsterdam: Global Reporting Initiative, available on-line at https://www.globalreporting.org/standards/gri-standards-download-center/gri-101-foundation/ [13.02.2017]

GRI (Global Reporting Initiative) (2016b) *GRI 102 General disclosure*, Amsterdam: Global Reporting Initiative, available on-line at https://www.globalreporting.org/standards/media/1037/gri-102-general-disclosures-2016.pdf [13.02.2017]

GRI (Global Reporting Initiative) (2016c) *GRI 103 Management Approach*, Amsterdam: Global Reporting Initiative, available on-line at https://www.globalreporting.org/standards/media/1038/gri-103-management-approach-2016.pdf [13.02.2017]

IIRC (International Integrated Reporting Council) (2013) *International Integrated Reporting Framework* (IIRC Framework), available at: integratedreporting.org/wp-content/uploads/2013/12/13-12-08-THE-INTERNATIONAL-IR-FRAMEWORK-2-1.pdf [9.01.2017]

Krippendorff, K. (1980). *Content Analysis: An Introduction to its Methodology*, Sage, New York, NY

Kuokkanen, A., Mikkila, M., Kahiluoto, H., Kuisma, M. & Linnanen, L. (2016) "Not only peasants' issue: Stakeholders' perceptions of failures inhibiting system innovation in nutrient economy", *Environmental Innovation and Societal Transitions*, vol. 20: 75-80

Mahadeo, J.D., Oogarah-Hanuman, V. & Soobaroyenb, T. (2011) "Changes in social and environmental reporting practices in an emerging economy (2004–2007): Exploring the relevance of stakeholder and legitimacy theories", *Accounting Forum*, vol. 35: 158-175

O'Donovan, G. (2002) "Environmental Disclosures in the Annual Report: Extending the Applicability and Predictive Power of Legitimacy Theory", *Accounting, Auditing & Accountability Journal*, vol. 15, no. 3: 344-371

Owen, D. (2008) "Chronicles of wasted time? A personal reflection on the current state of, and future prospects for, social and environmental accounting research", *Accounting, Auditing and Accountability Journal*, vol. 21, no. 2: 240-267

Rezaee, Z. (2017) "Corporate Sustainability: Theoretical and Integrated Strategic Imperative and Pragmatic Approach", *The Journal of Business Inquiry*, vol. 16, no. 1: 60-87

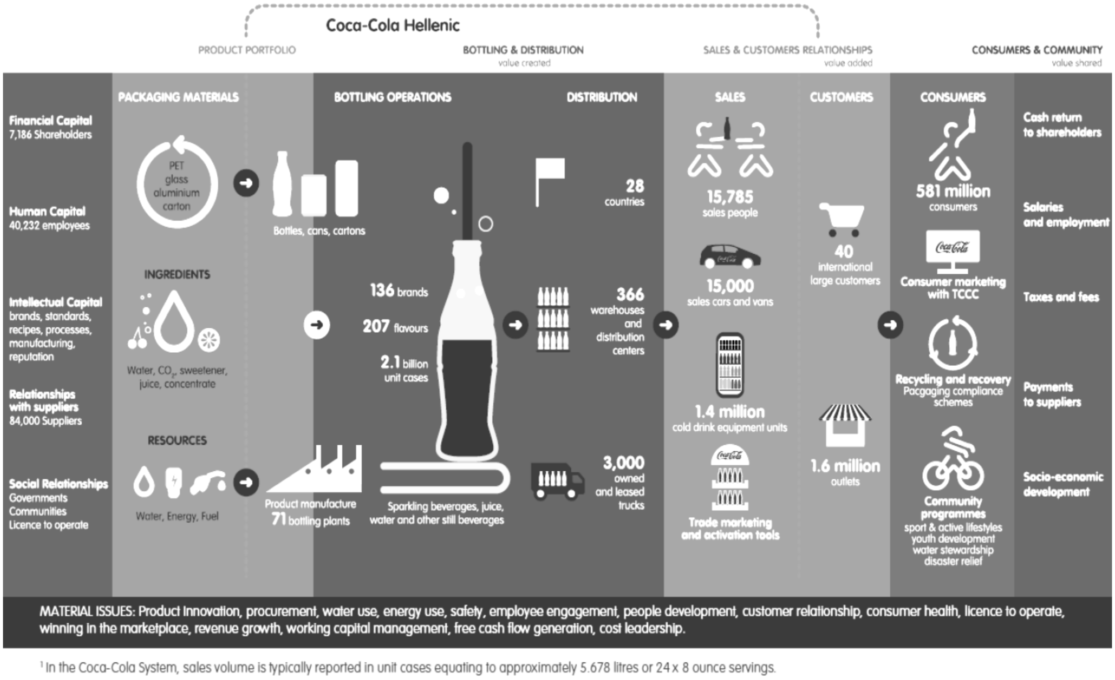
SASB (Sustainability Accounting Standard Board) (2017) *SASB's Materiality Map*, available on-line at http://materiality.sasb.org/ [15.01.2017]

Tilling, M.V. & Tilt, C.A. (2010) "The edge of legitimacy. Voluntary social and environmental reporting in Rothmans' 1956-1999 annual reports", *Accounting, Auditing and Accountability Journal*, vol. 23, no.1: 55-81

Unerman, J. (2000) "Methodological Issues: Reflections on Quantification in Corporate Social Reporting Content Analysis, Accounting", *Auditing & Accountability Journal*, vol.13, no. 5: 667-680

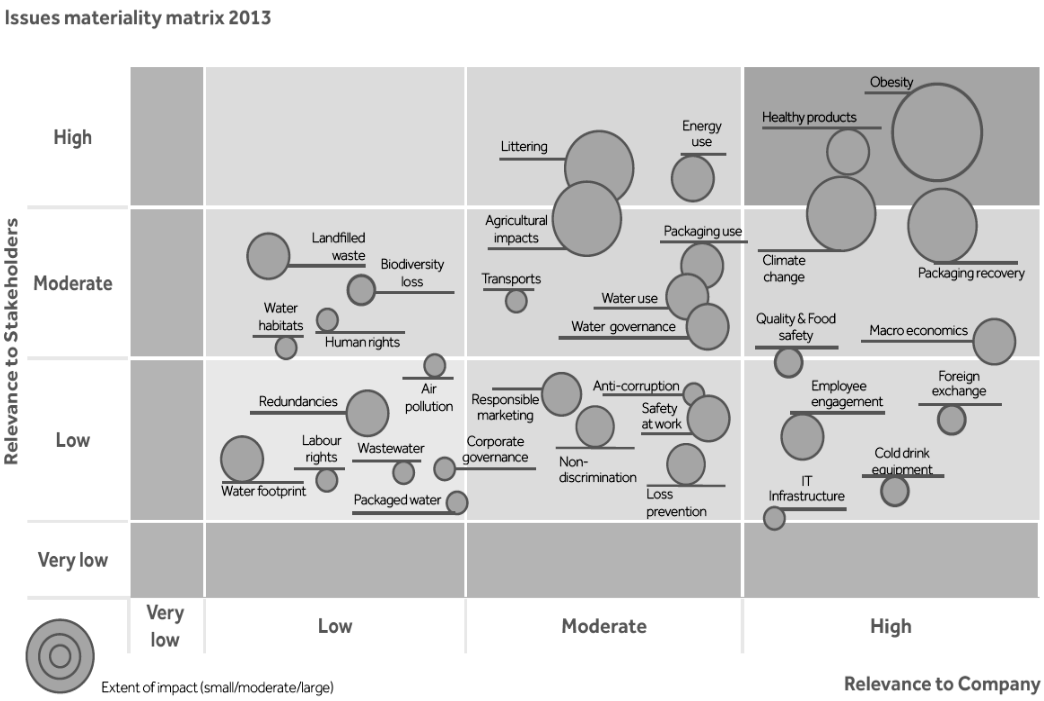
Zadek, S. & Merme, M. (2003) *Redefining Materiality: Practice and public policy for effective corporate reporting*, AccountAbility available on-line at http://unpan1.un.org/intradoc/groups/public/documents/un-dpadm/unpan044367.pdf [10.01.2017]

Appendix A1. **Coca-Cola HBC Materiality matrix presented in Integrated Report 2012**



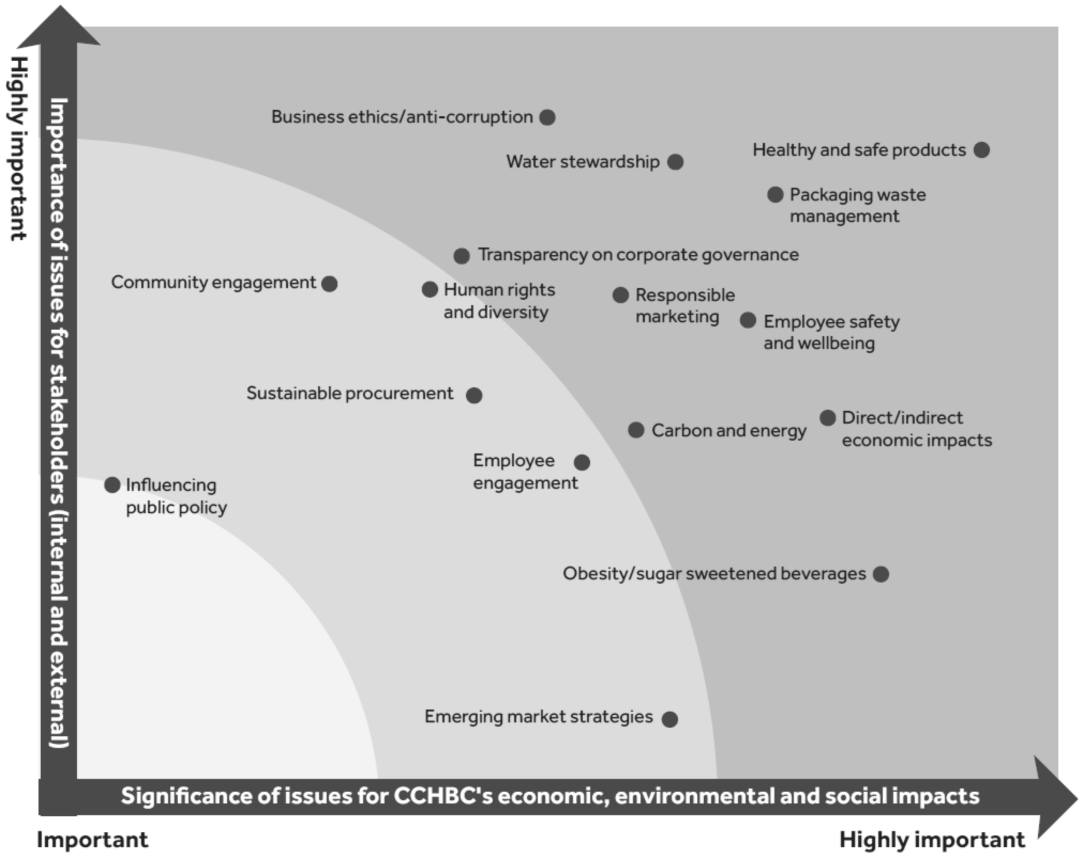
(*Source:* Coca-Cola HBC Integrated Report 2012: 8-9)

Appendix A2. **Coca-Cola HBC Materiality matrix presented in Integrated Report 2013**



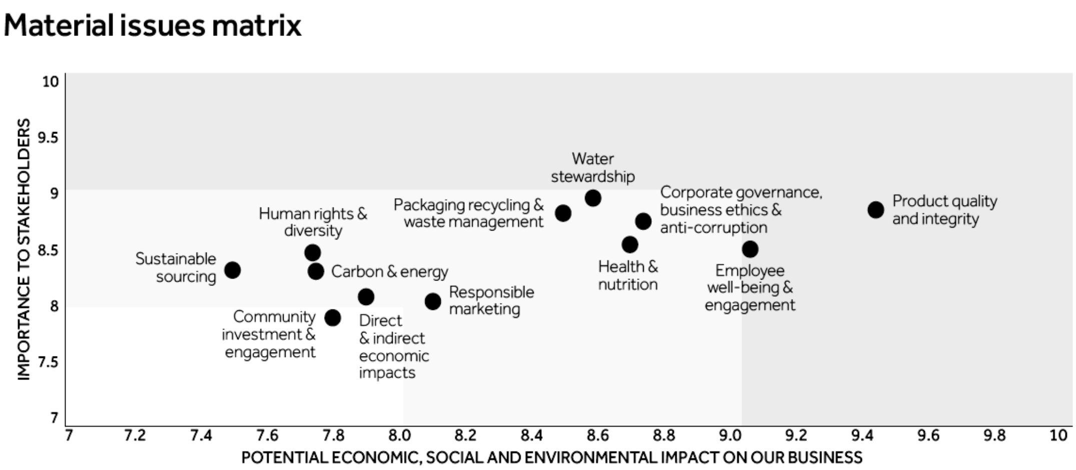
(*Source:* Coca-Cola HBC Integrated Report 2013: 57)

Appendix 3. **Coca-Cola HBC Materiality matrix presented in Integrated Report, 2014**



(*Source:* Coca-Cola HBC Integrated Report 2014: 22)

Appendix 4. **Coca-Cola HBC Materiality matrix presented in Integrated Report 2015**



(*Source:* Coca-Cola HBC Integrated Report 2015: 21)

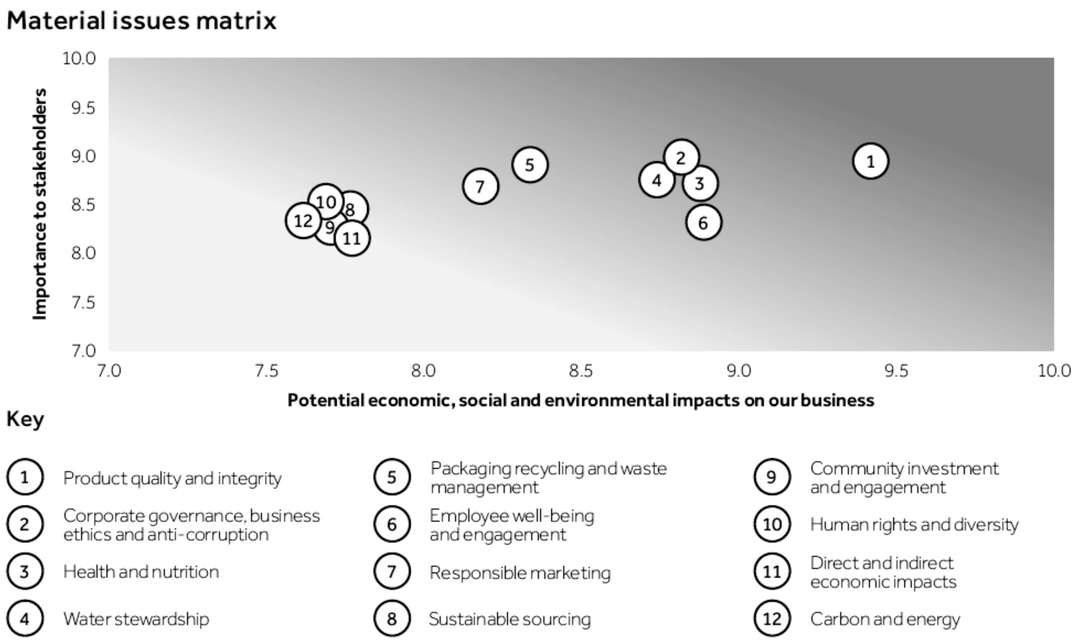
Coca-Cola HBC Connectivity matrix presented in Integrated Report 2015

Coca-Cola HBC connectivity matrix

	Community trust	Consumer relevance	Customer preference	Cost leadership
Economic dimension				
Corporate governance, business ethics and anti-corruption	x		x	
Direct and indirect economic impacts	x	x	x	x
Health and nutrition	x	x	x	
Responsible marketing	x	x	x	
Product quality and integrity	x	x	x	
Environmental dimension				
Carbon and energy	x		x	x
Sustainable packaging recycling and waste management	x		x	x
Sustainable sourcing	x			x
Water stewardship	x	x		x
Social dimension				
Community investment and engagement	x			
Employee well-being and engagement	x	x	x	x
Human rights and diversity	x		x	

(*Source:* Coca-Cola HBC Integrated Report 2015: 16)

Appendix 5. **Coca-Cola HBC Materiality matrix presented in Integrated Report 2016**



(*Source:* Coca-Cola HBC Integrated Report 2016: 23)

A literature review on integrated reporting

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Abstract:

Idea: *To synthesize/assess the state of art in the integrated reporting (IR) research area using a literature review.*
Data: *126 articles from the best recognized databases in the academic assessments: Scopus & Thomson Reuters. Written only in English. Key words, title or abstract containing integrated report, integrated reporting or integrated thinking. Period: 2012-2016.*
Tools: *Content analysis of the articles in order to code data based on a list of items, using Excel.*
What's new? *Three key findings: (A) European academics are the most concerned authors in integrated reporting related issues and they place the content/archival analysis or normative studies mostly in their homeland. (B) An interesting negative tone on IR was found in 7 papers that prove IR is a tool to reshape a company's public image, to reduce the development of other types of non-financial reporting and a phenomenon to support the already defined position of multinationals and accountancy professionals, having limited potential because it only reconsiders old terms in a new form. (C) Researchers are expected to find answers at questions like: Which are the internal determinants of IR adoption? Is IR improving or reshaping the corporate communication? What is the true beneficiary of 'value creation' concept? etc.*
So what? *Researchers can focus their studies on aspects asked and unanswered by now in order to sustain this emerging practice and the true purpose of research: innovate and improve.*
Contribution: *Providing resources to start developing new ideas in the integrated reporting field based on solid and impartial evidence, in the benefit of the society.*

Keywords: *Integrated reporting, literature review, future research directions*

1. Introduction

The realities of the contemporary period (social, environmental, reversing the ratio between the value of tangible and intangible assets owned by companies, etc.) have changed the organizations' reporting. The most complete form of reporting that is currently developing is the integrated reporting. About 10% of the reports indexed in the database of the Global Reporting Initiative in the past five years are integrated. In 2010 the International Integrated Reporting Council (IIRC) was created in order to develop a framework for integrated reporting (IR) used globally. The first version of the framework was published in 2013 and began to be used by a pilot group of

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companies. There remain many issues that IIRC must explain before the referential proposed will be prepared for a global application: tools used for IR, IR's institutionalization, IR's regulation etc. The objective of this paper is to analyse the integrated reporting papers published so far. Integrated reporting is an emerging paradigm. A lot of developments occurred after 2010, when the International Integrated Reporting Council (IIRC) was formed. In line with this, the literature on this subject also developed.

One of the advantages of our research is given by the fact that integrated reporting is an emerging practice and research in this direction can help to develop its global understanding and application. A literature review of the previous papers in this field can guide scholars to the remaining aspects to study.

2. Literature review

Currently, International Financial Reporting Standards (IFRS) is the most used referential in financial reporting worldwide. However, the conceptual accounting framework of the International Accounting Standards Board (IASB) was designed several decades ago, and subsequent changes were not significant. Consequently, this referential does not include all the elements that a company must bring to the fore to present a true picture concerning: the nature of intellectual and relational capital, social and environmental reporting, risk reporting. IASB recognizes the need for change and implements the project Disclosure Initiative which explores the possibilities of improving the reporting process (IASB, 2013). Meanwhile, financial reporting addresses especially the needs of shareholders, but in the last two decades has been highlighting the importance of a business model focused on creating long-term value for a variety of users (WEF, 2011; Saghroun and Eglem, 2008).

One way to improve reporting is IR, an approach that promises to be "holistic, strategic, sensitive, significant and relevant in multiple time horizons" (Adams and Simnett, 2011, p. 292). IR is currently promoted by the International Integrated Reporting Council (IIRC), which was created with the stated aim of developing a theoretical framework, used worldwide for IR. The main result of IR is an integrated report that includes financial information, management commentary, governance and remuneration issues, namely social and environmental, in a way that shows the connectivity between them and explains their impact on the creation of long, medium and short term value (IIRC, 2011).

This type of reporting has already mobilized significant material and intellectual resources, as the new trend at international level. Although IIRC was created only five years ago IR became mandatory in South Africa and receives support from several countries (Brazil, Singapore, Malaysia, Japan – IIRC, 2014), but also large accounting and audit firms (Deloitte and Touche, 2011; Ernst and Young, 2013; KPMG, 2013; PriceWaterhouse Coopers, 2013), professional bodies (e.g. ACCA, 2012; CIMA et al., 2013; ICAEW, 2013; AASB 2013; IAAER, 2014; IFAC, 2014), regulators (e.g. IASB, 2013; SASB, 2013; FASB, 2013; IPSASB) and deregulation (GRI, 2013; CDP, 2013; CDSB, ISO – IIRC, 2014).

The importance of research in the field of IR results for several reasons. Today, only about 20% of the market value of a company can be accounted for by its financial and physical assets (as opposed to 80% in the 70's – King and Roberts, 2013). Other factors such as existing relationships in a company, intellectual capital and human data represent an important share of the value of an entity. Also, there is a more pronounced pressure generated by social and environmental issues (environmental degradation, pollution, global warming, waste of resources, population growth, work by adolescents, social inequality, labour accidents, incidents, discrimination etc.). Facts other than financial information have become increasingly requested by users and are important information for decision making. This has increased the amount of information presented in the annual reports, especially in the notes and management's commentary, but the presentation is done in a piecemeal way. IR proposes the integration and connectivity of heterogeneous information. Investment funds are also interested in those businesses that take into account social and environmental responsibility. In April 2012, 1,100 investment firms managing 32 trillion dollars had signed the United Nations Principles for Responsible Investment (UNPR) (King and Roberts, 2013). In this context, IR facilitates access to capital (Koellner ***et al.,*** 2005). Another consideration which supports the need for IR is that the number of social and environmental regulations increased, and companies require additional support to cope. An International <Integrated Reporting> Framework (IIRF) recognized globally is important because it promotes understanding unified integrated reports, assists neutral and impartial reporting, integrated reports more comparable between companies and countries etc. Without standards, reports are less useful to interested parties.

While it is easy to become aware of the need for change, solving difficulties and limitations (legal, regulatory, technical and practical) is a catalyst in the evolution of IR (IIRC, 2012). Currently there are many impediments to companies wishing to adopt IR. In this regard, Rowbottom and Locke (2013), Higgins, Stubbs and Love (2014) revealed the following difficulties: the tension between reporting centred on history/peculiarities of the company and comparability of information, identifying the target group of users of integrated reports, establish threshold meaning. The fact that IIRF is a framework based on principles represents a limit, meaning that those who develop reports require more information (e.g. on key performance indicators to be presented by companies).

There were some other studies conducted on this topic (Dumay *et al.*, 2016). Yet, most of the literature reviews were conducted in the field of CSR reporting.

Dumay *et al.* (2016) present a structured literature review of 56 articles, of which 31 academic journals articles and 25 conference papers published or presented in the period 1 January 2011 – 1 March 2015. The authors conclude that there is a need for further critical debate which will lead to an understanding of the impact of IR in practice.

3. Research methodology

In order to conduct this research, we chose the articles included in two databases: Thomson Reuters and/or Scopus. We selected these databases as they are the best recognized in the academic assessments, being taken into account in many countries. Using this criterion for the selection, we consider that we conferred our research objectivity. We chose the period 1 January 2012 – 31 December 2016. We only selected the articles published in English. Thus, we obtained a database consisting of 126 articles. The papers were selected on January 7, 2017. In the two databases mentioned we searched for the following terms: integrated report, integrated reporting, integrated thinking. In Thomson Reuters we searched for this words in the title (as there was no other option), while in Scopus we searched in the title, key words and abstract. The list of articles included in our analysis in presented in Appendix 1.

We read each article and we prepared a database in Excel containing the information presented in Appendix 2. The list of analysed items was prepared based on Dumay *et al.* (2016), Lungu *et al.* (2016) and the authors' own experience.

4. Results

This paper presents the study of 126 articles published between 2012 and 2016 (*Table 1*). But most of the sample returned by our selection criteria (69%) is published in the last two years (2015 and 2016).

Table 1. **Publication years**

Year	Number of articles
2012	5
2013	13
2014	21
2015	47
2016	40
Total	126

(*Source:* Authors' compilation)

As regards the authors of the papers included in the sample, we found an average of 2.2 authors per paper. The minimum number of authors is 1 (27.78% of the articles) and the maximum is 6 (1 article).

As given in *Table 2*, it seems that the integrated reporting topic and related aspects are a research subject for university professors. 114 (90.48%) papers are written by academics and only 7 articles are co-written by practitioners and consultants. There was also found co-authorship between academics, consultants and practitioners, but only in the case of 5 articles (3.96%). Hence, practitioners or consultants have a small contribution to the IR research. This is consistent with the findings of Dumay *et. al.* (2016) that there is a need for a better communication between the accounting profession, practice and academics in order to understand the theory of integrated reporting in practice.

Table 2. **Authors**

Items	Number
Academics	114
Practitioner(s) and consultant(s)	7
Academics, practitioners and consultants	5
Authors' provenance	
North America	14

Australia	19
Asia	10
Europe, of which	77
United Kingdom	20
South Africa	13
Other	6

(*Source:* Authors' compilation)

The majority of the authors are from Europe, so this continent resulted as the most active region in the integrated reporting area. 77 (61%) papers have European authors and a quarter of these are from the UK. The second place goes to Australian authors with 19 articles. USA and Canada also contribute to this type of research with 14 papers. A surprising result is that only 13 papers (10.32%) belong to authors from South Africa where integrated reporting is mandatory which would have been expected to transform this country in the main focus of this type of research.

Table 3. **Themes**

Item	Number
External reporting	17
Auditing and assurance	5
Accountability and governance	2
Management control/Strategy	2
Performance measurement	2
Other	24
Meaning, definitions, models	5
Factors determining IR initiatives	10
IR in action	26
Tools	6
Principles	3
Fundamental concepts	9
Framework as a whole	9
Corporate governance	2
Risk	2

(*Source:* Authors' compilation)

In terms of themes analysed by the articles, the list of topics considered for this research is presented in *Table 3*. When a paper referred to a different topic than the ones considered, we classified that paper in the category 'Other'.

The summary of the results indicates that most of the articles (20.63%) mirror the practice of integrated reporting, namely the category 'IR in action'. An interesting result is that next in line is the item 'Other' which suggests that 19.04% of the articles don't refer to integrated reporting issues although this term is present in their title, abstract or key words.

Moreover, 13.49% of the papers included in the sample are in the field of external reporting, meaning that they approach IR as part of the corporate reporting.

Less present are themes like risk, corporate governance, performance measurement, management control/strategy, accountability and governance (only 2 articles each).

Table 4. **Theory used**

Item	Number
Normative accounting theory	8
Legitimacy theory	7
Stakeholder theory	7
Institutional theory	7
Agency's theory	6
Other economics theories	10
Math and statistics theory	10
Behavioral theories	1
No explicit theory	72

(*Source:* Authors' compilation)

The analysis of the theory used to develop the research in the articles (*Table 4*) shows that more than half of the papers (57.14%) have not conducted their research by reference to a theory. The most used theories are math and statistics theories and other general economic theories (7.94% of total each). Normative accounting theory is approached in 8 papers (6.35%) and the less used theories in integrated reporting articles are behavioural theories (only 1 paper).

In terms of research methodology, we considered the ones enumerated in table 5.

Table 5. **Research methodology**

Item	Number
Case study/field study	13
Content analysis/archival analysis	26
Discursive reasoning	5
Interview	11
Econometric analysis/regression	17
Survey/questionnaire	10
Other quantitative methods and statistics	7
Literature review	6
Commentary/normative/policy/conceptual	22
Other/multiple/not specified	16

(*Source:* Authors' compilation)

As presented in *Table 5*, there is a tendency to adopt qualitative methods in studying integrated reporting issues. About 40% of the sample is framed on a qualitative method. The most used research method is the content analysis/archival analysis: 20.63% of the papers. 22 articles (17.46%) are commentaries or conceptual studies. 13.49% of papers employ econometric models.

Also, 16 papers (12.70%) were developed using more than one research method or a method which was not included in our enumeration or no specific method. Case studies (13 articles), interviews (11 articles) and surveys (10 articles) were employed to obtain an integrated reporting study too.

Table 6. **Journals – 72 in total**

Journal	Number of articles published
Accounting, Auditing and Accountability Journal	10
Journal of Cleaner Production	9
Journal of Business Ethics	6
Critical Perspectives on Accounting	5
Sustainability Accounting, Management and Policy Journal	5
Accounting Education	4
Journal of Intellectual Capital	4
Amfiteatru Economic	3
Business Strategy and the Environment	3
Managerial Auditing Journal	3
Meditari Accountancy Research	3

(*Source:* Authors' compilation)

The articles we studied are published in 72 international journals between 2012 and 2016. *Table 6* presents top 11 journals according to the number of articles published. The numbers reveal the diversity of our sample. We have considered various journals, each one with its features and ranks.

The *Accounting, Auditing and Accountability Journal* published 10 articles from our sample. This journal had a specific issue dedicated to integrated reporting. The second place goes to the *Journal of Cleaner Production* with difference of one article. The *Journal of Business Ethics* ranks third with 6 papers published. Next in line are the *Critical Perspectives on Accounting* and *Sustainability Accounting, Management and Policy Journal* (with 5 articles each), the *Accounting Education* and *Journal of Intellectual Capital* (with 4 articles each). This top also mirrors the contribution of a Romanian journal in the area of integrated reporting, namely *Amfiteatru Economic*. The sample has five articles issued by Romanian authors and three of them are published in this journal. The other three journals at the end of *Table 6* published three articles each.

Table 7. **Tone**

Tone	Number
Positive	70
Neutral	49
Negative	7

(*Source:* Authors' compilation)

As integrated reporting is an emerging practice, we considered interesting to study the tone of the papers related to it (*Table 7*). We used three attributes for this criterion: positive, negative and neutral. Positive refers to an embracing attitude regarding integrated reporting concepts which comes from the exposition of the arguments. A paper was considered to have a negative tone when it only found flaws, weaknesses, deficiencies of this practice and suggested that isn't useful or necessary. A neutral tone equals a pure scientific/informative paper, with no specific direction of the disclosures.

70 articles (55.55%) embraced a positive view of the integrated reporting theory and practice, but there were also 7 papers with a negative tone. We will focus next on these last 7 papers. There are a lot of studies and organisations that support integrated reporting and state its numerous benefits, but it is important to consider also the discovered deficiencies. In this way, scholars may find future directions for research and also propose improvements in this area.

Alexander and Blum (2016) suggest that IR field may be too narrow and provides a mechanism for establishing a broader framework. Brown and Dillard (2014) argue that IR in the form proposed by IIRC is a too limited concept.

Flower (2015) argues that IIRC approach summarizes the concept of value creation as 'value for investors' and not 'value for society', so within an integrated report, sustainability issues are disregarded. In addition, it criticizes the composition of IIRC's council as being a way to support the established position of multinationals and accountancy professionals. He considers that integrated reporting appeared as a tool to reduce their concerns about the development of sustainability reporting and other forms of non-financial reporting supported by various organisations. Thomson (2015) supports Flower's vision over the integrated reporting phenomenon. He states that IR has a limited potential because it is 'too deeply rooted in the business case for sustainability rather than the sustainability case for business'.

Maniora (2015) demonstrates that integrated reporting highlights environmental, social and governance issues in a more theoretical way than in a practical one and that companies that already have an ESG reporting won't benefit from IR. The study also reveals that, once a company chooses to issue an integrated report, non-financial information loses the attention of stakeholders and that stand-alone ESG reporting seems to be a better instrument to increase their perception and interest in ESG aspects.

Morros (2016) associates integrated reporting with world peace as something 'almost everyone thinks it's a desirable goal, and most of us want to believe it's achievable, but we realize that it's not easy to deliver'. He states that the focus on value creation puts integrated reporting far from accountability and that the capitals should be called resources because otherwise integrated reporting only changes the words used to describe how companies create money. He brings into attention that there is still a confusion between integrated and sustainability reporting, that the first one is a reinforcement of the second and that there will be less disclosure on ESG information if integrated reporting becomes mandatory. He also mirrors the different publics that integrated and sustainability reports address to. Integrated reporting serves capital providers and potential investors because it seeks to present information about risk evaluation and future value growth, while sustainability reporting targets various stakeholders giving social, environmental and economic information.

Stachchezzini, Melloni and Lai (2016) claim that IR is a mean to reshape public image on corporate behaviour. They prove that companies choose IR as an impression management tool to detract attention from a low social and environmental performance. Their study also reveals that firms provide few quantitative indicators and little forward-looking information about their sustainability actions and performance.

Table 8. **Subject population/unit of analysis**

Item	Number
Countries	
Supranational/International/Comparative – General	15
Supranational/International/Comparative – Industry	2
Supranational/International/Comparative – Organisational	6
National – General	23
National – Industry	6
National – Organisational	15
One organisation	10
Not applicable	49
Companies	
Publicly listed	33
Private	5
Public sector	4
Other	20
Not applicable	64

(*Source:* Authors' compilation)

83 articles (65.87%) use samples to conduct their research, with an average size of 267.37 units. The minimum number of sample units is 1 and the maximum is 7,344 units. Most of the papers don't have as unit of analysis countries (39%) or companies (51%). The subject population is represented by users, stakeholders, specialists or there is a presentation of theoretical aspects concerning integrated reporting and related issues.

38 articles are focused on general studies, at international or national level. 31 papers focus on organisations, using different approaches: a comparison between different countries, within the same country or a case study on a specific company. Authors of these studies usually construct their sample from publicly listed companies. But 15.87% of the articles with firms as unit of analysis don't classify the sample in one of the categories we considered for this research. There were also found 4 articles centred on institutions from public sector. The IIRC Examples Database (http://examples.integratedreporting.org/home) contains only one integrated report published in 2013 by HM Revenue & Customs, the UK's tax, payments and customs authority, so this is an area where integrated reporting could be developed.

Table 9. **Place of research**

Item	**Number**
North America	7
Australia	8
Asia	5
Europe, of which	25
United Kingdom	6
South Africa	17
Other/not applicable/multiple	63

(*Source:* Authors' compilation)

As regards the place of research (*Table 9*), half of the articles studied don't refer to a specific region. As expected due to the fact that Europeans are the authors of 61% of the papers, the most used area of research is Europe. Although South Africans published only 10% of the articles from our sample, it seems that this country was studied by other nations too, being present in 17 papers (13.49%). Australia, North America and Asia are considered place of research in a lower degree, within less than 10% of the papers.

Table 10. **Specific industries – 27**

Item	Number
Agriculture	2
Banking	4
Children's wear and accessories	1
Construction	2
Energy, mining	1
Extractive petroleum	1
Financial services	2
Government, local authorities and charities	1
Health	1
Institutional investment	1
Manufacturing, mining, chemicals, energy, forestry/pulp and pipelines	1
Mining	5
Mining and metallurgy	1
Nonfinancial	4
Total	27

(*Source:* Authors' compilation)

As given in *Table 10*, 27 papers frame their research based on one or various industries. As expected, mining is the most analysed industry because it's the main component of South Africa's economy and because IR is mandatory in this country. Mining is also co-studied with metallurgy, energy, manufacturing or chemicals industries, as a sensitive domain from the environmental point of view, being the focus of eight articles in total. Banks and financial services are ranked second with six papers. The third place belongs to studies that exclude financial companies from their samples due to 'the existence of significant differences in the evaluation of their wealth and in their corporate structure'. Nonfinancial industries are approached in four articles, all belonging to Spanish authors. Agriculture and construction are the focus of 2 papers each. Other studies are conducted in the area of children's clothing, health or charity.

Table 11. **Statistics**

Items	Number of articles	Average	Minimum	Maximum	Standard deviation
Number of references	126	59.22	0	161	35.81
Number of citations according to Google	126	14.41	0	114	22.81
Number of downloads	46	1,624.52	116	7,695	1,579.08
Number of pages	126	19.31	4	52	10.43
Number of authors	126	2.20	1	6	1.04
Sample size	83	267.37	1	7,344	880.67
Number of months	50	7.3	1	20	5.08

between send and accept dates	

(*Source:* Authors' compilation)

As the purpose of an article is to be read and the number of citations and downloads are features that can give quality to it, we sourced this information on 16 January 2017. The number of downloads was only available for 46 papers.

The minimum number of citations according to Google is zero and the maximum is 114 citations, with an average of 14.41 citations per paper. According to Metcalf et. al. (2015) cited by Lungu ***et. al.*** (2016), research on accounting education received, on average, between 7.47 and 35.49 citations per publication. The minimum number of downloads is 116 and the maximum is 7,695, with an average of 1,624.52 downloads of an article.

Another dimension of the quality of an article is provided by its documentation background. Hence, we studied the number of references of the sample. 126 papers have cited a total number of 7,343 references. The average number of references is 59.22 per paper, with a minimum of zero and a maximum of 161 references.

For the length feature of the sample, we considered the number of pages. Between 2012 and 2016 there were written 2,433 pages on integrated reporting and related issues. The smallest number of pages in our sample is 4 pages and the greatest is 52, with an average of 19.31 pages.

Considering the international reputation of the databases we chose to establish our sample, we also studied the number of months between the receiving date of an article and its acceptation. The most favourable case was one month and the most unfortunate situation was a year and eight months, with an average of 7.3 months between the send date and the accept date.

5. Future research directions

The papers analysed mention various future research directions. The most important ones are presented in *Appendix 3*.

There is a needed focus on the reasons that convince a company to choose integrated reporting and there is also needed future research to explain the adoption of integrated reporting through internal and qualitative determinants (opinion from managers, employees, leadership style, etc.).

Another potential area to study is the connection between publishing an integrated report and ethical corporate behaviour. There are findings that prove that companies use integrated reporting to manipulate corporate communication, covering deficient social and environmental performance. Hence, there is a need for research in how integrated reporting improves company's communication and also in how this practice detracts attention from other poor areas of its activity and performance.

Also, other evidence for the good impact of an integrated report over firm valuation is requested in order to fulfil its stated role of creating value over short, medium and long term. In addition, the concept of ‘value creation’ is still debated regarding its beneficiary: how much is value for the organization and how much is for others and society.

The quality and reliability of business model disclosure within integrated reports represents other subject for future research, also in relation with ethical corporate behaviour. Among the capitals, intellectual capital is another potential topic of discussion. Further, previous researchers ask about the effects of IR practice on internal risk assessment process.

In some papers, there are studies on stakeholders’ perspective over this practice and scholars identified a focus on the investors within the content of integrated reports. This is why research should investigate what expect from an integrated report the other categories of stakeholders. In addition, there is also a need of comparison between financial markets reaction to IR information disclosure and to non-IR information disclosure.

More analyses about companies’ reporting on risks, strategy and forward-looking information are also needed as there has been found a deficiency in this area in the case of the studied firms.

Another issue that was found as future direction for research is the link between integrated reporting and CSR reporting. The question asked is to what extent ‘IR is a simple reflection of a CSR implementation’ and to what extent ‘IR is a driver of changes to CSR implementation’.

The role of the accountants and other professions in the context of the IR development and in assurance standards setting, metrics of a good integrated report and how to design a concise integrated report following all the guidance of the IIRC are also part of the future research agenda proposed through the articles from our sample.

Not least, there is a need to conduct a research in the area of auditing an integrated report and its role to provide credibility and trust in a company’s disclosures.

The articles also suggest increasing the dimension of the samples, extending the observation period, changing the industry chosen for the case study, repeating the same research among other type of organizations or between different countries to facilitate comparison.

6. Conclusions

More than a half of our sample consisted in articles published during the last two years. This shows that the literature in the field is developing and we are expecting many interesting ideas to occur.

Only seven articles were co-written with practitioners and consultants. Many academics asked for a more substantial contribution from the specialists involved in practice as they bring a different perspective. This is in line with Dumay *et al.*’s (2016) finding, which states that there is little research examining IR practice.

The majority of the authors (more than a half) are from Europe. It would be interesting to compare the findings in the papers written by the Europeans with the ones from other authors. Also, the place of research is Europe in most of the papers.

So far, there is no theory used predominantly in the papers dedicated to integrated reporting. We expect that as the field matures, we will have more papers which employ one theory.

Our approach has a few limits. For instance, we only selected the articles using the key words "integrated reporting", but there may be other similar terms (for instance, one report, strategic reporting etc.). This can generate the small number of articles in the sample with a negative tone. Also, we selected only the journals indexed in two databases (Scopus and Thomson Reuters), but there are other important journals in the accounting field (for instance, Journal of Accounting and Management Information Systems). On the other hand, other databases (for instance, DOAJ), returned a very small number of articles corresponding with our research criteria.

Other analyses can be made in the future. For instance, we can correlate the provenance of the authors with some factors which were analysed here.

References

Adams, S. & Simnett, R. (2011) "Integrated reporting: an opportunity for Australia's not-for-profit sector", *Australian Accounting Review*, vol. 21, no. 3: 292-301

Alexander, D. & Blum, V. (2016) "Ecological economics: A Luhmannian analysis of integrated reporting", *Ecological Economics*, vol. 129, no. 9: 241-251

Brown, J. & Dillard, J. (2014) "Integrated reporting: On the need for broadening out and opening up", *Accounting, Auditing & Accountability Journal*, vol. 27, no. 7: 1120-1156

CDP (2013) "Collaboration to accelerate integrated reporting between CDP, CDSB and IIRC", available online at http://integratedreporting.org/news/cdp-cdsb-and-iirc-announce-collaboration-to-accelerate-integrated-reporting/

Deloitte and Touche (2011) "Integrated reporting. A better view?", *UK: Global Sustainability and Global Change Services*

Dumay, J., Bernardi, C., Guthrie, J. & Demartini, P. (2016) "Integrated reporting: A structured literature review", *Accounting Forum*, vol. 40, no. 3: 166-185

Ernst and Young (2013) "Integrated Reporting. Communicating Sustainable Value Creation", EY, London, available at: www.ey.com/Publication/vwLUAssets/Integrated_reporting_-_Communicating_sustainable_value_creation/$FILE/EY-Integrated-Reporting.pdf

Flower, J. (2015) "The international integrated reporting council: A story of failure", *Critical Perspectives on Accounting*, vol. 27: 1-17

GRI (2013) "G4 Sustainability Reporting Guidelines", GRI, Amsterdam, available at: www.globalreporting.org/reporting/g4/Pages/default.aspx

IASB (2013) "Memorandum of Understanding, IIRC and IFRS", available at: www.theiirc.org/wp-content/uploads/2013/02/MoU-IIRC-IFRS-FOUNDATION-20130204.pdf

IIRC (2011) "About IR", available at http://www.theiirc.org/about/

IIRC (2014) "Pilot Programme Investor Network", IIRC, available at: www.theiirc.org/companiesand-investors/pilot-programme-investor-network/

King, M. & Roberts, L. (2013) "*Integrate. Doing Business in the 21st Century*", Juta, South Africa

Koellner, T., Weber, O., Fenchel, M. & Scholz R. (2005) “Principle for sustainability rating of investment funds”, *Business Strategy and the Environment*, vol. 14, no. 1: 54-70

KPMG (2013) “Integrated Reporting. Performance Insight Through Better Business Reporting”, Issue 2, KPMG, available at: www.kpmg.com/AU/en/IssuesAndInsights/ArticlesPublications/Better-Business-Reporting/Documents/integrated-reporting-issue-2.pdf

Lungu, C.I., Caraiani C., Dascălu C., Turcu D. & Turturea M. (2016) “Archival analysis of Corporate Social Responsibility research: The Romanian perspective”, *Accounting and Management Information Systems*, vol. 15, no.2: 341-371

Maniora, J. (2015) “Is integrated reporting really the superior mechanism for the integration of ethics into the core business model? An empirical analysis”, *Journal of Business Ethics*, pp. 1-32

Morros, J. (2016) “The integrated reporting: A presentation of the current state of art and aspects of integrated reporting that need further development”, *Intangible Capital*, vol. 12, no. 1: 336-356

PriceWaterhouse Coopers (2013) “Communicating performance and prospects”, PWC, available at: www.pwc.com/corporatereporting

Saghroun, J. & Eglem, J.Y. (2008) “A la recherche de la performance globale de l’entreprise: la perception des analystes financiers”, *Comptabilité, Contrôle, Audit*, vol. 14, no. 1: 93-118

SASB (2013) “Memorandum of Understanding, IIRC and SASB”, available at: www.theiirc.org/wp-content/uploads/2014/01/MoU-IIRC-SASB-Final.pdf

Stacchezzini, R., Melloni, G. & Lai, A. (2016) “Sustainability management and reporting: the role of integrated reporting for communicating corporate sustainability management”, *Journal of Cleaner Production*, vol. 136: 102-110

Thomson, I. (2015) “But does sustainability need capitalism or an integrated report' a commentary on ‘The International Integrated Reporting Council: A story of failure’ by Flower, J., *Critical Perspectives on Accounting*, vol. 27: 18-22

WEF (2011) “World Economic Forum discusses integrated reporting”, available at https://www.globalreporting.org/information/news-and-press-center/Pages/World-Economic-Forum-Discusses-Integrated-Reporting-.aspx

Appendix 1. **List of articles studied**

Abeysekera, I. (2013) "A template for integrated reporting", *Journal of Intellectual Capital*, vol. 14, no. 2: 227-245

Ackers, B. (2016) "An exploration of internal audit's corporate social responsibility role – insights from South Africa", *Social Responsibility Journal*, vol. 12, no. 4: 719-739

Adams, C.A. (2015) "The International Integrated Reporting Council: A call to action", *Critical Perspectives on Accounting*, vol. 27: 23-28

Adams, C.A., Potter, B., Singh, P.J. & York, J. (2016) "Exploring the implications of integrated reporting for social investment (disclosures)", *British Accounting Review*, vol. 48, no. 3: 283-296

Ahmed Haji, A. (2015) "The role of audit committee attributes in intellectual capital disclosures Evidence from Malaysia", *Managerial Auditing Journal*, vol. 30, no. 8/9: 756-784

Ahmed Haji, A. & Anifowose, M. (2016) "Audit committee and integrated reporting practice: does internal assurance matter?", *Managerial Auditing Journal*, vol. 31, no. 8/9: 915-948

Ahmed Haji, A. & Hossain, D.M. (2016) "Exploring the implications of integrated reporting on organisational reporting practice", *Qualitative Research in Accounting & Management*, vol. 13, iss. 4: 415-444

Alexander, D. & Blum, V. (2016) "Ecological economics: A Luhmannian analysis of integrated reporting", *Ecological Economics*, vol. 129, no. 9: 241-251

Atkins, J., Atkins, B.C., Thomson, I. & Maroun W. (2015) "Good" news from nowhere: imagining utopian sustainable accounting", *Accounting, Auditing & Accountability Journal*, vol. 28, no. 5: 651-670

Atkins, J. & Maroun, W. (2015) "Integrated reporting in South Africa in 2012 Perspectives from South African institutional investors", *Meditari Accountancy Research*, vol. 23, no. 2: 197-221

Atkins, J.F., Solomon, A., Norton, S. & Joseph, N.L. (2015) "The emergence of integrated private reporting", *Meditari Accountancy Research*, vol. 23, no. 1: 28-61

Baboukardos, D. & Rimmel, G. (2016) "Value relevance of accounting information under an integrated reporting approach: A research note", *Journal of Accounting and Public Policy*, vol. 35, no. 4: 437-452

Balashova, N.N., Šilerová, E. & Melikhov, V.A. (2015) "Developing the methodology to form integrated reporting of Agroholdings in the Russian Federation", *Agris On-line Papers in Economics and Informatics*, vol. 7, no. 4: 19-29

Beattie, V. & Smith, S.J. (2013) "Value Creation and Business Models: Refocusing the Intellectual Capital Debate", *British Accounting Review*, vol. 45, no. 4: 243-254

Beck, C., Dumay, J. & Frost, G. J. (2015) "In Pursuit of a 'Single Source of Truth': from Threatened Legitimacy to Integrated Reporting", *Journal of Business Ethics*, vol. 141, iss. 1: 191-205

Bemby, S.B., Mukhtaruddin, Hakiki, A. & Ferdianti, R. (2015) "Intellectual capital, firm value and ownership structure as moderating variable: Empirical study on banking listed in Indonesia stock exchange period 2009-2012", *Asian Social Science*, vol. 11, no. 16: 148-159

Birnik, A. (2013) "Developing climate change strategy: A framework for managers", *Thunderbird International Business Review*, vol. 55, no. 6: 699-717

Bluszcz, A. & Kijewska, A. (2015) "Challenges of sustainable development in the mining and metallurgy sector in Poland", *Metalurgija*, vol. 54, no. 2: 441-444

Bollas-Araya, H.-M., Seguí-Mas, E. & Polo-Garrido, F. (2014) "Sustainability reporting in European cooperative banks: An exploratory analysis", *REVESCO Revista de Estudios Cooperativos*, vol. 115: 30-56

Boonlua, S. & Phankasem, S. (2016) “Engagement in integrated reporting: Evidence from the international integrating reporting council adoption framework”, *Journal of Business and Retail Management Research*, vol. 10, no. 3: 126-136

Bouten, L. & Hoozée, S. (2015) “Challenges in sustainability and integrated reporting”, *Issues in Accounting Education*, vol. 30, no. 4: 373-381

Brown, J. & Dillard, J. (2014) “Integrated reporting: On the need for broadening out and opening up”, *Accounting, Auditing & Accountability Journal*, vol. 27, no. 7: 1120-1156

Brown-Liburd, H. & Zamora, V.L. (2015) “The role of corporate social responsibility (CSR) assurance in investors’ judgments when managerial pay is explicitly tied to CSR performance”, *Auditing*, vol. 34, no. 1: 75-96

Burke, J.J. & Clark, C.E. (2016) “The business case for integrated reporting: Insights from leading practitioners, regulators, and academics”, *Business Horizons*, vol. 59: 273-283

Burritt, R.L. (2012) “Environmental performance accountability: planet, people, profits”, *Accounting, Auditing & Accountability Journal*, vol. 25, no. 2: 370-405

Burritt, R.L., Christ, K.L. & Omori, A. (2016) “Drivers of corporate water-related disclosure: Evidence from Japan”, *Journal of Cleaner Production*, vol. 129: 65-74

Buys, P.W. & Van Niekerk, E. (2014) “The South African financial services industry's integrated reporting compliance with the global reporting initiative framework”, *Banks and Bank Systems*, vol. 9, no. 4: 107-115

Calu, A., Negrei, C., Calu, D.A. & Avram, V. (2015) “Reporting of Non-Financial Performance Indicators – a Useful Tool for a Sustainable Marketing Strategy”, *Amfiteatru Economic*, vol. 17, no. 40: 977-993

Carini, C. & Chiaf, E. (2015) “The relationship between annual and sustainability, environmental and social reports”, *Corporate Ownership and Control*, vol. 13, no. 1: 979-993

Cheng, M., Green, W., Conradie, P., Konishi, N. & Romi, A. (2014) “The International Integrated Reporting Framework: Key Issues and Future Research Opportunities”, *Journal of International Financial Management and Accounting*, vol. 25, no. 1: 90-119

Clayton, A.F., Rogerson, J.M. & Rampedi, I. (2015) “Integrated reporting vs. sustainability reporting for corporate responsibility in South Africa”, *Bulletin of Geography*, vol. 29, iss. 29: 7-17

Cohen, J.R., Holder-Webb, L. & Zamora, V.L. (2015) “Nonfinancial Information Preferences of Professional Investors”, *Behavioral Research in Accounting*, vol. 27, no. 2: 127-153

Cohen, S. & Karatzimas, S. (2015) “Tracing the future of reporting in the public sector: introducing integrated popular reporting”, *International Journal of Public Sector Management*, vol. 28, no. 6: 449-460

Correa Ruiz, C. (2013) “A Commentary on 'Integrated Reporting: A Review of Developments and their Implications for the Accounting Curriculum'”, *Accounting Education*, vol. 22, no. 4: 360-362

Coulson, A.B., Adams, C.A., Nugent, M.N. & Haynes K. (2015) “Exploring metaphors of capitals and the framing of multiple capitals: Challenges and opportunities for < IR >”, *Sustainability Accounting, Management and Policy Journal*, vol. 6, no. 3: 290-314

Davydiuk, T., Ostapiuk, N., Petrenko, N. & Malakhov, V. (2015) “Accounting in the system of human capital management at the business entities”, *Economic Annals XXI*, vol. 1-2, no. 1: 102-105

de Villiers, C., Rinaldi, L. & Unerman, J. (2014) “Integrated Reporting: Insights, gaps and an agenda for future research”, *Accounting, Auditing & Accountability Journal*, vol. 27, no. 7: 1042-1067

Dumay, J. (2015) “Forty-two: The meaning of life, the universe and numbers”, *SAGE Open*, vol. 5, iss. 1: 1-10

Dumay, J. (2016) “A critical reflection on the future of intellectual capital: from reporting to disclosure”, *Journal of Intellectual Capital*, vol. 17, no. 1: 168-184

Dumay, J., Bernardi, C., Guthrie, J. & Demartini, P. (2016) “Integrated reporting: A structured literature review”, *Accounting Forum*, vol. 40, iss. 3: 166-185

Dumitru, M., Gușe, R.G., Feleagă, L., Mangiuc, D.M. & Feldioreanu, A.I. (2015) "Marketing communications of value creation in sustainable organizations. The practice of integrated reports", *Amfiteatru Economic,* vol. 17, no. 40: 955-976

Eccles, R. (2012) "Get ready: Mandated integrated reporting is the future of corporate reporting", *MIT Sloan Management Review*, March 2012: 1-5

Ellwood, S. & Greenwood, M. (2016) "Accounting for heritage assets: Does measuring economic value 'kill the cat'?", *Critical Perspectives on Accounting*, vol. 38: 1-13

Esterhuyse, L. & Wingard, C. (2016) "An exploration of the online investor relations (IR) practices of companies listed on the Johannesburg Stock Exchange (JSE)", *South Africa Journal of Economic and Management Sciences*, vol. 19, no. 2: 215-231

Fernandez-Feijoo, B., Romero, S. & Ruiz, S. (2015) "Multilevel approach to sustainability report assurance decisions", *Australian Accounting Review*, vol. 25, no. 4: 346-358

Flower, J. (2015) "The international integrated reporting council: A story of failure", *Critical Perspectives on Accounting*, vol. 27: 1-17

Frias-Aceituno, J.V., Rodríguez-Ariza, L. & Garcia-Sánchez, I.M. (2014) "Explanatory Factors of Integrated Sustainability and Financial Reporting", *Business Strategy and the Environment*, vol. 23, no. 1: 56-72

Frias-Aceituno, J.V., Rodríguez-Ariza, L. & Garcia-Sánchez, I.M. (2013) "Is integrated reporting determined by a country's legal system? An exploratory study", *Journal of Cleaner Production*, vol. 44: 45-55

Frias-Aceituno, J.V., Rodríguez-Ariza, L. & Garcia-Sánchez, I.M. (2013) "The role of the board in the dissemination of integrated corporate social reporting", *Corporate Social Responsibility and Environmental Management*, vol. 20, no. 4: 219-233

García-Sánchez, I.-M., Rodríguez-Ariza, L. & Frías-Aceituno, J.-V. (2013) "The cultural system and integrated reporting", *International Business Review*, vol. 22, no. 5: 828-838

Gianfelici, C., Casadei, A. & Cembali, F. (2016) "The relevance of nationality and industry for stakeholder salience: an investigation through integrated reports", *Journal of Business Ethics*, pp. 1-18

Giovannoni, E. & Maraghini, M.P. (2013) "The challenges of integrated performance measurement systems Integrating mechanisms for integrated measures", *Accounting, Auditing & Accountability Journal*, vol. 26, no. 6: 978-1008

Glass, J. (2012) "The state of sustainability reporting in the construction sector", *Smart and Sustainable Built Environment,* vol. 1, no. 1: 87-104

Gonzalbez, J.M. & Rodriguez, M.M. (2012) "XBRL and integrated reporting: The Spanish accounting association taxonomy approach", *International Journal of Digital Accounting Research*, vol. 12: 59-91

Hąbek, P. & Wolniak, R. (2016) "Assessing the quality of corporate social responsibility reports: the case of reporting practices in selected European Union member states", *Quality and Quantity*, vol. 50, no. 1: 399-420

Haller, A. & van Staden, C. (2014) "The value added statement – an appropriate instrument for Integrated Reporting", *Accounting, Auditing & Accountability Journal*, vol. 27, no. 7: 1190-1216

Higgins, C., Stubbs, W. & Love, T. (2014) "Walking the talk(s): Organisational narratives of integrated reporting", *Accounting, Auditing & Accountability Journal*, vol. 27, no. 7: 1090-1119

Huggins, A., Simnett, R. & Hargovan, A. (2015) "Integrated reporting and directors' concerns about personal liability exposure: Law reform options", *Company and Securities Law Journal*, 33: 176-195

James, M.L. (2013) "Sustainability and integrated reporting: A case exploring issues, benefits and challenges", *Journal of the International Academy for Case Studies*, vol. 19, no. 8: 95-103

James, M.L. (2015) “Accounting majors’ perceptions of the advantages and disadvantages of sustainability and integrated reporting”, *Journal of Legal, Ethical and Regulatory Issues*, vol. 18, no. 2: 107-123

James, M.L. (2015) “The benefits of sustainability and integrated reporting: An investigation of accounting majors’ perceptions”, *Journal of Legal, Ethical and Regulatory Issues*, vol. 18, no. 1: 1-20

Jensen, J.C. & Berg, N. (2012) “Determinants of traditional sustainability reporting versus integrated reporting. An institutionalist approach”, *Business Strategy and the Environment*, vol. 21, no. 5: 299-316

Kamp-Roelands, N. (2013) “A commentary on ‘Integrated Reporting: A review of developments and their implications for the accounting curriculum”, *Accounting Education*, vol. 22, no. 4: 357-359

Kaspina, R.G. & Molotov, L.A. (2016) “Corporate integrated reporting: An efficient tool of economic security management”, *Academy of Strategic Management Journal*, vol. 15, iss. 1: 225-232

Kaspina, R.G., Molotov, L.A. & Kaspin, L.E. (2015) “Cash flow forecasting as an element of integrated reporting: An empirical study”, *Asian Social Science*, vol. 11, no. 11: 89-94

Krasodomska, J. (2015) “CSR disclosures in the banking industry. Empirical evidence from Poland”, *Social Responsibility Journal*, vol. 11, no. 3: 406-423

Kuzina, R.W. (2014) “Integrated reporting as a mechanism of increasing business value”, *Actual Problems of Economics*, no. 158: 385-392

Lai, A., Melloni, G. & Stacchezzini, R. (2016) “Corporate Sustainable Development: Is ‘Integrated Reporting’ a Legitimation Strategy?”, *Business Strategy and the Environment*, vol. 25, no. 3: 165-177

Lee, K.-W. & Yeo, G.H.-H. (2016) “The association between integrated reporting and firm valuation”, *Review of Quantitative Finance and Accounting*, vol. 47, no. 4: 1221-1250

Lodhia, S. (2015) “Exploring the transition to integrated reporting through a practice lens: An Australian customer owned bank perspective, *Journal of Business Ethics*, vol. 129, no. 3: 585-598

Lodhia, S. & Hess, N. (2016) “Sustainability accounting and reporting in the mining industry: Current literature and directions for future research”, *Journal of Cleaner Production*, vol. 84: 43-50

Lorenc, S. & Sorokina, O. (2015) “Sustainable development of mining enterprises as a strategic direction of growth of value for stakeholders”, *Mining Science*, vol. 12, no. 2: 67-78

Lueg, K., Lueg, R., Andersen, K. & Dancianu, V. (2016) “Integrated reporting with CSR practices: A pragmatic constructivist case study in a Danish cultural setting”, *Corporate Communications: An International Journal*, vol. 21, no. 1: 20-35

Maas, K., Schaltegger, S. & Crutzen N. (2016) “Integrating corporate sustainability assessment, management accounting, control, and reporting”, *Journal of Cleaner Production*, vol. 136: 237-248

Maniora, J. (2015) “Is integrated reporting really the superior mechanism for the integration of ethics into the core business model? An empirical analysis”, *Journal of Business Ethics*, pp. 1-32

Meintjes, C. & Grobler, A.F. (2014) “Do public relations professionals understand corporate governance issues well enough to advise companies on stakeholder relationship management?”, *Public Relations Review*, vol. 40, no. 2: 161-170

Melloni, G. (2015) “Intellectual capital disclosure in integrated reporting: an impression management analysis”, *Journal of Intellectual Capital*, vol. 16, no. 3: 661-680

Melloni, G., Stacchezzini, R. & Lai, A. (2016) “The tone of business model disclosure: an impression management analysis of the integrated reports”, *Journal of Management and Governance*, vol. 20, iss. 2: 295-320

Mio, C., Marco, F. & Pauluzzo, R. (2016) “Internal application of IR principles: Generali’s Internal Integrated Reporting”, *Journal of Cleaner Production*, vol. 139: 204-218

Moloi, T. (2015) “A critical examination of risks disclosed by South African mining companies' pre and posts Marikana event”, *Problems and Perspectives in Management*, vol. 13, no. 4: 168-176

Morros, J. (2016) “The integrated reporting: A presentation of the current state of art and aspects of integrated reporting that need further development”, *Intangible Capital*, vol. 12, no. 1: 336-356

Müller, S. & Stawinoga, M. (2015) “Stakeholder expectations on CSR management and current regulatory developments in Europe and Germany”, *Corporate Ownership and Control*, vol. 12, no. 4: 505-512

Nagel-Picioruş, C., Nagel-Picioruş, L. & Sârbu, R. (2016) “Milestones in implementation of an integrated management system in the health sector. Case study Radiologische Netzwerk Rheinland”, *Amfiteatru Economic,* vol. 18, no. 42: 432-445

Nazari, J.A., Herremans, I.M. & Warsame, H.A. (2015) “Sustainability reporting: external motivators and internal facilitators”, *Corporate Governance*, vol. 15, no. 3: 375-390

Oliver, J., Vesty, G. & Brooks, A. (2016) “Conceptualising integrated thinking in practice”, *Managerial Auditing Journal*, vol. 31, iss. 2: 228-248

Ovchinnikov, A.S., Tseplyaev, A.N., Balashova, N.N., Šilerová, E. & Melikhov, V.A. (2014) “Monitoring of integrated accounts rendering and non-financial information disclosure to agricultural holdings (on the basis of the Volgograd region)”, *Agris On-line Papers in Economics and Informatics*, vol. 6, no. 4: 89-100

Owen, G. (2013) “A rejoinder to commentaries on ‘Integrated Reporting: A review of developments and their implications for the accounting curriculum”, *Accounting Education*, vol. 22, no. 4: 363-365

Owen, G. (2013) “Integrated Reporting: A review of developments and their implications for the accounting curriculum”, *Accounting Education*, vol. 22, no. 4: 340-356

Perego, P., Kennedy, S. & Whiteman, G. (2016) “A lot of icing but little cake? Taking integrated reporting forward”, *Journal of Cleaner Production*, vol. 136: 53-64

Raemaekers, K., Maroun, W. & Padia, N. (2016) “Risk disclosures by South African listed companies post-King III”, *South African Journal of Accounting Research*, vol. 30, no. 1: 41-60

Rambaud, A. & Richard, J. (2015) “The “Triple Depreciation Line” instead of the “Triple Bottom Line”: Towards a genuine integrated reporting”, *Critical Perspectives on Accounting*, vol. 33: 92-116

Rassulova, N. & Ardatieva, T. (2014) “Features of nature protection activity expenses classification and accounting”, *Economic Annals-XXI*, vol. 3-4, no. 2: 67-70

Rebai, S., Azaiez, M.N. & Saidane, D. (2016) “A multi-attribute utility model for generating a sustainability index in the banking sector”, *Journal of Cleaner Production*, vol. 113: 835-849

Rensburg, R. & Botha, E. (2015) “Is Integrated Reporting the silver bullet of financial communication? A stakeholder perspective from South Africa”, *Public Relations Review*, vol. 40, no. 2: 144-152

Reuter, M. & Messner, M. (2015) “Lobbying on the integrated reporting framework: An analysis of comment letters to the 2011 discussion paper of the IIRC”, *Accounting, Auditing & Accountability Journal*, vol. 28, no. 3: 365-402

Robertson, F.A. & Samy, M. (2015) “Factors affecting the diffusion of integrated reporting – a UK FTSE 100 perspective”, *Sustainability Accounting, Management and Policy Journal*, vol. 6, no. 2: 190-223

Rowbottom, N. & Locke, J. (2016) “The emergence of <IR>”, *Accounting and Business Research*, vol. 46, no. 1: 83-115

Ruiz-Lozano, M. & Tirado-Valencia, P. (2016) “Do industrial companies respond to the guiding principles of the Integrated Reporting framework? A preliminary study on the first companies joined to the initiative”, *Revista de Contabilidad*, vol. 19, no. 2: 252-260

Schörger, D. & Sewchurran, K. (2015) "Towards an interpretive measurement framework to assess the levels of integrated and integrative thinking within organisations", *Risk Governance and Control: Financial Markets and Institutions*, vol. 15, no. 3: 44-66

Searcy, C. & Buslovich, R. (2014) "Corporate perspectives on the development and use of sustainability reports", *Journal of Business Ethics*, vol. 121, no. 2: 149-169

Seele, P. (2016) "Digitally unified reporting: how XBRL-based real-time transparency helps in combining integrated sustainability reporting and performance control", *Journal of Cleaner Production*, vol.136: 62-77

Setia, N., Abhayawansa, S., Joshi, M. & Huynh, A.V. (2015) "Integrated reporting in South Africa: Some initial evidence", *Sustainability Accounting, Management and Policy Journal*, vol. 6, no. 3: 397-424

Sierra-García, L., Zorio-Grima, A. & García-Benau, M.A. (2015) "Stakeholder engagement, Corporate social responsibility and integrated reporting: an exploratory study", *Corporate Social Responsibility and Environmental Management*, vol. 22, no. 5: 286-304

Simnett, R. & Huggins A. (2015) "Integrated reporting and assurance: Where can research add value?", *Sustainability Accounting, Management and Policy Journal*, vol. 6, no. 1: 29-53

Slack, R. & Munz, M. (2016) "Intellectual capital reporting, leadership and strategic change", *Journal of Applied Accounting Research*, vol. 17, no. 1: 61-83

Soyka, P.A. (2013) "The International Integrated Reporting Council (IIRC) Integrated Reporting Framework: Toward better sustainability reporting and (way) beyond", *Environmental Quality Management*, vol. 23, no. 2: 1-14

Stacchezzini, R., Melloni, G. & Lai, A. (2016) "Sustainability management and reporting: the role of integrated reporting for communicating corporate sustainability management", *Journal of Cleaner Production*, vol. 136: 102-110

Stent, W. & Dowler, T. (2015) "Early assessments of the gap between integrated reporting and current corporate reporting", *Meditari Accountancy Research*, vol. 23, no. 1: 92-117

Steyn, M. (2014) "Organisational benefits and implementation challenges of mandatory integrated reporting: Perspectives of senior executives at South African listed companies", *Sustainability Accounting, Management and Policy Journal*, vol. 5, no. 4: 476-503

Stubbs, W. & Higgins, C. (2014) "Integrated Reporting and internal mechanisms of change", *Accounting, Auditing & Accountability Journal*, vol. 27, no. 7: 1068-1089

Stubbs, W. & Higgins, C. (2015) "Stakeholders' perspectives on the role of regulatory reform in integrated reporting", *Journal of Business Ethics*, pp. 1-20

Szczepankiewicz, E.I. & Mućko P. (2016) "CSR reporting practices of polish energy and mining companies", *Sustainability (Switzerland)*, vol. 8, no. 2: 1-17

Thomson, I. (2015) "But does sustainability need capitalism or an integrated report" a commentary on "The International Integrated Reporting Council: A story of failure" by Flower, J., *Critical Perspectives on Accounting*, vol. 27: 18-22

Turcu, R.D. (2015) "Integrated reporting: the next step ahead for a sustainable society, *European Journal of Business Science and Technology*, vol. 1, no. 1: 63-75

Turturea, M. (2015) "Social and environmental reporting as a part of the integrated reporting", *Acta Universitatis Agriculturae et Silviculturae Mendelianae Brunensis*, vol. 63, no. 6: 2161-2170

van Bommel, K. (2014) "Towards a legitimate compromise? An exploration of integrated reporting in the Netherlands", *Accounting, Auditing & Accountability Journal*, vol. 27, no. 7: 1157-1189

Vaz, N., Fernandez-Feijoo, B. & Ruiz, S. (2016) "Integrated reporting: an international overview", *Business Ethics*, vol. 25, no. 4: 577-591

Velte, P. & Stawinoga, M. (2016) "Integrated reporting: The current state of empirical research, limitations and future research implications", *Journal of Management Control*, pp. 1-46

Veltri, S. & Silvestri, A. (2015) "The Free State University integrated reporting: A critical consideration", *Journal of Intellectual Capital*, vol. 16, no. 2: 443-462

Vidal, N.G., Berman, S. & Van Buren, H. (2015) "Stakeholder theory and value creation models in Brazilian firms", *Revista Brasileira de Gestao de Negocios*, vol. 17, no. 55: 911-931

Vinnari, E. & Dillard, J. (2016) "(ANT)agonistics: Pluralistic politicization of, and by, accounting and its technologies", *Critical Perspectives on Accounting*, vol. 39: 25-44

Wulf, I., Niemöller, J. & Rentzsch, N. (2016) "Development toward integrated reporting, and its impact on corporate governance: a two-dimensional approach to accounting with reference to the German two-tier system", *Journal of Management Control*, vol. 25, no. 2: 135-164

Zappettini, F. & Unerman, J. (2016) "'Mixing' and 'Bending': The recontextualisation of discourses of sustainability in integrated reporting", *Discourse and Communication*, vol. 10, no. 5: 521-542

Zicari, A. (2014) "Can one report be reached? The challenge of integrating different perspectives on corporate performance", *Critical Studies on Corporate Responsibility, Governance and Sustainability*, vol. 6: 201-216

Appendix 2. **Data extracted from the articles**

- Received (date)
- Accepted (date)
- Journal in which the article was published
- Publication year
- Theme of the articles published
  - External reporting
  - Auditing and assurance
  - Accountability and governance
  - Management control/Strategy
  - Performance measurement
  - Other
  - Meaning, definitions, and models;
  - Factors determining IR initiatives;
  - IR in action;
  - Tools used for the preparation of the integrated reports;
  - IR principles;
  - IR fundamental concepts;
  - IR framework as a whole;
  - Corporate governance;
  - Risk;
- Theory used:
  - Positive accounting theory;
  - Normative accounting theory;
  - Legitimacy theory;
  - Stakeholder theory;
  - Institutional theory;
  - Agency's theory;
  - Other economics theories;

    - Finance;
    - Math and statistics theories;
    - Behavioural theories;
    - No explicit theory;
- Research method
    - Analytical modelling;
    - Case study/field study;
    - Content analysis/archival analysis;
    - Discursive reasoning;
    - Interview;
    - Econometric analysis/regression;
    - Survey/questionnaire;
    - Other quantitative methods and statistics;
    - Literature review;
    - Commentary/normative/policy;
    - Other/multiple/not specified;
- Subject population/unit of analysis:
    - Countries:
        - Supra-national/International/Comparative – General;
        - Supra-national/International/Comparative – Industry;
        - Supra-national/International/Comparative – Organisational;
        - National – General;
        - National – Industry;
        - National – Organisational;
        - One organisation;
        - Not applicable;
    - Companies:
        - Publicly listed;
        - Private;
        - Public sector;
        - Not-for-profit;
        - Other;
        - Not applicable;
- Average sample size;
- Place of research:
    - North America;
    - Australia;
    - Asia;
    - Europe, including UK;
    - UK;
    - South Africa;
    - Other;
- Analysed industries;
- Number of authors;
- Authors:
    - Academic(s);
    - Practitioner(s) and consultant(s);
    - Academics, practitioners and consultants;
- Author(s) provenance:
    - North America;

  - Australia;
  - Asia;
  - Europe, including UK;
  - UK;
  - South Africa;
  - Other;
- Number of pages;
- Number of references;
- The articles' citations according to Google Scholar (16 January 2017);
- The articles' downloads according to the journal's website;
- Tone:
  - Positive;
  - Negative.

Appendix 3. **Future research opportunities in the integrated reporting field**

Future research area	Quotation from the article	Article
· Motivation and encouragement to issue an integrated report · Contribution to IR of ecologic, economic and social performance · Theories to explain IR · Stakeholders' view over IR · External auditing of IR	What motivates companies to voluntarily publish integrated reports? How does ecological, economic and social performance contribute to IR activity? Are any of the other commonly used theories able to explain IR activity? What is necessary to encourage more companies to adopt IR? How do the stakeholders react to IR? What role does external auditing play for IR? What needs to be done to establish fundamental knowledge for (future) users? Does the value added of mandatory versus voluntary IR differ?	Jensen J.C. & Berg N. (2012)
· Motivation to adopt IR · Determinants for IR adoption	The future research agenda on IR can also consider different research perspectives to understand a firm's motivation to adopt this type of report. […], future research may also analyse the role of 'internal actors' (e.g. managers and other organization members) to explain IR adoption.	Lai A., Melloni G., Stacchezzini R. (2016)
	Future research may attempt to investigate the relationship between a company's decision to publish an integrated report by reference to its financial, social and environmental performances.	Turcu R.D. (2015)
· Link between IR and firm valuation	To our knowledge, our study is one of the few, if not the first, to generate evidence supporting the IIRC's claim that IR adoption improves firm valuation. Given the scarcity of evidence, we recommend further research in this direction.	Lee K.W. & Yeo G.H.H. (2016)
· IR as driver for ethical business conduct	[…] more research is needed that focuses on the long-term consequences of IR with a special focus on the role of IR as a vital driver for ethical business conduct.	Maniora J. (2015)
· Pathways to adopt IR	[…] future studies could use larger, secondary	Lueg K.,

· Connection between IR and CSR implementation	data sets […] or case studies to elucidate why companies choose different pathways […] to adopt IR […]. Specifically, it might be fruitful to follow the diffusion process of IR in similar cultural settings where this reporting is mandatory (e.g. South Africa) or voluntary (e.g. UK). Future research could also investigate whether the motivations of stakeholders to favour CSR are affected by the way a company gathers information (response vs involvement strategy) [...]. Finally, future research could investigate to extent to which IR is a simple reflection of a CSR implementation and to extent to which IR is a driver of changes to CSR implementation.	Lueg R., Andersen K. & Dancianu V. (2016)
· Intellectual capital disclosure in the integrated report · Use of different impression management strategies/techniques to demonstrate that IR is used to manipulate corporate behaviour	[…] the analysis was focused on the sole value creation/business model section: next studies could assess the ICD offered in the whole IR in order to gain a more complete picture of firms' reporting behaviour. […] next studies could incorporate variables other than those chosen as proxies of firms' incentives to manipulate corporate communication here, such as a weak corporate governance system. […] we focus on a sole IM strategy (i.e. thematic manipulation): future research could investigate the presence of different IM techniques such as graph manipulation.	Melloni G. (2015)
· Analysis of the effect of ESG performance on the quality of business model disclosure · Comparison between IR adopters and non-adopters in terms of business model disclosure	As far as the attention of investors on environmental, social and governance (ESG) corporate performances is expected to grow up, next researches may incorporate the analysis of the effects of these performances on the quality of BMD. […] Finally, a comparison between IR adopters and non-adopters in terms of BMD provided was out of the scope of our research: it would be an interesting area for future investigations.	Melloni G., Stacchezzini R. & Lai A. (2016)
· Companies' reporting on risk and strategies · The effect of IR on performance or value relevance	For instance, further research should study the actual content of the IR and how companies are reporting on their risks and strategies, as well as the effect of this reporting strategy on performance or value relevance (initial evidence seem to confirm that integrated reporting creates value over time […]).	Sierra-García L., Zorio-Grima A. & García-Benau M.A. (2015)
· The role of IR in communicating sustainability · Link between sustainability actions and performance indicators	[…] additional research should extend this analysis to other parts of the report, such as the strategy or governance sections, or in other corporate reports, such as the financial ones, to determine whether and how sustainability is embedded in them. Further research also could examine corporate communications that detail how sustainability actions link to particular performance indicators.	Stacchezzini R., Melloni G. & Lai A. (2016)

· The relationship with stakeholders that control vital resources of the companies that don't issue an integrated report · Opinions of IR companies' seniors to identify reasons for their option to IR	In addition, it would be interesting to identify how companies that do not disclose integrated information manage their relationship with different actors, especially with those who control resources that are vital for the firms, and to examine how these significant stakeholders take decisions without access to certain levels of relevant information. Moreover, case studies based on interviews with senior officials of companies that do publish integrated reports should be developed, in order to determine their reasons for voluntarily providing this new form of business information.	Frias-Aceituno J.V., Rodríguez-Ariza L. & Garcia-Sánchez I.M. (2014)
· Take into account a wider stakeholder audience than investors when preparing an integrated report · Different perspectives over value creation of other stakeholders than investors	In addition, it is critical that further research should include investigating the organisational gains in enhancement stakeholder relations when preparing an integrated report for a wider stakeholder audience than investors […] and determining a possible path forward for consideration of this in the international framework.	Steyn M. (2014)
	Stakeholders representing the other forms of capital (such as human, social and relationship, and natural capital) are likely to have a different perspective of integrated reporting with respect to stewardship, accountability and value creation, and of the role of regulation in addressing these concerns.	Stubbs W., Higgins C. (2015)
· Following the guidance of the IIRF · Companies behaviour regarding ESG aspects	Future research should emphasize whether companies issuing integrated reports follow all the principles and content elements presented within the IR Framework in disclosing pieces of information and whether entities behaviour regarding ESG aspects differ in various jurisdictions.	Turturea M. (2015)
· On-line communication with investors through integrated reports	Further research could also be conducted with the CFOs and IR officers in South Africa to elicit their views on the use of the internet as a cost-effective investor communications channel and the extent of resources invested in IR activities.	Esterhuyse L & Wingard C. (2016)
· Marketing function of IR	One of the directions for future research that we envisage is a more developed quantitative analysis based on the relative amounts of the value distributed to different groups of stakeholders. In addition, we intend to perform more detailed analyses of stakeholder groups that could result in further classifications, based on the information from the narrative sections of annual reports, in conjunction with the information in VASs and financial statements.	Dumitru M., Gușe R.G., Feleagă L., Mangiuc D.M. & Feldioreanu A.I. (2015)
· Value for the	there are numerous avenues for further research	Coulson

organization vs value for others in the context of integrated reports · Measuring the dynamics of capitals, the transformation of one capital into another(s)	[…]: examining and developing approaches to measuring the increases and decreases in different stocks of capitals and the transformation on one capital into (an)other(s); exploring how different organizations articulate what they mean by “value” and how this relates to value for the organization and value for others; reflecting on developments in reporting on multiple capitals, including whether and how trade-off between capitals owned by an organization and those owned by others or not owned at all are reported; critiquing the relationship between, and impacts of, traditional triple bottom line approaches to reporting and reporting on multiple capitals; and, the influence of multiple capitals reporting and thinking on organisational behaviour […].	A.B., Adams C.A., Nugent M.N. & Haynes K. (2015)
· Integrated reporting in the public sector	Future research should involve the study of experts’ opinion (policy makers, public sector entities, citizens’ representation groups, etc.) on these topics through the conduction of interviews and discussions or through the development of a questionnaire in order to come up with a template and outline that will be inclusive and informative while striking a balance between completeness and selectiveness.	Cohen S. & Karatzimas S. (2015)
· Role and importance of the auditing committee in IR practice	Future studies should examine the role of audit committee function in IR practice in a voluntary reporting context to ascertain the observed link between audit committee and IR. […]There is, therefore, an opportunity for future studies to investigate the impact of other audit committee expertise such as governance, legal and industry on IR practice.[…] Future studies may want to undertake an in-depth investigation on the role of the audit committee function in wider organisational reporting practice, particularly its role in the emerging IR practice.	Ahmed Haji A. & Anifowose M. (2016)
· Difference between sustainability reporting and integrated reporting · Value creating vs. value destroying consequences of companies’ stated strategies · Risk disclosure · Practice of IR in different institutional contexts · Innovation of auditing	[…] how will the disclosures around social and environmental (or human, social and relationship, and natural) capitals differ between (IIRC-type) integrated reports and (GRI-type) sustainability reports? […] Whether senior executives endeavour to exploit social and environmental capitals or to ameliorate their influences, how will they go about balancing and weighing up the value creating and value destroying consequences of their proposed strategies? To what extent will specific mechanisms be created for the purpose of weighing up these	de Villiers C., Rinaldi L. & Unerman J. (2014)

· Companies' internal risk assessment process · IR's assurance standards setting · Role of the accountant profession (and of other professions) in the context of the IR development · Consideration of material impacts over the entire value chain · How to issue a concise integrated report following all the guidance of the IIRC? · Financial markets reaction at IR vs. non-IR disclosures · Metrics to define/measure a good integrated report	matters, or will the IIRC's privileging of shareholder interests entrench the neglect of social and environmental capitals, being for the most part externalities to the organisation? How will organisations, especially business organisations, deal with the risk inherent in making predictions about the future, as required by IIRC-type integrated reporting? How will the differences in institutional rules and structures, as well as corporate culture, in different countries influence the practice of integrated reporting, with special reference to the differential risk of litigation? […] Will integrated reporting prompt auditors to find innovative ways to deal with the issue of being unable/unwilling to express an opinion on future-oriented information? How will the renewed focus on risk prompted by integrated reporting change firms' internal risk assessment processes? How will auditors' requirements around auditability influence internal processes, information gathering and the provision of evidence in support of increasingly future oriented disclosure? […] What mechanisms are most effective in prompting assurance service standard setters to change their standards to accommodate the requirements of integrated reporting? Will financial audit standards and sustainability assurance standards converge, and what would prompt such convergence? […] Which stakeholders are most influential in affecting the direction of integrated reporting audit and assurance standard setting? […] What is the role of accountants and professional accounting bodies in creating new standards and ensuring additional work for and job reservation for members of their organisations in the context of development of integrated reporting? Given accountants' success at internationalising their rules and now innovating with new regulatory regimes, like integrated reporting, what and how can the other professions learn from the accounting profession? […] How and to what extent are integrated reporting processes truly integrated and are these processes truly embedded in organisations' management control systems?	

	How and to what extent does integrated reporting influence the short-term, medium-term, and/or longer-term perspective of: information; disclosure; and/or management orientation? How and to what extent does integrated reporting influence the consideration of the material impacts of the business across the entire value chain? How do organisations go about producing a concise integrated report, whilst covering all the capitals and all the perspectives suggested by the IIRC? Given that an IIRC integrated report has a particular focus, how/where is it generally published by organisations and what is its relationship to the statutory annual report? Is the decision to disclose an integrated report value relevant, in other words do the financial markets react or reflect a value premium in any way? How can a good integrated report be distinguished from others, in other words are there particular metrics that capture the characteristics of a good integrated report?	
· Determining materiality and risks for integrated reports · The concept of integrated thinking · Qualitative determinants of IR · Changes in internal systems, processes, decision making after the adoption of IR · IR in the public and non-profit sector · Assurance of integrated reports	Further research […] might explore: Process of determining materiality and identifying risks for integrated reports. Internal communications/ “integrated thinking”/breaking down silos. Factors that determine uptake of <IR> including qualitative factors such as role of leadership/leadership style. Changes to internal systems, processes and decision making on adoption of <IR>. Accounting for transformations in the capitals. The role of the multiple capitals concept in identifying risks and opportunities. Implications of <IR> uptake for sustainability management and reporting practices. Role and take up of <IR> in public and not-for-profit sectors. The political landscape – relationships with other frameworks, Stock Exchange requirements, national regulation. The impact of <IR> on decision making and outcomes. Analyst responses to integrated reports. Approaches to assurance of integrated reports.	Adams C.A. (2015)
· Link between changes in reporting practice and stakeholders' relationship · Usefulness of integrated reporting information to stakeholders	We see potential for further research focussing on changes in reporting by those companies not explicitly identifying with the <IR> movement to complement the growing body of research examining the content of integrated reports. Future research might also explore the means by which ideas and trends affecting corporate reporting on specific issues, such as social investment, travel and are translated and applied within firms. For example, do changes	Adams C.A., Potter B., Singh P.J. & York J. (2016)

	in reporting practice change the way companies engage with broader stakeholders and think about their social investment (or other) activities? Further, little is known about the usefulness of more integrated approaches to reporting information to investors and other stakeholders.	

(*Source*: Authors' compilation)

Integrated reporting in European context: Practices-in-use vs. IR framework requirements

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Abstract:

Idea: *The main objective of this paper is to assess the compliance level of the integrated reports published by the European companies which have adopted the Integrated Reporting initiative, with the IIRC Framework suggestions regarding its content elements and six capitals.*

Data: *This research studies 30 European companies which have adopted the Integrated Reporting initiative and have published integrated or annual reports for the 2015 fiscal year. The source for this data is the IR Examples Database.*

Tools: *This research was carried out by using a content analysis and scoring based methodology. To complete this analysis, Microsoft Excel 2013 was used.*

What's new? *The results reveal that the companies are in different stages regarding the conformity with the IIRC requirements. Moreover, some companies analysed in this study are in the vanguard of the initiative whereas others produce "combined" rather than "integrated" reports.*

So what? *Integrated reporting is a practice which seeks to communicate an organization's value through a holistic picture integrating both financial and non-financial information. This process is in its incipient phase, with many companies unsure of how prepare a truly integrated report. This study aims to provide a better understanding on integrated reporting and how it should be implemented.*

Contribution: *This research contributes to relevant literature by analysing the post IIRC Framework publication period, as it studies integrated or annual reports published for the 2015 fiscal year.*

Keywords: *Integrated reporting, content elements, six capitals, content analysis; scoring*

1. Introduction

In recent years, due to the increasing complexity of international business environment, new reporting stipulations were necessary and were added by laws, regulations, standards, codes, guidelines or stock exchange requirements (IIRC, 2011). This has led to an increased amount of information presented by companies, leading to long and complex financial reports, with technical details that require a high level of expertise to be understood (Deloitte, 2012).

Although awareness regarding the responsibility for reporting to stakeholders is growing, companies still require confirmations related to the usefulness of sustainable

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reporting practices. Companies would prefer to include in the reports only positive aspects which highlight the business related strengths, while disclosure of environmental and social indicators can lead to competitive disadvantages (Dima *et al*., 2015).

Also, companies have the tendency to include more management related issues than performance insights and the presented information can be easily manipulated and it usually has a marginal relevance to the business. The listed items aim to positively influence the economic situation or to demonstrate the best practices regarding sector regulations application, providing useful information only for the company's management (Bonila-Priego *et al*., 2014).

In order to meet the stakeholders' information needs, companies have issued increasingly more reports of non-financial nature, including the social, environmental and economic impacts, not only as a form of accountability, but also as a way to design the company's strategy. (Lungu *et al*., 2011).

Outstanding companies have begun to integrate all their reports into one paper, producing integrated reports in order to achieve sustainable development. This allows to provide the necessary information to the stakeholders by allocating a minimum of resources. This report provides information on corporate governance, strategy and performance in an organized manner, and it highlights the context in which the company operates (García-Sánchez *et al*., 2013; IIRC, 2013; Eccles and Krzus, 2010). A new concept that incorporates the principles of sustainability reporting was developed as integrated reporting. This notion is seen as a way of presenting an extensive business model and the value creation process within a company, the adoption of a long-term perspective being supported (Adams, 2014 cited by Dima *et al*., 2015).

Integrated reporting involves connecting financial and non-financial information in a single report, in order to highlight the existing interdependencies, therefore significantly increasing the quality of reporting. Integrated reporting is the most efficient way to identify issues which affect corporate activity and is the modality to achieve an improved resource allocation. All of these support integrated thinking, and the management actions are aimed at creating value (Hurghiș, 2017).

The paper is structured into four more sections. Section 2 contains a relevant literature review which offers insights on IIRC Framework's (2013) content elements and six capitals. The next section covers the research methodology and the studied sample, whereas section 4 is dedicated to discuss the obtained results. Finally, the conclusions and the limitations of this study are presented in the fifth section.

2. Literature review

Previous research on integrated reporting, such as Frías-Aceituno *et al*. (2013), García-Sánchez *et al*. (2013), and Hurghiș (2017) have focused on the analysis of the motivations and influencing factors regarding the adoption of the IIRC initiative. Other studies, Eccles et al. (2015), Lizcano *et al*. (2011) and Ruiz-Lozano and Tirado-

Valencia (2016) have presented the compliance extent of the integrated reports published by the companies which have responded to the IIRC proposal.

The study prepared by Lizcano *et al*. (2011) analyses the differences between the IIRC Framework's (2013) requirements and the integrated reports released for the 2010 fiscal year by Spanish companies, found in the Global Reporting Initiative database. The results show that the companies comply with the suggestions to an acceptable extent, but there are issues which need improvement.

The research presented by Eccless et al. (2015), studies 100 non-South African companies and 24 South African organizations from all economic sectors, which have prepared and presented self-declared integrated reports for the 2012 fiscal period. The results of this study highlits a variation in the compliance level, but on the average the analised companies published fairly well prepared integrated reports.

The most recent study, prepared by Ruiz-Lozano and Tirado-Valencia (2016) presents a scored based analisis on the level of attention given to the guiding principles by the industrial companies. The results state that in the integrated reports for the 2013 fiscal year, not all the guiding principles are equally followed by the companies. The strategic approach and the connections between capitals in the value creation process are demonstrated to have a high level of observation. Still, there are other aspects which would need stronger emphasis such as the engagement of stakeholders in the process of preparing reports or the mechanisms to assure the validity of information.

The aim of this paper is to analyse the integrated or annual reports released for the 2015 fiscal year, as a modality to offer a perspective on the practices used by companies after the introduction of the IIRC Framework in December 2013. The need to analyse this period comes from the time frames covered by the previous researches, explicitly 2010 to 2013, as it is situated before the publication of the IIRC Framework (2013). Another motivation which gives a greater relevance to this study, is the framework used to assess the reports, as Eccles *et al.* and Lizcano *et al.* base their researches on the Consultation Draft of the IIRC Framewok (2013). This study uses the IIRC Framewok (2013) in order to score the use of the content elements and six capitals in the reports published by European companies.

The main objective of the IIRC Framework (2013) is to provide a common reporting base, by defining the fundamental concepts regarding integrated reporting (mainly the value creation process over short, medium and long term and the six capitals) and by establishing guiding principles and content elements that should be found in an integrated report (IIRC, 2013).

The definition on integrated reporting provided above mentionated became the main support for the integration of financial and non-financial items. An integrated report should give insight into an organization's ability to create value, considering all the stakeholders, such as customers, employees, suppliers, legislators or local communities. Moreover, the definition highlights the elements of "architecture" of an integrated reporting system, intended to facilitate the understanding of the activities that occur within a company (Oprişor *et al.*, 2016: 692). This study compares the requirements referring to the content elements and the six capitals with the reporting practices found within European companies.

2.1. Content elements

The IICR Framework (2013: 25) presents nine elements that an integrated report should contain, specifying that the "Content Elements are not intended to serve as a standard structure for an integrated report". The structure of the integrated report will be defined in accordance with the specific circumstances in which the organization operates, and it should contain information regarding the following matters:

- *Organizational overview and external environment*. This section will include items that describe the company's culture, values, operating structure, activities and market position.
- *Governance*. This content element should provide insight regarding the governance's ability to create value and can include the leadership structure, the diversity and skills of those charged with governance, the practices used to make strategic decisions, the remuneration policy and its connection with value creation (Bray and Chapman, 2012).
- *Business model*. The integrated report should describe the business model, which is defined as the vehicle used by the organization to create value over short, medium and long time. The business model serves as a link between mission, strategy and inputs (resources, usually the capitals) and outputs (products and services) and outcomes (revenue, organizational reputation, brand loyalty) (Soyka, 2013).
- *Risks and opportunities*. In this section, the user should find described the key risks and opportunities that are specific to the organization. A qualitative explanation should be provided about both internal and external matters (ACCA, 2016). The report should also mention the modality used for transforming opportunities into value and how the risks are being managed and mitigated.
- *Strategy and resource allocation*. The integrated report should include a statement of strategic objectives for short, medium, and long term, and the measures the company is implementing in order to accomplish them. Resource allocation plans are an important disclosure the company must make, and those plans should be linked to the strategy. Another information provided for this Content Element should explain the methods used for achievements measurement over different time frames (Eccles *et al.*, 2015).
- *Performance*. This section will include qualitative and quantitative information regarding financial and non-financial results and it will provide information on the extent of strategic objectives achievements. Key indicators should be included with explanations of their significance and implication and they should support the users' decision-making processes (Bray and Chapman, 2012) as well as linkages between past and current performance, and between current performance and outlook.
- *Outlook*. An integrated report highlights anticipated changes over time and provides information, based on transparent analysis, about challenges in the external environment in the short, medium, and long term. This Content element should explain how the organization is currently equipped to respond to the uncertainties that are likely to arise.
- *Basis of preparation and presentation and General reporting guidance*. The integrated report should present a summary of the significant frameworks used

to prepare the presented information and the methods used to evaluate material matters as well as a description of the reporting boundary and how it has been determined (IIRC. 2013).

2.2. The six capitals

The IIRC Framework (2013: 12-13) provides a definition for the capitals, which are perceived as stocks of value that can be "increased, decreased or transformed through the activities and outputs of the organization". A characteristic of the capitals is the inequality of relevance for each organization, as a company can function with a small share of a certain capital. This leads to integrated reports presenting only the capitals that the company interacts with.

Still, the IIRC Framework (2013) suggests that all the capitals have the same level of importance and it is expected from a company to explain when a type of capital is not described or used as a resource (Soyka, 2013).

Categories of capital:

- *Financial capital* – funds available to an organization, obtained through financing and will be used in order to produce goods and provide services;
- *Manufactured capital* - assets used by the organization including buildings, equipment, infrastructure;
- *Intellectual capital* – intellectual property (patents, copyrights, software, rights, licenses) and organizational capital (tacit knowledge, systems, procedures);
- *Human capital* – includes employees' capabilities, competencies, experience, motivation;
- *Social and relationship capital* – includes norms, values, reputation of a brand, the relationships between communities and the ability to share information;
- *Natural capital* - environmental resources and processes that provide goods or services such as water, minerals, forests, biodiversity.

3. Research methodology

3.1. Study population and samples used

The sample of this paper is composed of European companies which have adopted the practices recommended by the IIRC Framework (2013). By querying the database IR Database Example, a number of 134 companies was obtained. From this data set, companies with reports published for 2015 fiscal year were selected, resulting in 31 companies. The final number of analysed companies was reduced to 30 (as presented in Appendix 1) by removing Axa's Sustainability/CSR Report for not being relevant to the study, which will assess only integrated or annual reports.

Table 1 shows the sample breakdown by the economic sectors. The most represented sectors are the Financial Services, with 8 operating companies, cumulating 26.67% of the dataset as well as Basic Materials and Consumer Services, both industries covering a percentage of 13.33% of the sample.

Table 7. **Sample breakdown by economic sector**

Economic Sector	**Number of companies**	**Percentage**
Financial services	8	26,67%
Basic materials	4	13,33%
Consumer services	4	13,33%
Industrials	3	10,00%
Consumer goods	2	6,67%
Healthcare	2	6,67%
Real estate	2	6,67%
Technology	2	6,67%
Utilities	2	6,67%
Professional services	1	3,33%

(Source: IR Examples Database, available at: http://examples.integratedreporting.org, author's projection)

3.2. Research method

The starting point in this research was the report quality assessment method introduced by Eccles *et al*. (2015), which involves comparing the IIRC Framework's (2013) requirements with companies' integrated reports in order to analyse the extent of compliance. This method was improved by adding the system used by Lizcano *et al*. (2011). That methodology suggests a list containing factors derived from the IIRC Framework's (2013) content elements, which were identified in the reports. The reasoning for including this factor list was the increased degree of objectivity induced by breaking down the content elements as well as to facilitate the quality assessment process. Ruiz-Lozano and Tirado-Valencia (2016) use the same method to evaluate whether the guiding principles are followed by the industrial companies.

Therefore, an IIRC Framework's (2013) requirements analysis was carried out, in order to compose a rating scale, consisting of 14 factors. These factors belong to two categories: Content Elements and Six Capitals.

Initially, all nine content elements were considered to be included in the study, but during the analysis it was demonstrated that the item "General guidelines for reporting" is difficult to assess. Although information to meet the requirements related to this issue were found in the integrated or annual reports, they are referred to other elements or were presented in different contexts. This point of view is shared by Eccles *et al*. (2015), who excludes this factor, as well as "Basis of preparation and presentation", stating that assessing these items is difficult as they cover a broad area and related information overlaps with some guiding principles, such as "Materiality".

Finally, the analysed content elements are: Organizational overview and external environment, Governance, Business Model, Risks and Opportunities, Strategy and resource allocation, Performance, Outlook and Basis of preparation and presentation. The next category of factors is composed by the six capitals presented in the IIRC Framework (2013): financial, manufactured, natural, human, intellectual and social and relational.

Each item was scored stating from 0 (the lowest score, given when a report does not provide information related to an element) to 3 (the highest score, given in the case of an excellent description of a certain item). The maximum score a report can reach is 42. Additionally, with the purpose of higher objectivity, a list of items related to the content elements was created and intermediary scores were used. The sum of intermediary scored was rounded up to zero decimals, to obtain the score per each content element or capital. Finally, total and average scores were calculated for each company, factor and category.

4. Results and discussion

The content elements and capitals incorporation extent in the companies' reports was assessed using the before presented methodology and a total score for each organization was calculated. Table 2 shows that two companies, Royal DSM and Generali, top the list by achieving good scores that almost reach the maximum value.

Table 8. **Total scores by companies**

Total score by company	Number of companies	Percentage
39-40	2	6,67%
37-38	4	13,33%
35-36	6	20,00%
33-34	1	3,33%
31-32	5	16,67%
29-30	1	3,33%
27-28	5	16,67%
26-25	6	20,00%

(*Source:* Author's projection)

4.1. Content elements analysis

The average score for the content elements was 2.20, but no company has achieved maximum scores for all the factors. The highest total score was 22, reached by two companies Royal DSM and FMO. Table 3 shows the scores obtained by the companies, most of them (26.67%) scored a total of 19 for compliance with content elements, followed by six companies which make 20% of the analysed sample, with a total score of 18.

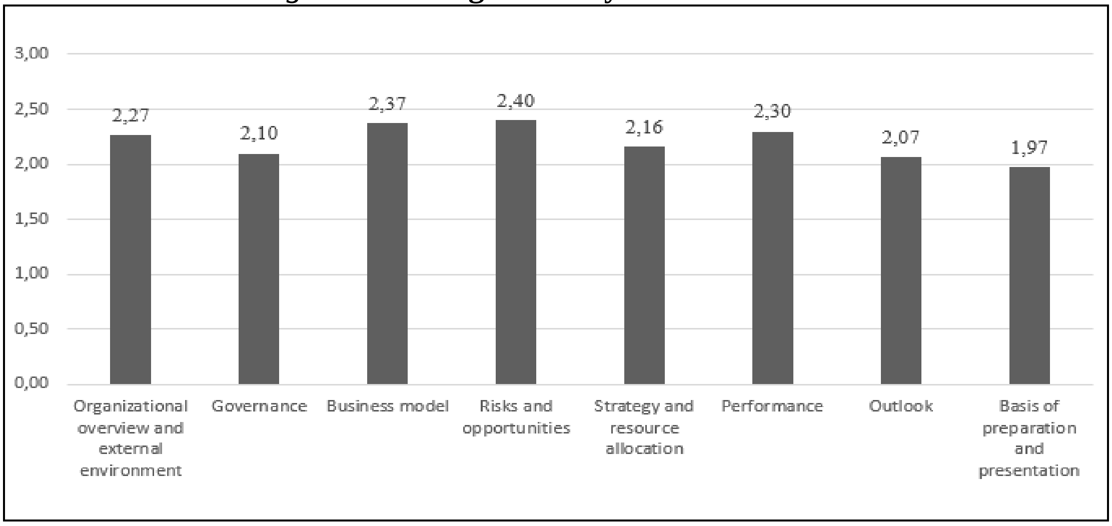
Table 9. **Total scores for content elements**

Total score by company	Number of companies	Percentage
22	2	6,67%
21	1	3,33%
20	2	6,67%
19	8	26,67%
18	6	20,00%
17	2	6,67%
16	3	10,00%
15	2	6,67%
14	1	3,33%
13	2	6,67%
12	1	3,33%

(*Source:* Author's projection)

Analysing the average scores obtained by the content elements, presented in Figure 1, it can be noted that good ratings are obtained. All the factors, except "Basis of preparation and presentation", have exceeded the 2.0 score. Although most reports displayed a good logical structure, it sometimes does not align with the suggestions of IIRC Framework (2013). Even if information to describe exhaustively the established criteria was found, it was usually dispersed in different sections of the reports, raising the complexity of the evaluation and scoring process.

Figure 4. **Average score by content elements**



(*Source:* Author's projection)

4.1.1. Organizational overview and external environment

In most cases, the first pages of the analysed reports covered the company's overview, more or less complete. There have been reports that at the beginning stated the management's views on past activities or even a short presentation of the performance achieved. Although most companies provided enough information to meet the requirements of the IIRC Framework (2013), it was not presented in a very organized manner. Usually, this kind of information was combined the description of other components such as performance, strategy, brief overview of important events or even with the Chairman's of the Board and CEO's opinions or letters to the stakeholders.

4.1.2. Governance

This content element scored an average of 2.10, considered low when compared with the amount of information provided by companies. Most reports have contained an extensive section dedicated to corporate governance. The motivation for providing such a detailed presentation on governance practices arises from the obligation to comply with governance codes or regulations, many companies describing aspects of remuneration practices, composition and responsibilities of the committees, risk management policies and information on shareholders' meetings.

A quarter of the studied sample proved to have a good governance presentation, providing relevant information on governance's involvement in the value creation process.

4.1.3. Business Model

The analysed companies presented in a quite complete manner the business model and how it should contribute to the value creation process, as highlighted by the 2.36 score. Most companies tried to follow the IIRC Framework's (2013) suggestions on readability and effectiveness, including a diagram outlining the key elements. Around 30% of the studied companies complied with the suggestions related to business model implementation which is based on "Inputs", "Business Activities", "Outputs" and „Outcomes". Additionally, the item „Business Model" was easily identified, most reports containing a related special section, usually entitled „Our business model" or „How we create value." The weaknesses of this content element resides in the lack of explanations related to value creation in the short, medium and long term. Also, few companies have offered a narrative description on the business model and the information on the key elements presented in the diagrams is scattered in different sections.

4.1.4. Risks and opportunities

The analysis of this factor revealed an extensive concern regarding the determination of potential risks, many reports highlighting the risks and the taken prevention measures is a dedicated risk management section. In contrast to this legitimate concern, is the attitude of companies regarding its opportunities. Issues relating to opportunities were hard to find, since few reports presented information on this topic and it was usually included in a SWOT analysis. In other cases, the information on opportunities was present in other sections of the report.

4.1.5. Strategy and resource allocation

Around 97% of companies provided information on the promoted strategy and most studied reports had a designated section to this topic, in which strategic objectives, measures to be taken in order to achieve the targets and means to quantify the results were included. But this degree of disclosure is not sufficient to meet the IIRC Framework's (2013) requirements, as it is important to present the resource allocation in order to achieve all strategic objectives. The closest version in presenting the resource allocation is the inclusion of Capitals in the Business model, but none of the companies described how a specific category of capital will be used as a resource.

4.1.6. Performance

The companies included in the annual or integrated reports a section more or less extensive in which performance and results achieved by the company in the previous fiscal year are presented. In this section were included and explained key financial indicators, but also indicators of non-financial nature. When the performance section did not cover non-financial performance, usually the non-financial KPI's were presented in other sections, such as environment or employees. It is worth mentioning that the Framework's requirements on the association between financial and non-financial performance and the effects on capitals have not been met to a large extent.

4.1.7. Outlook

Information regarding this content element was the hardest to identify, mostly due to reports rarely having a section designated to this type of disclosure. Usually the outlook was presented with the strategy and objectives, sometimes in correlation with performance. Most companies offer an acceptable description of this element, though the information was dispersed in the report. Rarely all the suggestions of the IIRC Framework (2013) were met, particularly the extent to which the organization is ready to respond to critical challenges.

4.1.8. Basis of preparation and presentation

This factor received the lowest score (1.97), although most companies (86%) complied with IIRC Framework's (2013) suggestion regarding the presentation/description of the rules or norms used as support for preparing the reports. To assess this factor, "Reporting Policies", "About this report" or "Reporting Methodology" sections were consulted. Few companies offered a summary on the determination materiality process in the before mentioned sections, contributing in lowering the score for this factor. Also, even fewer companies have offered a description of the reporting boundary, the process used in order to establish the content to disclose.

4.2. The Six Capitals analysis

The average score obtained by the analysed reports for including and presenting the six capitals in their integrated reports was 2.35 with 40% of the sample reaching maximum scores for all types of capital (as displayed in Table 4). This is explained by the use of the six capitals in defining the business model, where information meeting the minimum requirements of the IIRC Framework (2013) is provided. However, only three companies (Ferrovial, JSC NIAEP and Munich Airport) included in their reports a broad section which presents the six capitals.

Table 10. **Total scores for the six capitals**

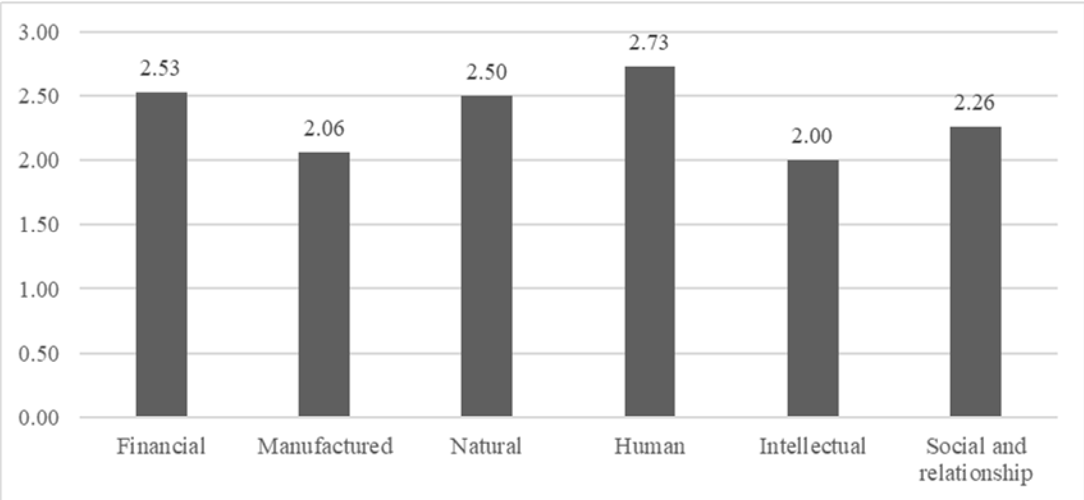
Total score by company	Number of companies	Percentage
18	12	40,00%
16	2	6,67%
15	1	3,33%
14	3	10,00%
13	1	3,33%
11	4	13,33%
10	2	6,67%
9	3	10,00%
8	1	3,33%
6	1	3,33%

(*Source:* Author's projection)

After analysing and assessing these factors, two main cases of disclosure were noted. The first case, the positive one, is the aforementioned: companies' reports present the concept of capitals, then use it while defining the business model, therefore obtaining a high degree of information connectivity and maximum scores. The second case corresponds to the reports that do not explicitly define the six capitals. Subsequently, the information on this topic is found scattered in the reports and is difficult to identify and sometimes incomplete.

Observing the average scores for each category of capital, high values are noted, culminating with the score of 2.73 obtained by human capital. Financial and natural capital also achieved high scores, of over 2.50. The scores are explained through the large interest shown by companies in these types of capital, which are considered to be very relevant resources in the value creation process. All reports contain data on financial capital, while descriptions of natural capital are missing in two reports (Achmea and ABN AMRO). It should be noted that a part of the companies that have not used the concept of capitals, provided information on human and natural capitals in extended sections.

Figure 5: **Average score by capitals**



(*Source:* Author's projection)

Manufactured capital received the second lowest average score, of 2.06 as nearly 27% of the studied companies are operating in the financial sector and the use of this type of capital is not common. Furthermore, the intellectual Capital scores below average, mainly due to the same reason. This situation is also noticed by Soyka (2013), who states that financial, natural and social and relationship capitals are often discussed by the companies, but the rest of the capitals do not receive the same attention.

5. Conclusions and study limitations

The objective of this research has been to assess the level of compliance to the IIRC Framework (2013) requirements: the content elements and the six capitals. The sample used for this study is composed of 30 integrated or annual reports belonging to companies adhering to the IIRC initiative and the reports were selected if they appeared in the IR Example Database. This study was carried out by using a content analysis based methodology to monitor the factors mentioned above and the general conclusion is that the companies are situated at different levels of compliance with the IIRC Framework (2013).

The high ranking companies have obtained good scores for all the analysed elements, their reports offering the needed information using a logical and easy to follow structure, a great description of value creation process and business model. Those reports are truly integrated, especially when compared with the reports that have obtained lower scores. Although an effort has been made to follow the content elements, and the capitals, much remains to be done, and the compliance is still in an incipient phase for the bottom ranking companies.

The study concludes that most of the IIRC Framework's (2013) requirements regarding the Content elements are followed. The majority of reports offered enough data to describe each content element, but the information was scattered for some of the elements, especially Outlook, Opportunities and Organizational overview and external environment. This situation is also identified by Eccles *et al*. (2015). Another weakness is the resource allocation matter, which is not linked to the strategy of the company, causing a negative impact on the Connectivity of information, the core of IIRC Framework (2013). A low average score was also obtained for the Basis of preparation and presentation, due to the omission of a description regarding reporting boundaries.

Regarding the six capitals, 50% of the companies studied used the capitals as resources when defining the business model, but only 3 reports have linked or included a dedicated section to discuss the capitals. For the remaining reports, meaning those in which the concept of capitals was not used, the situation is not very agreeable. Although information regarding capitals was presented, it was scattered through the report, increasing the difficulty of the assessment, and the scores obtained were low.

The results and conclusions of the study are limited by the small number of companies that have adapted their reports to suit the IICR requirements. The IR Example Database provided only 30 integrated or annual reports for 2015, although the IIRC Framework was finalized and published in December 2013. Furthermore, the study is limited to a single continent: Europe. To broaden the boundaries of this research, incorporating a greater number of reports for more fiscal periods can enable a comparative analysis by years that could show the evolution of Integrated Reporting practices. The study may be limited by the methodology, as the rating system could introduce a dose of subjectivity in the results. However, this does not negate the conclusions of this study.

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References

ABN AMBRO Group N.V. (2015) "Annual Report. Long-term stakeholder value: the heart of our story", available at: http://examples.integratedreporting.org/resources/8105/ABN_AMRO_Annual_Report_2015.pdf , retrieved on 03.10.2017

ACCA (2016). „Integrated Reporting" (2016) available on-line at http://www.accaglobal.com/an/en/student/exam-support-resources/professional-exams-study-resources/p3/technical-articles/integrated-reporting.html, retrieved on 03. 15. 2017

Achmea (2015) "Annual Report", available at: http://examples.integratedreporting.org/resources/8147/Achmea_AR%202015.pdf, retrieved on 03.10.2017

Aegon (2015). "Aegon's 2015 Review. Creating meaningful connections", available at: http://examples.integratedreporting.org/resources/7946/Aegon-Annual-Review-2015.pdf, retrieved on 03.10.2017

Antofagasta (2015) "Annual report and financial statements", available at: http://examples.integratedreporting.org/resources/6617/Antofagasta%20Annual%20Report%202015.pdf, retrieved on 03.10.2017

ArcelorMittal (2015) "Annual Review", available at: http://examples.integratedreporting.org/resources/6719/Arcellor%20Mittal_Annual%20Review%202015.pdf, retrieved on 03.10.2017

BASF (2015) "BASF Report. Economic, environmental and social performance", available at: http://examples.integratedreporting.org/resources/6524/BASF_Report_2015%20%281%29.pdf, retrieved on 03.10.2017

Bonila-Priego, J.; Font, X. & Rosario Pacheco-Olivares, M. (2014) „Corporate sustainability reporting index and baseline data for the cruise industry". *Tourism Management* vol. 44: 149-160.

Bray, M. & Chapman, M. (2012) „What does an Integrated Report look like" available at: https://home.kpmg.com/content/dam/kpmg/pdf/2013/04/what-does-ir-look-like.pdf, retrieved on 03.11.2017

British American Tobacco (2015) "Annual Report", available at: http://examples.integratedreporting.org/resources/8216/British%20american%20tobacco%20annual%20report%202015.pdf, retrieved on 03.10.2017

Coca-Cola Hellenic Bottling Company (2015) "Integrated annual report", available at: http://examples.integratedreporting.org/resources/7127/CCH%20Integrated%20Report%202015.pdf, retrieved on 03.10.2017

Dellas (2015) "Annual Report". Available at: http://examples.integratedreporting.org/resources/8642/Dellas_AR_2015_EN.pdf, retrieved on 03.10.2017

Deloitte (2012) „Integrated Reporting. Navigating your way to a truly Integrated Report.", available at https://www.iasplus.com/en/publications/south-africa/other/integrated-reporting-issue-3/at_download/file/ZA%20Integrated%20Reporting%20Aug%202012.pdf , retrieved on 01.03.2017

Dima, S.; Popa, A. & Farcane, N. (2015) "Financial and non-financial information in the Framework of sustainability and integrated reporting", *Audit financiar*, vol. XIII, no. 2: 21-33.

Eccles, R. & Krzus, M. (2010) *One Report - Integrated Reporting for a Sustainable Society*, Hoboken, New Jersey: John Wiley & Sons Inc.

Eccles, R.; Krzus, M. & Ribot, S. (2015) *The Integrated Reporting Movement Meaning, Momentum, Motives, and Materiality*, Hoboken, New Jersey: John Wiley & Sons Inc.

EnBW (2015) "Integrated Report", available at: http://examples.integratedreporting.org/resources/6374/enbw-2015%20Annual%20Report.pdf, retrieved on 03.10.2017

Ferrovial (2015) "Integrated Annual Report", available at: http://examples.integratedreporting.org/resources/7997/Ferrovial_Integrated%20Annual%20Report_2015.pdf, retrieved on 03.10.2017

FMO (2015) "Annual Report", available at: http://examples.integratedreporting.org/resources/7013/FMO%20Annual%20report.pdf, retrieved on 03.10.2017

Frías-Aceituno, J.; Rodríguez-Ariza, L. & García-Sánchez, I. (2013) "Is integrated reporting determined by a country's legal system? An exploratory study", *Journal of Cleaner Production,* vol. 44: 45-55.

García-Sánchez, I.; Rodríguez-Ariza, L. & Frías-Aceituno, J. (2013) "The cultural system and integrated reporting", *International Business Review* vol. 22: 828-838.

Gecina (2015) "Integrated Annual Report", available at: http://examples.integratedreporting.org/resources/8609/Gecina_IntRep_2015.pdf, retrieved on 03.10.2017

Generali (2015) "Annual Integrated Report and Consolidated Financial Statements", available at:http://examples.integratedreporting.org/resources/6782/Annual%20Integrated%20Report%20and%20Consolidated%20financial%20statement%20Generali%20Group%202015.pdf, retrieved on 03.10.2017

Go-Ahead (2015) "Annual Report and Accounts", available at: http://examples.integratedreporting.org/resources/4747/Go-Ahead%202015.pdf, retrieved on 03.10.2017

Hurghiş, R. (2017) "Integrated reporting and Board features", *Audit Financiar,* vol. XV, no. 1: 21-30

IIRC (2011) "Towards Integrated Reporting. Communicating Value in the 21st Century", available at http://integratedreporting.org/wp-content/uploads/2011/09/IR-Discussion-Paper-2011_spreads.pdf , retrieved on 02.28.2017

IIRC (2013) "Consultation draft of the international <IR> Framework, available at http://integratedreporting.org/wp-content/uploads/2013/03/Consultation-Draft-of-the-InternationalIRFramework.pdf , retrieved on 03.07.2017

IIRC (2013) "The International <IR> Framework", available at http://integratedreporting.org/wp-content/uploads/2013/12/13-12-08-THE-INTERNATIONAL-IR-FRAMEWORK-2-1.pdf , retrieved on 03.01.2017

ING Group (2015) "Annual Report", available at: http://examples.integratedreporting.org/resources/5945/ING%202015%20Annual%20Report.pdf, retrieved on 03.10.2017

Lizcano, J.; Muñoz, F. & López, M. (2011) "El informe integrado: primeras aproximaciones de aplicación. El caso espanol", *ASOCIACIÓN ESPAÑOLA DE CONTABILIDAD Y ADMINISTRACIÓN DE EMPRESAS (AECA*), available at http://aeca.es/old/comisiones/rsc/estudio_empirico.pdf , retrieved on 03.10. 2017

Lungu, C.; Caraiani, C. & Dascălu, C. (2011) "Research on Corporate Social Responsibility Reporting". *Amfiteatru Economic,* vol. XIII, no.29: 117-131.

Marks & Spencer (2015) "Annual Report & Financial Statements", available at: http://examples.integratedreporting.org/resources/5037/M%26S%202015.pdf, retrieved on 03.10.2017

Munich Airport (2015) "Integrated Report", available at: http://examples.integratedreporting.org/resources/7718/Munich%20Airport_Integrated%20Report_2015.pdf, retrieved on 03.10.2017

National Grid (2015) "Annual Report and Accounts", available at: http://examples.integratedreporting.org/resources/5426/National%20Grid_Annual%20Report%202015_FULL.pdf, retrieved on 03.10.2017

JSC NIAEP (2015) "Annual Report", available at: http://examples.integratedreporting.org/resources/7529/ASE%20Group%20annual%20report.pdf, retrieved on 03.10.2017

Nord Gold (2015) "Integrated Report", available at: http://examples.integratedreporting.org/resources/7358/Nordgold_2015_IR_M.pdf, retrieved on 03.10.2017

Novo Nordisk (2015) "Annual Report", available at: http://examples.integratedreporting.org/resources/6008/Novo%20Nordisk%202015%20Annual%20report.PDF, retrieved on 03.10.2017

Oprişor, T.; Tiron-Tudor, A. & Nistor, C. (2016) "The integrated reporting system: a new accountability enhancement tool for public sector entities", *Audit Financiar, vol. XVI*, no. 7: 690-704

Philips (2015) "Annual Report", available at: http://examples.integratedreporting.org/resources/8501/Full%20Annual%20Report-%20Philips%202015.pdf, retrieved on 03.10.2017

Royal DSM (2015) "Integrated Annual Report", available at: http://examples.integratedreporting.org/resources/6059/DSM-Annual-Report-2015.pdf, retrieved on 03.10.2017

Ruiz-Lozano, M. & Tirado-Valencia, P. (2016) "Do industrial companies respond to the guiding principles of the Integrated Reporting framework? A preliminary study on the first companies joined to the initiative", *Spanish Accounting Review,* vol. 19, no.2: 252-260

SAP (2015) "Annual Report", available at: http://examples.integratedreporting.org/resources/6437/SAP%20%20SE%202015%20Annual%20Report.pdf, retrieved on 03.10.2017

SGS (2015) "Annual Report", available at: http://examples.integratedreporting.org/resources/5909/SGS%202015%20Annual%20Report.pdf, retrieved on 03.10.2017

Soyka, P. (2013) "The International Integrated Reporting Council (IIRC) Integrated Reporting Framework: Toward Better Sustainability Reporting and (Way) Beyond", *Environmental Quality Management*, vol. 23, no. 2: 1-14

Swedish Export Credit Corporation (2015) "Annual Report", available at: http://examples.integratedreporting.org/resources/7469/SEK_AR_2015_EN.pdf, retrieved on 03.10.2017

The Crown Estate (2015) "Annual Report", available at: http://examples.integratedreporting.org/resources/4484/The%20Crown%20Estate_Annual%20Report%202015.pdf, retrieved on 03.10.2017

TVEL (2015) "Annual Report", available at: http://examples.integratedreporting.org/resources/8582/ANNUAL_REPORT_TVEL%2B2015.pdf, retrieved on 03.10.2017

UBS (2015) "Annual Review", available at: http://examples.integratedreporting.org/resources/6668/UBS_annual-review-2015-en.pdf, retrieved on 03.10.2017

Appendix 1. **List of studied companies**

Company	Economic sector	Country	Company	Economic sector	Country
ABN AMRO	Financial services	Netherlands	ING	Financial services	Netherlands
Achmea	Financial services	Netherlands	JSC NIAEP	Industrials	Russia
Aegon	Financial services	Netherlands	Marks & Spencer	Consumer goods	United Kingdom
Antofagasta	Basic materials	Chile (listed on LSE)	Munich Airport	Consumer services	Germany
ArcelorMittal	Industrials	Luxembourg	National Grid	Utilities	United Kingdom
BASF	Basic materials	Germany	NordGold	Basic materials	Russia
British American Tobacco	Consumer services	United Kingdom	Novo Nordisk	Healthcare	Denmark
Coca-Cola hbc	Consumer goods	Switzerland	Philips	Technology	Netherlands
Dellas	Industrials	Italy	Royal DSM	Healthcare	Netherlands
enBW	Utilities	Germany	SAP	Technology	Germany
Ferrovial	Professional services	Span	SGS	Consumer services	Switzerland
FMO	Financial services	Netherlands	Swedish Export Credit Corporation	Financial services	Sweden
Gecina	Real estate	France	The Crown Estate	Real estate	United Kingdom
Generali	Financial services	Italy	TVEL	Basic materials	Russia
Go-Ahead	Consumer services	United Kingdom	UBS	Financial services	Switzerland

(*Source:* Author's projection based on IR Examples Database, available at: http://examples.integratedreporting.org)

PS12 Accounting information and decision making

Chairperson: Dominic Detzen, Vrije Universiteit Amsterdam, Netherlands

The perceived suitability of management accounting information: A contingency based investigation

Ewelina Zarzycka
Justyna Dobroszek
Cristina Circa
Alina Almășan

Accountants are not robots! How professional accounting judgment is affected by individual optimism, risk taking and self-confidence

Victoria Bogdan
Ioana Teodora Meșter
Dana Gherai
Carmen Mihaela Scorțe

Productivity of knowledge workers. How can we analyze and measure it?

Costin Ciora
Ion Anghel
Vasile Robu

The perceived suitability of management accounting information: A contingency based investigation

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Abstract: *The current paper aims at testing the existence and the strength of the relationship between selected variables (the company profile, the manager profile, the operations of the management accounting department) and the manner in which managers assess the information provided by the management accounting system (MAS), based on a contingency approach. In order to achieve the objective of the paper, we employed the correlation analysis with the purpose of investigating the strength of the relationship between the assessments made by managers with respect to the suitability of the accounting information and selected variables. In this context, we used data collected from randomly selected managers, active in companies located in two Central and Eastern European countries, i.e. Poland and Romania. We found moderate relationships with the assessed suitability of the MAS information only for two of the three variables: the manager profile – mainly with respect to the managed department, and the operations of the management accounting department – mainly with respect to the frequency of the meetings between managers and management accountants.*

Keywords: *Managers' perception, suitability, management accounting, contingency factors, correlations*

1. Introduction

Though the managers' perception is widely debated in literature, whenever it comes to the usefulness of the information provided by the management accounting system (MAS), the topic still arouses interest. The review of the specific literature reveals a wide range of studies in this direction (Chenhall and Morris, 1986; Mendoza and Bescos, 2001; Pierce and O'Dea, 2003; Cheffi and Beldi, 2012). Yet, these studies highlight mainly the differences between the perception of information providers and that of information users, called forth by fundamentally different motivations and attitudes. What is not often approached in the context, though it should be, is a debate on the internal and external factors influencing the manner in which managers, as information users, assess the information delivered by the management accounting system.

Research in management accounting is often focused on issues like organizational systems and processes, information use, the behaviour of accountants and other users (Gupta and Govindarajan, 1991). Management accounting practices are analysed at micro - and macro level (Granlund and Lukka, 1998), whereas the two levels are not

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defined from a geographical perspective, but refer rather to the scope and comprehensiveness of management accounting issues. The macro-level consists of concepts, ideas, techniques, system designs and the purpose of using MA information, while the micro-level refers to behavioural patterns and styles of the information use (Ahrenes, 1996), tasks, operations and actors of the management accounting system, i.e. management accountants as providers of management accounting information, and managers as users of management accounting (Granlund and Lukka, 1998).

There is a significant amount of research built on a contingency-based approach, examining factors like the external environment (Gordon and Miller, 1976; Merchant, 1990; Hartman, 2000; Haldma and Laats, 2002; Otley, 2016), the national culture (Hofstede, 1984; O'Connor, 1995), the technology (Otley, 2016; Haldma and Laats, 2002), the size of the company (Dropulic, 2013; Merchant, 1985; Sharma, 2002; Chenhall, 2007; Cadez and Guilding, 2008), or its strategy (Gupta and Govindarajan, 1984; Simons, 1987; Chenhall and Morris, 1986). All these analyses were performed in different contexts; still, there are few studies on contingency factors in developing countries and these mainly approach the influence of such factors on management accounting practices (Albu and Albu, 2012; Hopper *et al.*, 2009; Jaruga and Ho, 2002; Haldma and Laats, 2002; Anderson and Lanen, 1999). The relationship between these variables and the managers' perception on the usefulness of information for the decision-making process is a less debated topic in literature.

Starting from these premises, the objective of the current paper is to test the strength of the relationship between selected variables (the company profile, the manager profile and the operations of the management accounting department) and the managers' assessment of the information provided by the management accounting system, based on a contingency approach. For this purpose, we relied on data collected from randomly selected companies located in Poland and Romania. More, the study includes a comparative analysis of the determining factors identified in the two countries.

Central and Eastern European countries are a proper field for testing managers' perception on the matter of interest, out of two reasons. First, the development of management accounting in this area started after completing the long period of a centrally planned economy. The 1990s were characterised by significant political and economic changes, with a major impact on the accounting system and further on the perception of the provided information. It is a consequence of the fact that, after a time in which decisions were made on a central level, the new economical background compelled companies to act independently and employ tools supporting an efficient business administration. Secondly, the interest of the managers for management accounting increased gradually as a consequence of the incentives provided first by the academia and then by the business environment itself. The academics included management accounting in their research concerns (Szychta, 2002; Haldma and Laats, 2002; Albu and Albu, 2012), and launched joint projects with the business environment. In the meantime, the local branches of multinational companies in former communist countries raised the awareness of managers with regard to the role played by management accounting information in decision-making.

Both Poland and Romania are CEE countries that belong to the above-described context, yet exhibit relevant differences in the development of management accounting, with Poland being one step ahead. First of all, right after 1990, the accounting systems of the two countries were confronted with two different influences, coming from abroad: the influence of the German accounting system in Poland, respectively the influence of the French accounting system in Romania. Secondly, concerns over management accounting were raised earlier in Poland, due to the involvement of the academia in this area even prior to the fall of communism; meanwhile, merely the cost accounting had been developed in Romania. Thirdly, the Romanian accounting regulations created confusion among practitioners, by displacing their interest towards the delivery of information for external reporting (provided by financial accounting), to the detriment of information for decision-making (provided by management accounting).

In order to achieve the objective of the paper, we employed the correlation analysis to test the strength of the relationships between selected contingency factors and the assessed suitability of the information provided by the management accounting system.

The contribution of the present study to the body of related research is bidirectional. Firstly, the paper identifies some of the factors that influence the manner in which managers assess the usefulness of the information provided by management accounting; this may help both practitioners and academics to understand why management accounting is less developed in these countries than in other countries (particularly, the Western ones). Secondly, it explains the similarities and differences in the managers' perception on the management accounting usefulness within the two countries, in light of several contingency factors; given the fact that management accounting should provide useful information for the decision-making process, such an investigation (from management perspective) brings to light some features of the management accounting systems within each of the two countries.

The remainder of the paper is organized as follows. The second section provides a brief review of the existing related literature and is followed, in the third section, by the description of the research design employed. The forth section surveys the identified relationships between three considered variables (the company profile, the manager profile and the operations of the management accounting department), and the managers' perception on the information provided by management accounting. The final section points to the conclusions of the study, the limits of the research, as well as the future research directions.

2. Literature review

As a basis for our research, we reviewed prior studies, aiming firstly to assess the extent to which the contingency theory has been employed so far in the context of management accounting, and secondly to identify the independent variables most often related to accounting information.

2.1. A contingency approach to management accounting

Starting from a debate initiated by Zimmerman (2001), Malmi and Granlund (2009) wonder what is "the purpose and role of theory in management accounting research" and, provided an answer is found, whether current theories, originating in economics, sociology, psychology, or the organization theory, fulfil this purpose. Pointing to Luft and Shields (2002), who indicate that the management accounting theory focuses on explaining its causes and effects, they believe that the definitive reason for academics to understand the "causes, effects and functioning of management accounting" is to use this understanding in creating better management accounting practices.

The theoretical background of management accounting in its historical evolution is examined by Waveru (2010), who points to four distinct stages, each marked by a specific theory: the conventional wisdom up to 1960', the agency theory between 1960'-1970', the contingency theory between 1980'-1990' and the strategic management accounting from 1990' to date.

The contingency theory has been developed starting with the 1960' (Burns and Stalker, 1967; Lawrence and Lorsch, 1967), evolving from sociological studies on organizational structure (Chenhall, 2003; Woods, 2009). One of the earliest approaches of contingency in relation with management accounting belongs to Hofstede (1967), who showed the significant impact of economic, technological and sociological factors on the functioning of budgetary systems. The influence of cultural factors was subsequently added (Hofstede, 1983; Brownell, 1982; Brownell and Hirst, 1986). Hopwood (1972) and Otley (1978) pointed to the fact that every company operates in a specific environment, under the influence of different factors.

Contingency is placed by Hambrick and Lei (1985: 764) and Fisher (1995) between two extreme approaches, i.e. the situation-specific and the universalistic approach of the control systems. In the situation-specific rationale, the factors that affect each control system decision are unique, so there are no general rules and models that could be applied. The situation-specific model can practically be seen as a contingency approach with an extremely large number of contingent factors so that the identification of broad classes of factors is seen as futile. Research based on the situation-specific model usually takes the form of case studies. Contrariwise, the universalistic approach starts from the premise that "optimal control system design holds, to some degree, in all settings and firms" and can be analogously represented as a contingency with only one contingency setting.

Amid the two, the contingency theory starts from the premise that "universal solutions to problems in organizational control generally do not exist" (Otley, 2016). In this view, no single type of structure is appropriate for all organizations; rather the design and functioning of the organization are influenced by contingent factors. Eventually, the organizational effectiveness depends on the fit between the information system and contingent factors like the type of technology, the environmental volatility, or the size of the organization (Islam and Hu, 2012).

In the context of management accounting, the contingency theory shows that there is no accounting system that can be considered universally appropriate to all organizations, in all circumstances (Emmanuel *et al.*, 1990), but rather the specific features of a system will depend on the specific circumstances of the organization, while the effectiveness of an accounting system depends on its capacity to adapt to changes in external and internal factors. Research on contingency relies on the existence of a link between the nature of the management accounting system and the enhanced performance.

However, research hasn't identified so far any key contingencies that would allow the development of prescriptions to suit different sets of circumstances; occasionally, different studies recommended conflicting solutions. Therefore, it is unlikely that research will manage to define a general contingency model, for an optimal control in all combinations of circumstances (Otley, 2016). In the same line, Chenhall (2007) stresses that no single contingency theory exists, but rather "a variety of theories", continuing the reasoning of Otley (1980, p.413) who highlighted the need to associate the "specific aspects" of the accounting system that need to be explained with the "certain defined circumstances" and demonstrate the "appropriate matching" between the two. Islam and Hu (2012) highlight three types of questions addressed by the research on contingency in management accounting, regarding "the fit between organizational control and structure", "the impact of such fits on performance" and "the investigation of multiple contingencies and their impact on organizational design".

The next sub-section takes stock of independent variables frequently related by prior studies to accounting (including management accounting) information systems.

2.2. The contingency variables

In an early study, Gordon and Miller (1976) point to the environment, the organizational characteristics and the decision-making style as main classes of contingent variables for the design of accounting information systems.

Currently, Otley (2016) points to the environmental uncertainty, expressed as perceived environmental uncertainty, as the one which attracted the widest attention on the part of the researchers.

In the four decades lying in between, numerous interrelations have been examined in literature. We find external contingent factors related to the external environment (Khandwalla, 1977; Merchant, 1990; Chapmann, 1997; Hartmann, 2000), and the national culture (Hofstede, 1984; Harrison, 1992; O'Connor, 1995), with researchers most often emphasizing the environmental uncertainty and hostility. In equal measure, we find internal factors like the size of the organization (Khandwalla, 1972; Burns and Waterhouse, 1975; Merchant 1981; Merchant, 1985), the technology (Khandwalla, 1977; Merchant, 1984; Dunk, 1992) and the strategy of the company (Miles and Snow, 1978, Gupta and Govindarajan, 1984; Simons, 1987; Chenhall and Morris, 1986). In the latter category, the appropriateness of the accounting data for the performance evaluation of business units (Fisher, 1995; Hartmann, 2000; Chenhall, 2003) can also be included.

Fisher (1995) classifies the contingent variables addressed in literature up to the moment of his contribution in five distinct categories: external environment; competitive strategy and mission; technology; unit, firm and industry variables; knowledge and observability factors. He stresses however that the variables listed under the five categories should not be considered exhaustive or independent and recommends that future research addresses "the causality and correlations among the contingent control variables".

A further classification was later performed by Merchant (1998), who defined three categories of variables: the first one included variables referring to people and organizations, the second one listed variables related to mission and strategy, and the last one included environmental and technological variables. Mockler (2002) identified three classes of variables, i.e. external variables, competition-related variables and company-specific variables. In the same line, Nita (2009) divided contingency variables into internal, i.e. strategic and organisational variables, and external, i.e. sector and macroeconomic variables.

In a recent literature review on the topic of interest, Otley (2016) takes stock of and summarizes the independent variables most often used in contingency-based research, classifying them in major external and major internal variables. As such, the major external variables include the technology, the market competition or hostility, the environmental uncertainty and the national culture, while the major internal independent variables are the size and structure of the organization, its strategy and compensation and information systems, as well as psychological variables (like the tolerance for ambiguity), the employees' participation in the control systems, the position on the market, the product life-cycle stage, and systems change. Complementary, the dependent variables explained on a contingent basis, as identified in literature by Otley (2016) are the performance and its measures, the budgeting behaviour, the management control system design and the use of it, the effectiveness, the job satisfaction, the change in practices, and the product innovation.

In the same context, Klassen (2014) points to a variable which is logically prior to strategy, i.e. the value logic, understood as the basic business model adopted by the organization. The effect of culture on the design of information systems is further widely investigated in literature, whereas many contributions rely on Hofstede's works (Hofstede, 1980; Hofstede *et al.*, 2010). In an early stage, Hofstede (1980) identified four dimensions on which to characterize national cultures, i.e., individualism, masculinity and uncertainty avoidance that were subsequently completed by short-term vs. long-term emphasis, respectively by pragmatism and indulgence (Hofstede *et al.*, 2010).

One of the major faults of the contingency-based research, as pointed to by Fisher (1995) is the "piecemeal way" of its performance, meaning that most often merely one contingent factor and one control attribute are examined at a time, despite the fact that the effectiveness of the control system design is determined by interactions between multiple contingent and control factors.

As specific illustrations, Gordon and Narayanan (1984) examined the relationship between the structure of the organization and the characteristics of information, finding that decision-makers perceive as important those characteristics of information that are related to the perceived environmental uncertainty.

The perceived usefulness of MAS information was examined by Chenhall and Morris (1986), who found that information perceived as useful by managers is broad in scope and timeliness. The link between the perceived usefulness of MAS information and the business performance was in effect extensively investigated in literature, in the following decade (Gul, 1991; Gul and Chia, 1994; Fisher, 1996). A significant gap in the adequacy of MAS information was ascertained in the manufacturing industry by

Subramaniam (1993), whose analysis considered the perceived usefulness of MAS information by managers and the availability of this information.

The required characteristics of the MAS information were linked to the specific strategy of the firm, whereas Abernathy and Guthrie (1994) reported that companies with an orientation to continuous product-development and innovation employ effective broad-scope information systems, unlike companies with a narrow product-market. Chong (1996) focused on the usefulness of broad-scope MAS information in connection with the uncertainty of the management tasks, finding that broad-scope MAS information increases the effectiveness of managerial decisions and performance only under circumstances of high task uncertainty, otherwise implying a mere information overload.

More recently, Cadez and Guilding (2008) considered the company size, its strategy and market orientation as contingent variables, concluding that both the company's size and its strategic choices had a significant influence on the application of strategic management accounting. Aver and Cadez (2009) linked the participation of management accountants in the decision-making process rather to sociological developments.

With specific reference to the Eastern Europe, Haldma and Laats (2002) investigate the contingencies influencing the management accounting system, in the case of Estonia, as an example of transitional economy, pointing to the small number of studies on the development of management accounting in Eastern European countries. The research on accounting systems in this geographical area focuses on the financial accounting, proving that management accounting was here in the initial stage of development. More, the published research consists mainly of state-of-the-art type studies, without any theoretical framework, while research on management accounting practices in transition economies had been published, up to that moment, only with reference to India (Anderson and Lanen, 1999) and South Africa (Luther and Longden, 2001). On this particular case, Haldma and Laats (2002) find that the environmental contingency can be analysed distinctly, at the general business environment and the legal accounting environmental level. As for Estonia, the two authors argue that "within the Soviet accounting framework, management accounting existed in a very narrow sense" and it later developed on the background of an extant competition between the habits of the centrally planned economy on the one hand, and the need to solve daily management issues, on the other hand. The research confirms the influence of contingencies that had been pointed to by previous studies, like the tightening competition and the organization size, and introduces possible new factors, specific for transitional economies, like the legal accounting environment and the shortage of qualified accountants.

3. Research design

3.1. Research methodology

As indicated by Nita (2013), the contingency-based research on management accounting should include four components, i.e. the set of situational variables studied, the research questions relating to the methods of management accounting, the type of accounting theory employed (normative or positive) and the corresponding research methods. The present research focused on the positive theory of accounting, aiming to identify the strength of the relationship between specific variables and the assessment of managers in matters of usefulness of the management accounting information. To this purpose, the survey method was employed.

The empirical research was performed between May 2015 - March 2016, by means of a questionnaire-based online survey addressing randomly selected companies operating in Poland and Romania, in various industries, with different origin-based capital profiles.

The questionnaire was structured in four different sections: the first two provided a brief characterisation of the company, respectively of the respondent, the third section referred to the organisation of the management accounting system within the company, while the fourth section was meant to capture the managers' perception on the suitability of the information delivered by management accounting systems. The four sections consisted of a total of 26 half-open and closed questions, whereas the latter included single- and multiple-choice, span and matrix questions. They were selected and enunciated as a result of a thorough literature review, including studies on the purpose for which information is used (Baiman, 1982; Burns and McKinnon, 1992a; Burns and McKinnon, 1992b; Burns and McKinnon, 1993; Mendoza and Bescos, 2001), the information suitability (Burns and McKinnon, 1992a; Burns and McKinnon, 1992b; Burns and McKinnon, 1993; Mendoza and Bescos, 2001), as well as its qualitative features (Chenhall and Morris, 1986; Johnson and Kaplan, 1987; Pierce and O`Dea, 2003).

The survey resulted in 154 completed questionnaires, out of which 116 originated from Poland and 38 from Romania. One questionnaire corresponded to one respondent participating in the study, whereas there were also cases in which different questionnaires were completed by different managers from the same company.

The responses were analysed by means of the interdependence theory, meant to reveal correlations between variables. For this purpose, Czuprow's T coefficient - T_c, Pearson's C coefficient - C_P and Cramer's V coefficient - V_c were applied to all variables under analysis, as standard coefficients used in descriptive statistics for searching correlations in collected data (Yule, 1912; Cramer, 1946; Keller, 2012; Bergsma, 2013). All indicated coefficients have a value within the range of [0,1]. The closer the coefficients are to zero, the weaker the correlation between the variables, whereas the closer they are to 1, the stronger the correlation between the analysed elements (Sobczyk, 2000).

As previously mentioned, subject of the statistical analysis are the factors (variables) identified based on the reviewed literature (e.g. Blum, 2006; Budde, 2009). The factors were divided into 3 categories: (1) factors related to the company profile (type, size, origin of capital); (2) factors related to the manager profile (education, experience, and managed department); (3) factors related to the operations of the management accounting department (organisation, frequency of reporting and frequency of meetings between managers and management accountants).

As a brief overview of the first category of factors, the companies under analysis were divided into three size classes, based on their number of employees: small entities (with less than 10 employees), medium entities (with 10 to 200 employees) and large entities (with more than 200 employees). Considering their business area, these were classified into manufacturing and nonmanufacturing companies, whereas based on the origin of their capital, the sample included companies with foreign, domestic or shared capital.

The second category of factors defined the profile of the responding managers, considering their education (bachelor, master, post-graduate, doctoral studies), the management experience (short – under 6 years, average – 6 to 10 years, long – over 10 years) and the managed department. Four different areas of operations were taken into account: (a) support departments, like HR, IT, finance; (b) sales and marketing; (c) purchases, logistics and production, and (d) other.

Considering the organisation of the management accounting department, within the third category, two distinct options were considered: (a) management accounting is performed by a distinct department of the company; (b) management accounting is performed within other departments or processes. The reporting frequency was classified into three classes: high (daily and upon managers' request), average (once a week) and low (once a month). The same three frequency classes were employed with regard to the frequency of meetings between management accountants and managers, a fourth option was however considered here, i.e. (d) no meetings with management accountants.

3.2. Sample profile

The empirical research covered companies from different sectors, of a different size and with various sources of capital, operating in Poland and Romania (see table 1).

Table 1. **Profile of the companies participating in the survey**

Company profile	ROM	% of ROM companies	POL	% of POL companies
Type of company				
Manufacturer	23	61%	60	52%
Service	11	29%	42	36%
Trade	4	11%	14	12%
Origin of capital				
100% domestic	11	29%	34	29%
100% foreign	16	42%	66	57%
share of foreign	11	29%	16	14%
Number of employees				
< 10	2	5%	12	10%
11-50	4	11%	12	10%
51-250	9	24%	20	17%
>250	23	61%	72	62%
Annual turnover in 000 000 EUR				
< 2	5	13%	16	14%
2-10	8	21%	22	19%
11-50	13	34%	8	7%
51-200	5	13%	12	10%
> 200	7	18%	58	50%

(*Source*: Authors' own processing)

Both the Polish and the Romanian sample are dominated by manufacturing companies, large entities in terms of number of employees, mainly with foreign capital. The best represented sectors in the Romanian sample are the automotive, the food and beverages, the IT & new technologies, the telecom and the clothing & textiles industry, while in Poland most of the surveyed companies belong to the consumer goods, the building and construction, the IT & new technologies, the consulting and the healthcare sector.

Table 2 summarizes the profile of the responding managers, in respect of their professional experience.

Table 2. **The experience of the surveyed managers**

Experience	**ROM**		**POL**	
	No	**%**	**No**	**%**
< 1	1	3%	10	9%
1-5	8	21%	28	24%
6-10	18	47%	44	38%
11-15	7	18%	14	12%
> 15	4	11%	20	17%
TOTAL	**38**	**100%**	**116**	**100%**

(*Source*: Authors' own processing)

We observe that, in both countries, the best-represented experience classes are 6 to 10 years, followed by 1 to 5 years.

Table 3 illustrates the educational profile of the responding managers, where we observe that most respondents in both samples hold a Master's degree, yet the MBA and the PhD are more frequently encountered among Polish managers.

Table 3. **Education of the surveyed managers**

Education background	**ROM**		**POL**	
	No	**%**	**No**	**%**
High school degree	2	5%	0	0%
Bachelor degree	10	26%	2	2%
Master's degree	26	68%	114	98%
Post graduate studies	0	0%	6	5%
MBA	5	13%	46	40%
PhD	2	5%	10	9%

(*Source*: Authors' own processing)

The surveyed managers come both from operations departments like production, logistics, purchasing or sales (53% of the Romanian and 50% of the Polish managers) and from support departments like HR, IT or finance (41% of the Romanian and 39% of the Polish managers).

In most of the examined entities (80% of the Polish, respectively 62% of the Romanian companies), management accounting is performed within an independent department. Yet, there are companies that prefer to integrate management accountants with employees from different departments.

4. Results and discussions

According to the research objective, Czuprow's T coefficient - T_c, Pearson's C coefficient - C_P and Cramer's V coefficient - V_c were employed in order to investigate the strength of the relationship between the company profile, the manager profile and the operations of the management accounting department, on the one hand, and:

1. The managers' assessment of the extent to which the information provided by the management accounting department is used in performing management tasks;
2. The managers' assessment of the suitability of certain types of information provided by the management accounting system, in the context of the management process;
3. The managers' assessment of specific quality characteristics of internal reports, prepared by management accountants;
4. The managers' assessment of specific communication channels for the information delivered by the management accounting system.

According to Merchant's (1998) classification, the contingency variables considered by our study refer to people and organizations. They are mainly organizational variables, similar to Cadez and Guilding (2008) and Gordon and Narayanan (1984), treated as internal factors in the context of management accounting. Among these, the size of the company and the origin of the capital are seen as most important in literature (Nita, 2009).

4.1. Factors determining the assessment of the extent to which the information provided by the management accounting system is employed as a support of the management process

In order to determine the factors related to the assessment of the extent to which the information provided by the management accounting system is employed in performing management tasks, we examined the interdependence between this assessment and the following variables:

- the company profile (type of company, size, origin of capital);
- the manager profile (professional experience, education, managed department);
- the operations of the management accounting department (organisation, frequency of reporting, frequency of meetings between managers and management accountants).

The initial testing of the data showed that the company profile is a variable with no significant influence on managers' assessments (see Table 4).

Table 4. **The relationship between the *company profile* and the assessed suitability of the information provided by the MAS as a support of the management process**

Company profile	Type of the company						Size of the company						Origin of the capital					
Country	POL			ROM			POL			ROM			POL			ROM		
Coefficient	T_c	V_c	C_P	T_c	V_c	C_P	T_c	V_c	C_P	T_c	V_c	C_P	T_c	V_c	C_P	T_c	V_c	C_P
Long term planning	0,19	0,24	0,23	0,15	0,18	0,18	0,22	0,26	0,35	0,15	0,25	0,18	0,13	0,16	0,22	0,17	0,20	0,28
Implementing the strategy	0,11	0,13	0,13	0,13	0,16	0,16	0,21	0,25	0,34	0,17	0,21	0,28	0,16	0,19	0,26	0,13	0,13	0,18
Preparing budgets	0,24	0,29	0,28	0,24	0,29	0,28	0,32	0,38	0,47	0,14	0,16	0,22	0,27	0,32	0,41	0,25	0,30	0,39
Performance measurement	0,15	0,18	0,18	0,12	0,15	0,15	0,15	0,18	0,25	0,14	0,16	0,22	0,08	0,10	0,14	0,18	0,21	0,28
Increasing profitability	0,17	0,21	0,20	0,24	0,28	0,27	0,17	0,21	0,28	0,19	0,22	0,30	0,14	0,16	0,23	0,15	0,18	0,25
Managing own department	0,16	0,19	0,18	0,32	0,38	0,36	0,05	0,07	0,09	0,22	0,26	0,35	0,22	0,26	0,34	0,24	0,29	0,38
Make or buy/ outsourcing decision-making	0,20	0,23	0,23	0,22	0,26	0,25	0,21	0,25	0,34	0,08	0,10	0,13	0,15	0,18	0,24	0,19	0,23	0,30
Making investment decisions	0,19	0,23	0,23	0,20	0,24	0,24	0,09	0,11	0,16	0,16	0,19	0,26	0,13	0,15	0,21	0,16	0,19	0,26
Making decisions regarding R&D	0,10	0,12	0,12	0,47	0,56	0,49	0,11	0,13	0,18	0,27	0,32	0,41	0,17	0,20	0,27	0,40	0,47	0,56
Cost reduction	0,08	0,09	0,09	0,27	0,32	0,31	0,14	0,17	0,23	0,18	0,22	0,29	0,11	0,13	0,18	0,14	0,23	0,17
Cost control	0,03	0,04	0,04	0,25	0,30	0,29	0,20	0,24	0,32	0,11	0,13	0,18	0,14	0,17	0,23	0,18	0,22	0,29
Assessing internal projects	0,07	0,08	0,08	0,27	0,32	0,31	0,14	0,17	0,23	0,14	0,17	0,23	0,21	0,25	0,33	0,11	0,14	0,19

(*Source*: Authors' own processing)

Table 4 shows a weak or very weak relationship between the company profile and the suitability assessment of management accounting information, as a support of the management process. These results are quite puzzling as, according to previous contributions to literature, the company size and type should have a significant impact on the development of management accounting (Otley, 2016; Cadez and Guilding, 2008).

Only a moderate relationship is noticed between the size of the company and the origin of its capital, on the one hand, and the suitability assessment of the information for the budget preparation, on the other hand, in case of Polish managers. A moderate relationship can also be observed between the type of company, the origin of the capital and the size of the enterprise (to a lesser extent) on the one hand, and the suitability assessment of the information for R&D decision making, on the other hand, in case of Romanian managers.

Based on the preliminary variable analysis, neither the manager profile has a strong influence on managers' assessments (see Table 5).

Table 5. **The relationship between the *manager profile* and the assessed suitability of the information provided by the MAS as a support of the management process**

Manager profile	Professional exeprience						Education						Managed department					
Country	POL			ROM			POL			ROM			POL			ROM		
Coefficient	T_c	V_c	C_P	T_c	V_c	C_P	T_c	V_c	C_P	T_c	V_c	C_P	T_c	V_c	C_P	T_c	V_c	C_P
Long term planning	0,11	0,13	0,18	0,22	0,26	0,35	0,08	0,10	0,10	0,16	0,19	0,19	0,15	0,22	0,29	0,18	0,27	0,35
Implementing the strategy	0,23	0,27	0,36	0,13	0,16	0,22	0,02	0,02	0,02	0,12	0,15	0,14	0,20	0,29	0,38	0,14	0,21	0,29
Preparing budgets	0,19	0,23	0,31	0,14	0,17	0,24	0,08	0,10	0,10	0,13	0,16	0,16	0,37	0,54	0,61	0,25	0,36	0,46
Performance measurement	0,19	0,23	0,31	0,14	0,17	0,24	0,32	0,38	0,35	0,13	0,16	0,16	0,18	0,26	0,35	0,17	0,25	0,34
Increasing profitability	0,14	0,17	0,23	0,24	0,28	0,37	0,11	0,13	0,12	0,17	0,20	0,20	0,14	0,21	0,29	0,19	0,28	0,37
Managing own department	0,13	0,15	0,21	0,15	0,18	0,25	0,24	0,29	0,28	0,19	0,23	0,22	0,13	0,20	0,27	0,27	0,39	0,48
Make or buy/ outsourcing decision-making	0,14	0,16	0,23	0,24	0,29	0,38	0,12	0,14	0,14	0,16	0,19	0,19	0,16	0,23	0,31	0,17	0,24	0,32
Making investment decisions	0,11	0,14	0,19	0,16	0,19	0,26	0,11	0,13	0,13	0,10	0,11	0,12	0,21	0,31	0,40	0,15	0,22	0,29
Making decisions regarding R&D	0,20	0,24	0,32	0,17	0,20	0,28	0,22	0,26	0,25	0,06	0,07	0,07	0,14	0,20	0,28	0,28	0,45	0,54
Cost reduction	0,07	0,09	0,12	0,15	0,18	0,25	0,06	0,07	0,07	0,12	0,14	0,14	0,19	0,27	0,36	0,19	0,28	0,37
Cost control	0,12	0,15	0,20	0,22	0,26	0,34	0,07	0,09	0,09	0,11	0,13	0,13	0,11	0,16	0,22	0,23	0,33	0,43
Assessing internal projects	0,16	0,19	0,26	0,08	0,10	0,14	0,23	0,28	0,27	0,13	0,15	0,15	0,14	0,28	0,20	0,22	0,32	0,41

(*Source*: Authors' own processing)

The results show a weak or very weak relationship between the education and the professional experience of the managers on the one hand, and the suitability assessment of management accounting information, as a support of the management process, on the other hand.

Moderate relationships can be identified between the managed department and the assessed suitability of the information. In the case of Polish managers, the moderate interdependence refers to the assessed suitability of the information for budget preparation and investment decision, while in the case of Romanian managers, it refers to budget preparation, internal projects, cost reduction and control and R&D decisions. What should be noted is that, in Polish companies, the relationship between the managed department and the use of the information provided by the accounting system for the purpose of preparing budgets and supporting management decisions is slightly stronger (C_P=0.61). The results confirm that the type of the managed department exerts influence on the use of the information by the manager.

The third variable considered regards the organisation and operations of the management accounting department (see Table 6).

Table 6. **The relationship between the *operations of the MA department* and the assessed suitability of the information provided by the MAS as a support of the management process**

Operations of the MA department	**Organisation of MA**						**Frequency of reporting**						**Frequency of meetings**					
Country	**POL**			**ROM**			**POL**			**ROM**			**POL**			**ROM**		
Coefficient	**T_c**	**V_c**	**C_P**	**T_c**	**V_c**	**C_P**	**T_c**	**V_c**	**C_P**	**T_c**	**V_c**	**C_P**	**T_c**	**V_c**	**C_P**	**T_c**	**V_c**	**C_P**
Long term planning	0,12	0,14	0,14	0,17	0,20	0,20	0,20	0,23	0,31	0,32	0,38	0,47	0,11	0,13	0,19	0,22	0,25	0,34
Implementing the strategy	0,10	0,12	0,12	0,15	0,18	0,17	0,18	0,22	0,29	0,21	0,25	0,33	0,28	0,34	0,43	0,28	0,33	0,42
Preparing budgets	0,30	0,36	0,34	0,12	0,15	0,15	0,13	0,16	0,22	0,22	0,26	0,35	0,27	0,32	0,41	0,19	0,22	0,30
Performance measurement	0,16	0,19	0,19	0,29	0,34	0,32	0,04	0,05	0,06	0,23	0,28	0,36	0,32	0,38	0,48	0,27	0,32	0,41
Increasing profitability	0,13	0,16	0,15	0,31	0,37	0,37	0,17	0,20	0,28	0,20	0,24	0,32	0,22	0,26	0,35	0,21	0,25	0,34
Managing own department	0,13	0,15	0,15	0,07	0,09	0,09	0,23	0,27	0,36	0,12	0,14	0,20	0,12	0,15	0,20	0,17	0,20	0,27
Make or buy/ outsourcing decision-making	0,26	0,31	0,30	0,17	0,20	0,20	0,18	0,21	0,29	0,24	0,29	0,38	0,34	0,40	0,49	0,19	0,23	0,31
Making investment decisions	0,13	0,16	0,16	0,14	0,16	0,16	0,26	0,31	0,40	0,20	0,24	0,32	0,20	0,24	0,32	0,25	0,30	0,39
Making decisions regarding R&D	0,09	0,11	0,11	0,06	0,07	0,07	0,12	0,15	0,20	0,19	0,23	0,31	0,15	0,17	0,24	0,19	0,23	0,31
Cost reduction	0,13	0,15	0,15	0,25	0,30	0,29	0,11	0,13	0,18	0,09	0,11	0,16	0,12	0,14	0,20	0,16	0,19	0,26
Cost control	0,14	0,16	0,16	0,17	0,26	0,26	0,16	0,19	0,26	0,31	0,37	0,46	0,11	0,13	0,19	0,22	0,26	0,35
Assessing internal projects	0,14	0,17	0,17	0,08	0,11	0,11	0,17	0,21	0,28	0,06	0,07	0,10	0,17	0,20	0,28	0,23	0,28	0,37

(*Source*: Authors' own processing)

The results show a generally weak or very weak relationship between the organisation of the accounting department on the one hand, and the suitability assessment of management accounting information, as a support of the management process, on the other hand. However, we notice a moderate interdependence between the reporting frequency and the use of information to support investment decisions in companies in Poland, respectively between reporting frequency and long-term planning and cost control, in business organisations from Romania.

What is interesting to note is that the frequency of meetings with the employees of the management accounting department determines to a moderate extent the use of information derived from this department for a relatively large amount of activities supporting the work of managers. It includes, among others, the implementation of strategies and performance measurement in the examined companies from Poland and Romania, and also in the case of Polish managers, preparing budgets and making short-term decisions.

The results show that, although the organisational issues around the management accountant (department, position, function) or the internal reporting frequency are not essential in determining the suitability of the specific information, staff meetings with the employees of the accounting department are deemed relevant by the surveyed managers, while their frequency determines the use of the information as a management support to a higher extent than the other examined factors.

4.2. Factors determining the assessed suitability of selected information provided by the management accounting system as a support of the management process

The assessed suitability of selected information provided by the management accounting system, as a support of the management process, was correlated with the same three variables: the company profile, the manager profile, the operations of the management accounting department.
The preliminary testing of the data showed that the company profile is not a variable with a strong influence on the assessment of selected types of information (Table 7).

Table 7. **The relationship between the *company profile* and the assessed suitability of selected information provided by the MAS as a support of the management process**

Company profile	Type of the company						Size of the company						Origin of the capital					
Country	POL			ROM			POL			ROM			POL			ROM		
Coefficient	T_c	V_c	C_P	T_c	V_c	C_P	T_c	V_c	C_P	T_c	V_c	C_P	T_c	V_c	C_P	T_c	V_c	C_P
Costs	0,21	0,25	0,24	0,21	0,21	0,21	0,16	0,20	0,27	0,08	0,13	0,13	0,23	0,27	0,36	0,20	0,24	0,32
Revenues	0,11	0,13	0,13	0,11	0,14	0,14	0,15	0,18	0,25	0,05	0,18	0,25	0,20	0,24	0,32	0,20	0,24	0,33
Financial results	0,10	0,12	0,12	0,10	0,19	0,20	0,18	0,22	0,29	0,21	0,25	0,33	0,21	0,24	0,33	0,33	0,39	0,49
Financial indicators	0,10	0,12	0,12	0,10	0,15	0,14	0,20	0,24	0,32	0,16	0,21	0,28	0,26	0,30	0,40	0,45	0,53	0,60
Variance analysis	0,06	0,07	0,07	0,06	0,18	0,18	0,20	0,24	0,32	0,23	0,28	0,37	0,20	0,23	0,31	0,29	0,35	0,44
Actual financial data	0,20	0,24	0,23	0,20	0,22	0,22	0,30	0,35	0,45	0,27	0,32	0,41	0,16	0,19	0,26	0,21	0,25	0,33
Planned financial data	0,10	0,12	0,12	0,10	0,10	0,10	0,12	0,15	0,20	0,23	0,27	0,36	0,20	0,24	0,33	0,14	0,17	0,23
Non-financial indicators	0,14	0,16	0,16	0,14	0,12	0,12	0,29	0,34	0,43	0,15	0,18	0,25	0,12	0,14	0,19	0,31	0,37	0,46

(*Source*: Authors' own processing)

Table 7 shows a weak or very weak relationship between the type of the company and the use of information for management purposes. Further, we observe a moderate relationship between the size of the company and the use of actual financial data in both countries, as well as between the size of the company and the use of non-financial ratios in Poland. The origin of the capital and the use of financial indicators exhibit as well a moderate interdependence in both countries, with a slightly higher coefficient in the case of Romania (C_P=0.6). Romanian companies also display a moderate relationship between the origin of the capital and the use of information on financial results, variance analysis and non-financial ratios. The figures actually indicate that although managers are basically provided with information on costs, revenues and financial results, managers of mainly larger companies, or companies with foreign capital located in Romania also employ other types of information, delivered by management accounting, as a support of the management process. A plausible explanation of this state of the art may be that transnational corporate headquarters imposing standard solutions on their branch offices have a significant influence on the type of information used as a management support.

The second variable considered in the analysis, i.e. the manager profile, was proven not to have a strong influence on the considered assessments (see Table 8).

Table 8. **The relationship between the *manager profile* and the assessed suitability of selected information provided by the MAS as a support of the management process**

Manager profile	Professional exprience						Education						Managed department					
Country	**POL**			**ROM**			**POL**			**ROM**			**POL**			**ROM**		
Coefficient	T_c	V_c	C_P	T_c	V_c	C_P	T_c	V_c	C_P	T_c	V_c	C_P	T_c	V_c	C_P	T_c	V_c	C_P
Costs	0,14	0,16	0,22	0,11	0,18	0,19	0,01	0,01	0,01	0,07	0,09	0,09	0,14	0,20	0,27	0,22	0,33	0,42
Revenues	0,26	0,31	0,40	0,25	0,29	0,38	0,25	0,30	0,29	0,13	0,16	0,17	0,15	0,22	0,30	0,19	0,23	0,37
Financial results	0,15	0,17	0,24	0,23	0,27	0,36	0,07	0,08	0,08	0,08	0,10	0,10	0,11	0,15	0,21	0,22	0,26	0,41
Financial indicators	0,17	0,20	0,27	0,27	0,32	0,42	0,05	0,06	0,06	0,10	0,12	0,13	0,12	0,17	0,24	0,23	0,27	0,43
Variance analysis	0,25	0,29	0,38	0,29	0,34	0,44	0,11	0,13	0,13	0,13	0,15	0,15	0,17	0,25	0,33	0,20	0,24	0,39
Actual financial data	0,18	0,21	0,28	0,13	0,16	0,22	0,06	0,08	0,08	0,29	0,35	0,33	0,16	0,23	0,31	0,43	0,51	0,67
Planned financial data	0,13	0,16	0,22	0,23	0,28	0,36	0,18	0,22	0,21	0,21	0,25	0,24	0,15	0,21	0,29	0,28	0,33	0,50
Non-financial indicators	0,16	0,19	0,26	0,22	0,26	0,35	0,09	0,11	0,11	0,09	0,10	0,10	0,18	0,26	0,35	0,18	0,21	0,34

(*Source*: Authors' own processing)

The results point to a weak or very weak relationship between the education of the surveyed managers and the use of selected types of information as a management support. In turn, we observe a moderate relationship between the work experience of the managers and the employment of information on revenues in Poland, while in Romania moderate dependencies are proven between work experience and the use of information on financial indicators and variations, as well as between the type of the managed department and the use of information on costs, financial results, financial indicators and planned financial data. Romania also exhibits a stronger relationship between the type of the managed department and the application of actual financial data (Cp=0.67), while in Poland, the relationship between the type of department and the type of information used in each of the examined cases is weak or very weak.

The last variable examined in this area regards the operations of the management accounting department (see Table 9), which proved to be a rather weak determinant of the specific assessments.

Table 9. **The relationship between the *operations of the MA department* and the assessed suitability of selected information provided by the MAS as a support of the management process**

Operations of the MA department	Organisation of MA						Frequency of reporting						Frequency of meetings					
Country	**POL**			**ROM**			**POL**			**ROM**			**POL**			**ROM**		
Coefficient	T_c	V_c	C_P	T_c	V_c	C_P	T_c	V_c	C_P	T_c	V_c	C_P	T_c	V_c	C_P	T_c	V_c	C_P
Costs	0,16	0,19	0,19	0,12	0,14	0,14	0,15	0,18	0,25	0,28	0,45	0,43	0,13	0,15	0,21	0,21	0,25	0,34
Revenues	0,08	0,10	0,10	0,09	0,11	0,11	0,12	0,14	0,19	0,14	0,13	0,23	0,34	0,41	0,50	0,23	0,27	0,36
Financial results	0,10	0,12	0,12	0,13	0,16	0,16	0,11	0,13	0,19	0,18	0,21	0,28	0,12	0,14	0,19	0,28	0,33	0,42
Financial indicators	0,12	0,14	0,14	0,15	0,18	0,18	0,17	0,20	0,27	0,17	0,20	0,27	0,30	0,36	0,45	0,33	0,39	0,49
Variance analysis	0,39	0,46	0,42	0,20	0,23	0,23	0,16	0,19	0,25	0,23	0,27	0,36	0,38	0,45	0,54	0,31	0,38	0,47
Actual financial data	0,22	0,26	0,25	0,19	0,22	0,22	0,14	0,17	0,23	0,19	0,23	0,31	0,12	0,14	0,20	0,21	0,25	0,33
Planned financial data	0,11	0,13	0,13	0,11	0,13	0,13	0,17	0,20	0,27	0,21	0,24	0,33	0,19	0,23	0,30	0,34	0,41	0,50
Non-financial indicators	0,24	0,28	0,27	0,16	0,19	0,18	0,20	0,24	0,32	0,26	0,31	0,41	0,21	0,25	0,33	0,18	0,21	0,29

(*Source*: Authors' own processing)

The collected results of the statistical analysis substantiate a weak or very weak relationship between the organisation of management accounting in the examined companies and the information employed as a management support. The only moderate dependence is observed in Polish companies with regard to the variance analysis. Neither the frequency of reporting is strongly connected with the suitability of selected information as a management support in Polish organisations. Yet, the case of Romania exhibits a moderate relationship between the frequency of reporting and the suitability of information on costs and non-financial ratios. The frequency of the meetings with management accountants is, however, a factor with a significant impact on the assessments of the surveyed managers. Relationships between the frequency of meetings and the suitability of information on variations and financial indicators are observed both in Poland and in Romania. More, the frequency of meetings is further linked in Romania to the information on financial results and planned financial data, and in Poland to information on the revenues. Hence, it can be stated that the meetings between managers and management accountants play a leading part in the context of the assessed suitability of information on costs, revenues, current or planned financial data as a management support.

4.3. Factors determining the assessment of the quality characteristics of management accounting reports

The same three variables considered so far (the company profile, the managers' profile and the operations of the management accounting department) were employed in analysing the assessment of the quality characteristics of management accounting reports. In this context, the company profile showed a weak or very weak influence on the specific assessments (see Table 10).

Table 10. **The relationship between the *company profile* and the assessment of the quality characteristics of MA reports**

Company profile	Type of the company						Size of the company						Origin of the capital					
Country	POL			ROM			POL			ROM			POL			ROM		
Coefficient	Tc	Vc	CP	Tc	Vc	CP	Tc	Vc	CP	Tc	Vc	CP	Tc	Vc	CP	Tc	Vc	CP
Comprehensibility	0,22	0,26	0,25	0,12	0,15	0,14	0,24	0,28	0,37	0,09	0,11	0,15	0,08	0,10	0,14	0,19	0,23	0,31
Completeness (content)	0,17	0,20	0,19	0,12	0,15	0,15	0,21	0,25	0,33	0,17	0,20	0,27	0,16	0,19	0,26	0,15	0,18	0,25
Clarity	0,18	0,21	0,21	0,26	0,31	0,29	0,24	0,28	0,37	0,16	0,19	0,26	0,12	0,15	0,20	0,24	0,29	0,38
Time available	0,25	0,30	0,28	0,14	0,17	0,17	0,19	0,23	0,31	0,13	0,16	0,22	0,15	0,18	0,24	0,13	0,15	0,21
Level of detail	0,17	0,20	0,20	0,12	0,15	0,15	0,18	0,22	0,30	0,17	0,20	0,27	0,13	0,15	0,21	0,28	0,34	0,43
Comparability (standardization)	0,10	0,12	0,12	0,26	0,31	0,29	0,15	0,18	0,24	0,17	0,20	0,28	0,13	0,15	0,21	0,21	0,25	0,33
Graphical representation	0,28	0,34	0,32	0,20	0,24	0,24	0,14	0,17	0,23	0,17	0,21	0,28	0,14	0,16	0,22	0,14	0,17	0,23
Relevance	0,31	0,36	0,34	0,13	0,15	0,15	0,22	0,26	0,35	0,14	0,16	0,22	0,31	0,37	0,46	0,21	0,25	0,33
Comments on the content	0,21	0,25	0,24	0,14	0,17	0,16	0,14	0,17	0,24	0,32	0,39	0,48	0,13	0,16	0,22	0,21	0,25	0,33
IT support	0,28	0,33	0,31	0,27	0,33	0,31	0,28	0,33	0,43	0,12	0,14	0,19	0,18	0,22	0,29	0,16	0,19	0,26
Reference to future	0,10	0,12	0,12	0,12	0,15	0,14	0,15	0,17	0,24	0,10	0,12	0,16	0,13	0,16	0,22	0,18	0,21	0,29

(*Source*: Authors' own processing)

The results indicate a weak or very weak link between the assessment of the quality characteristics of management accounting reports and the company profile, in both countries. A moderate dependence can be identified in few cases, such as the relationship between the relevance of the report and the origin of the capital, or the IT support and the company size in Poland, respectively between the report comments and the company size, or the degree of detail and the origin of the capital in Romania.

The manager profile proved to determine managers' assessment of the management accounting reports to a weak or very weak extent (see Table 11).

Table 11. **The relationship between the *manager profile* and the assessment of the quality characteristics of MA reports**

Manager profile	**Professional exeprience**						**Education**						**Managed department**					
Country	**POL**			**ROM**			**POL**			**ROM**			**POL**			**ROM**		
Coefficient	T_c	V_c	C_P	T_c	V_c	C_P	T_c	V_c	C_P	T_c	V_c	C_P	T_c	V_c	C_P	T_c	V_c	C_P
Comprehensibility	0,11	0,14	0,19	0,22	0,27	0,35	0,20	0,23	0,23	0,11	0,13	0,13	0,18	0,26	0,35	0,20	0,29	0,38
Completeness (content)	0,15	0,17	0,24	0,22	0,26	0,34	0,15	0,17	0,17	0,34	0,38	0,41	0,19	0,28	0,37	0,15	0,21	0,29
Clarity	0,08	0,10	0,14	0,30	0,36	0,46	0,16	0,20	0,19	0,11	0,13	0,13	0,17	0,24	0,32	0,14	0,21	0,28
Time available	0,16	0,19	0,26	0,13	0,16	0,26	0,15	0,18	0,17	0,09	0,10	0,10	0,16	0,23	0,31	0,12	0,18	0,25
Level of detail	0,09	0,10	0,14	0,15	0,17	0,24	0,20	0,23	0,23	0,18	0,21	0,21	0,13	0,19	0,26	0,20	0,29	0,37
Comparability (standardization)	0,12	0,14	0,19	0,25	0,30	0,32	0,04	0,04	0,04	0,42	0,50	0,48	0,16	0,23	0,31	0,14	0,23	0,31
Graphical representation	0,12	0,14	0,20	0,05	0,07	0,09	0,30	0,35	0,33	0,32	0,38	0,36	0,14	0,20	0,27	0,22	0,31	0,41
Relevance	0,08	0,09	0,13	0,14	0,17	0,24	0,12	0,15	0,15	0,13	0,16	0,16	0,19	0,27	0,36	0,17	0,25	0,33
Comments on the content	0,18	0,21	0,28	0,24	0,29	0,38	0,11	0,13	0,13	0,15	0,18	0,17	0,14	0,20	0,27	0,18	0,27	0,35
IT support	0,12	0,15	0,20	0,12	0,14	0,20	0,16	0,19	0,18	0,28	0,34	0,32	0,16	0,24	0,32	0,30	0,43	0,52
Reference to future	0,26	0,31	0,40	0,18	0,21	0,29	0,15	0,17	0,17	0,07	0,09	0,09	0,18	0,26	0,34	0,11	0,16	0,22

(*Source*: Authors' own processing)

The work experience of the managers is linked in Poland to the assessment concerning the reference to future of the information provided in the reports, and in Romania to the assessment of the report clarity. Moderate relationships are further observed in Romania between the education of the managers and the assessment of the report completeness and comparability, as well as between the managed area and the IT support and graphical presentation.

As for the operations of the management accounting department, as the third examined variable, it proved to determine the specific assessments to a weak or very weak extent (see Table 12).

Table 12. **The relationship between the *operations of the MA department* and the assessment of the quality characteristics of MA reports**

Operations of the MA department	**Organisation of MA**						**Frequency of reporting**						**Frequency of meetings**					
Country	**POL**			**ROM**			**POL**			**ROM**			**POL**			**ROM**		
Coefficient	T_c	V_c	C_P	T_c	V_c	C_P	T_c	V_c	C_P	T_c	V_c	C_P	T_c	V_c	C_P	T_c	V_c	C_P
Comprehensibility	0,12	0,15	0,14	0,12	0,14	0,14	0,20	0,23	0,31	0,17	0,21	0,28	0,15	0,18	0,24	0,28	0,33	0,43
Completeness (content)	0,08	0,10	0,10	0,19	0,22	0,22	0,19	0,23	0,31	0,14	0,17	0,23	0,16	0,20	0,27	0,20	0,24	0,33
Clarity	0,22	0,26	0,25	0,12	0,14	0,14	0,23	0,28	0,37	0,17	0,20	0,27	0,19	0,23	0,31	0,26	0,31	0,40
Time available	0,13	0,15	0,15	0,25	0,29	0,28	0,13	0,15	0,21	0,16	0,20	0,27	0,17	0,20	0,27	0,21	0,25	0,34
Level of detail	0,20	0,24	0,23	0,12	0,14	0,14	0,13	0,15	0,21	0,14	0,17	0,23	0,16	0,18	0,25	0,27	0,32	0,41
Comparability (standardization)	0,21	0,25	0,24	0,24	0,29	0,28	0,13	0,15	0,21	0,08	0,10	0,16	0,13	0,16	0,22	0,16	0,19	0,25
Graphical representation	0,05	0,06	0,06	0,24	0,29	0,28	0,18	0,21	0,29	0,20	0,24	0,32	0,16	0,19	0,26	0,13	0,16	0,22
Relevance	0,14	0,16	0,16	0,12	0,15	0,15	0,13	0,15	0,21	0,23	0,28	0,36	0,16	0,19	0,26	0,24	0,29	0,38
Comments on the content	0,10	0,11	0,11	0,26	0,31	0,29	0,16	0,19	0,26	0,23	0,27	0,36	0,18	0,22	0,29	0,25	0,30	0,39
IT support	0,14	0,17	0,16	0,21	0,25	0,24	0,28	0,34	0,43	0,18	0,22	0,30	0,17	0,20	0,28	0,23	0,28	0,36
Reference to future	0,25	0,29	0,28	0,29	0,34	0,32	0,17	0,20	0,27	0,15	0,17	0,24	0,16	0,19	0,26	0,30	0,35	0,45

(*Source*: Authors' own processing)

Neither the organisation of the management accounting department nor the reporting frequency are linked to the assessment of the quality characteristics of internal reports, except for a moderate relationship between the latter and the reporting IT support, in the case of Poland. In Romania, the frequency of meetings between managers and management accountants is, however, a relevant factor for the quality assessment of internal reports, based on the moderate relationship between the considered variable, and the assessment of the clarity, comprehensibility, degree of detail and reference to future.

4.4. Factors determining the managers' assessment of the communication channel of the information provided by the management accounting department

In order to identify the factors determining the assessment of different communication channels of the information provided by the management accounting department, we relied on the correlation between this specific assessment and the same three variables employed in the prior analyses: the company profile, the manager profile and the operations of the management accounting department.

Out of these, the company profile doesn't interact significantly with the assessment of the considered communication channels (see Table 13).

Table 13. **The relationship between the *company profile* and the assessment of the communication channel of the information provided by the MA department**

Company profile	Type of the company						Size of the company						Origin of the capital					
Country	POL			ROM			POL			ROM			POL			ROM		
Coefficient	T_c	V_c	C_P	T_c	V_c	C_P	T_c	V_c	C_P	T_c	V_c	C_P	T_c	V_c	C_P	T_c	V_c	C_P
PDF files	0,07	0,09	0,09	0,13	0,14	0,15	0,18	0,22	0,29	0,15	0,18	0,25	0,09	0,10	0,15	0,18	0,22	0,29
Printed version reports	0,12	0,14	0,14	0,18	0,21	0,20	0,15	0,18	0,25	0,32	0,39	0,48	0,18	0,21	0,29	0,20	0,24	0,32
Excel data transfer	0,27	0,32	0,31	0,12	0,15	0,14	0,18	0,21	0,29	0,08	0,13	0,13	0,13	0,16	0,22	0,12	0,20	0,19
Online via Frontend	0,22	0,26	0,25	0,07	0,09	0,08	0,21	0,25	0,34	0,33	0,49	0,40	0,23	0,27	0,36	0,30	0,45	0,35
Mobile reporting	0,07	0,08	0,08	0,15	0,18	0,18	0,23	0,28	0,37	0,29	0,35	0,44	0,13	0,16	0,22	0,21	0,25	0,34

(*Source*: Authors' own processing)

The few moderate relationships that can be observed originate exclusively from Romania, where the company size is linked to the delivery of specific information through mobile reporting or online data – whereas both communication channels are employed rather by large companies, as well as through printed reports – frequently used by smaller companies. A third moderate relationship is exhibited between the origin of the capital and the online communication of the data – a common channel in companies with foreign capital, due to the high geographic spread of the companies within a group.

In the same line, only a very weak relationship can be observed between the manager profile and the assessment of the communication channel (see Table 14).

Table 14. **The relationship between the *manager profile* and the assessment of the communication channel of the information provided by the MA department**

Manager profile	Professional exeprience						Education						Managed department					
Country	POL			ROM			POL			ROM			POL			ROM		
Coefficient	T_c	V_c	C_P	T_c	V_c	C_P	T_c	V_c	C_P	T_c	V_c	C_P	T_c	V_c	C_P	T_c	V_c	C_P
PDF files	0,17	0,20	0,28	0,18	0,21	0,29	0,15	0,17	0,17	0,08	0,09	0,09	0,17	0,24	0,32	0,19	0,27	0,36
Printed version reports	0,24	0,29	0,38	0,27	0,32	0,42	0,30	0,36	0,34	0,17	0,20	0,21	0,16	0,23	0,30	0,22	0,32	0,41
Excel data transfer	0,21	0,25	0,34	0,11	0,19	0,18	0,01	0,02	0,02	0,07	0,09	0,09	0,15	0,22	0,30	0,10	0,21	0,20
Online via Frontend	0,07	0,08	0,12	0,18	0,21	0,28	0,11	0,13	0,13	0,15	0,18	0,17	0,17	0,24	0,33	0,14	0,21	0,28
Mobile reporting	0,10	0,12	0,17	0,17	0,20	0,27	0,17	0,20	0,20	0,09	0,10	0,10	0,13	0,19	0,26	0,19	0,28	0,37

(*Source*: Authors' own processing)

Merely two moderate relationships can be identified at this point, both originating from Romania and involving the employment of printed reports, in connection with the work experience of the manager, respectively with the managed department.

The last examined factor, i.e. the operations of the management accounting department, is proven to determine the specific assessments to a very weak extent (see Table 15).

Table 15. **The relationship between the *operations of the MA department* and the assessment of the communication channel of the provided information**

Operations of the MA department	Organisation of MA						Frequency of reporting						Frequency of meetings					
Country	POL			ROM			POL			ROM			POL			ROM		
Coefficient	T_c	V_c	C_P	T_c	V_c	C_P	T_c	V_c	C_P	T_c	V_c	C_P	T_c	V_c	C_P	T_c	V_c	C_P
PDF files	0,23	0,28	0,27	0,12	0,14	0,14	0,11	0,13	0,19	0,20	0,23	0,31	0,22	0,26	0,35	0,23	0,27	0,36
Printed version reports	0,32	0,38	0,35	0,23	0,27	0,26	0,08	0,10	0,14	0,19	0,23	0,30	0,19	0,23	0,31	0,24	0,29	0,38
Excel data transfer	0,14	0,17	0,17	0,12	0,14	0,14	0,15	0,18	0,25	0,12	0,21	0,20	0,16	0,19	0,26	0,20	0,34	0,32
Online via Frontend	0,23	0,27	0,26	0,14	0,16	0,16	0,11	0,13	0,18	0,23	0,28	0,37	0,11	0,13	0,18	0,16	0,19	0,26
Mobile reporting	0,17	0,21	0,20	0,22	0,26	0,25	0,18	0,22	0,29	0,28	0,33	0,43	0,15	0,18	0,25	0,23	0,27	0,36

(*Source*: Authors' own processing)

The only moderate relationship is observed between the frequency of reporting and the employment of mobile reporting in the case of Romania. This is a justified relationship as the large share of branch offices in Romania requires the use of advanced IT solutions, like mobile reporting. In all the other examined instances, the relationships are very weak or weak and thus are not subject to further interpretation.

5. Conclusions

There is a global homogenization tendency in matters of management accounting practices, though research often points to particularities of American, Western European and Japanese management accounting practices (Chow et al., 1994; Ahrens and Chapman, 1996, Granlund and Lukka, 1998, Horvath, 2011), as well as to specific features of management accounting practices in Central and Eastern European countries, with a similar historical background (Szychta, 2008).

In this context, the objective of the present paper was to test the strength of the relationship between selected variables and managers' assessment of the information provided by the management accounting system. For this purpose, we employed the correlation analysis based on Czuprow's T coefficient - T_c, Pearson's C coefficient - C_P and Cramer's V coefficient - $V_{c,}$ applied to data collected from randomly selected companies located in Poland and Romania.

The correlation coefficients employed in the study revealed, in case of both Poland and Romania, a rather weak relationship between the three selected organizational variables – the company profile, the manager profile and the operations of the management accounting department – on the one hand, and the assessed suitability of management accounting information and reporting, on the other hand (see Appendix).

The *company profile* is a factor with a weak to moderate influence on the assessed suitability of the information derived from the management accounting system by Polish and Romanian managers. Regardless of the type of company, its size and the origin of the capital, the managers' assessments are mainly similar. There are few exceptions to this matter, like the moderate relationship between the company type and the assessed suitability of the information for R&D decisions in Romania. The importance of the company profile, mainly of the origin of the capital, has also been emphasized in literature (Gordon and Miller, 1976; Waterhouse and Tiessen, 1978; Macintosh and Draft, 1987).

The *manager profile* proves to be weakly and moderately connected to the assessed suitability of the information derived from the management accounting system, whereas most moderate relationships are observed around the managed department of the respondent, especially in the case of Romania.

In respect of the third factor – *the operations of the management accounting department* - the strongest relationships were observed between the frequency of the meetings between managers and management accountants, on the one hand, and the assessed suitability of the information provided by management accounting, on the other hand.

The study contributes to the body of related research in two senses: it identifies influencing factors of the manner in which managers assess the usefulness of the information provided by management accounting, and it provides a comparison in the matter of interest between two Eastern European countries where, to the best of our knowledge, no similar study has been conducted.

As limits of the research, we should first point to the unbalanced distribution of the responses received in Poland and Romania, leading to the fact that the comparison can't be generalised. Second, the managers' perception was examined only based on questionnaires. The results need be further substantiated based on interviews performed among the same respondents.

Starting from the results of the present study, we can identify two future research directions: (a) a macro-level analysis of cultural factors that might influence the managers' perceptions on the suitability of the information provided by the MAS for the managerial process and (b) a comparative analysis based on contingency variables, with a similar scope, between the managers' perceptions within the CEE countries and other countries, particularly the Western ones.

References

Abernethy, M.A. & Guthrie, C.H. (1994) "An empirical assessment of the "fit" between strategy and management information system design", *Accounting and Finance*, vol. 34, no. 2: 49-66.

Ahrens, T. & Chapman, C. (1996) "The making of management accountants: Professional selfhood in Britain and Germany", paper presented at the AOS Conference in Siena, Italy.

Ahrens, T. (1996) "Style of accountability", *Accounting, Organizations and Society*, vol. 21, issue: 2/3: 139-173.

Albu, N. & Albu, C.N. (2012) "Factors associated with the adoption and use of management accounting techniques in developing countries: The case of Romania", *Journal of International Financial Management and Accounting*, vol. 23, no. 3: 245-276.

Anderson, S.W. & Lanen, W.N. (1999) "Economic Transition, Strategy and the Evolution of Management Accounting Practices: The Case of India", *Accounting, Organizations and Society*, vol. 23, no. 5-6: 379-412.

Aver, B. & Cadez, S. (2009) "Management accountants' participation in strategic management processes: A cross industry comparison", *Journal of East European Management Studies,* vol. 14, no. 3: 310-322.

Baiman, S. (1982) "Agency Research in Managerial Accounting: A Survey", *Journal of Accounting Literature*, vol.1: 154-213.

Bergsma, W. (2013) "A bias correction for Cramer's V and Tschuprow's T", *Journal of the Korean Statistical Society*, vol. 42, no. 3: 323–328.

Blum, H.S. (2006) *Logistik-Controlling, Kontext, Ausgestaltung und Erfolgswirkungen* (Chapter 5), Wiesbaden: Deutscher Universitats-Verlag.

Brownell, P. & Hirst, M.K. (1986) "Reliance on accounting information, budgetary participation and task uncertainty: Tests of a three-way interaction", *Journal of Accounting Research*, vol. 24, no. 2: 241-249.

Brownell, P. (1982) "Participation in the budgeting process: When it works and when it doesn't", *Journal of Accounting Literature*, vol. 1: 124-153.

Burns, W.J. & McKinnon, S.M. (1992a) *Management information and accounting information: what do managers want*? in: Epstein M.J. (ed.) *Advances in Management Accounting*, Greenwich: Jail Press Inc., vol. 1: 55-80.

Burns, W.J. & McKinnon, S.M. (1992b) *The Information Mosaic*, Boston: Harvard Business School Press.

Burns, W.J. & McKinnon, S.M. (1993) "Information and managers: a field study", *Journal of Management Accounting Research*, vol. 5: 84-108.

Burns, W.J. & Waterhouse, J. (1975) "Budgetary control and organizational structure", *Journal of Accounting Research*, no. 19: 177-203.

Budde, J. (2009) "Variance analysis and linear contracts in agencies with distorted performance measures", *Management Accounting Research*, vol. 20, no. 3: 166–176.

Burns, T. & Stalker, G.M. (1967) *The Management of Innovation*, London: Tavistock.

Cadez, S. & Guilding, C. (2008) "An exploratory investigation of an integrated contingency model of strategic management accounting", *Accounting, Organizations and Society*, vol. 33, no. 7-8: 836-863.

Chapmann, C.S. (1997) "Reflections on a contingent view of accounting", *Accounting, Organizations and Society,* vol. 22, no. 2: 189-205.

Cheffi, W. & Beldi, A. (2012) "Analysis of managers' use of management accounting", *International Journal of Business*, vol. 17, no. 2: 113-125.

Chenhall, R.H (2007) "Theorizing contingencies in management control systems research". In: Chapman, C.S., Hopwood, A.G., Shields, M.D. (Eds.), *Handbook of Management Accounting Research*, Elsevier, pp.163–205.

Chenhall, R.H. & Morris, D. (1986) "The impact of structure, environment and interdependence on the perceived usefulness of management accounting systems", *The Accounting Review*, vol. 61, no. 1: 16-35.

Chenhall, R.H. (2003) "Management control systems design within its organizational context: Findings from contingency-based research and directions for the future", *Accounting, Organizations and. Society*, vol. 28, no. 2-3: 127-168.

Chong, V.K. (1996) "Management accounting systems, task uncertainty and managerial performance: A research note", *Accounting, Organizations and Society*, vol. 21, no. 5: 415-421.

Chow, C.W., Kato, Y., Shields, M.D. (1994) "National culture and the preference for management controls: An exploratory study of the firm – labor market interface", *Accounting, Organizations and Society*, vol. 19: 391-400.

Cramer, H. (1946) *Mathematical Methods of Statistics* (Chapter 21. The two-dimensional case), Princeton: Princeton University Press.

Dropulic, I. (2013) “The Effect of contingency factors on management control systems: a study of manufacturing companies in Croatia”, *Economic Research*, vol.26, special issue: 369-382.
Dunk, A.S. (1992) “Reliance on budgetary control, manufacturing process automation and production sub-unit performance: a research note”, *Accounting, Organizations and Society*, vol. 17, no. 3-4: 185-239.
Emmanuel, C., Otley, D., Merchant, K. (1990) *Accounting for Management Control, 2nd edition*, London: Chapman & Hall.
Fisher, C. (1996) “The impact of perceived environmental uncertainty and individual differences on management information requirements: a research note”, *Accounting, Organizations and Society*, vol. 21, no. 4: 361-369.
Fisher, J. (1995) “Contingency-based research on management control systems: categorization by level of complexity”, *Journal of Accounting Literature*, vol. 14: 24-53.
Gordon, L.A. & Miller, D.A. (1976) “Contingency framework for the design of accounting information systems”, *Accounting, Organizations and Society*, vol. 1, no. 1: 56-69.
Gordon, L.A. & Narayanan, V.K. (1984) “Management accounting systems, perceived environmental uncertainty and organization structure: An empirical investigation”, *Accounting, Organizations and Society*, vol. 9, no. 2: 33-47.
Granlund, M. & Lukka, K. (1998) “It’s a Small World of Management Accounting Practices”, *Journal of Management Accounting Research*, vol. 10: 153 – 176.
Gul, F.A. & Chia, Y.M. (1994) “The effects of management accounting systems and perceived environmental uncertainty and decentralization on managerial performance: A test of three-way interaction”, *Accounting, Organizations and Society*, vol. 19, no. 4-5: 413-426.
Gul, F.A. (1991) “The effects of management accounting systems and environmental uncertainty on small business managers’ performance”, *Accounting and Business Research*, vol. 22, no. 85: 57-61.
Gupta, A.K. & Govindarajan, V. (1984) “Business unit strategy, managerial characteristics, and business unit effectiveness at strategy implementation”, *Academy of Management Journal*, vol. 27, no. 1: 25-41.
Gupta, A.K. & Govindarajan, V. (1991) “Knowledge flows and the structure of control within multinational corporations”, *Academy of Management Review*, vol. 16, issue 4: 768-792.
Haldma, T. & Laats, K. (2002) “Influencing contingencies on management accounting practices in Estonian manufacturing companies”, *Management Accounting Research*, vol. 13, no. 4: 379–400.
Hambrick, D.C. & Lei, D. (1985) “Toward an empirical prioritization of contingency variables for business strategy”, *Academy of Management Journal*, vol. 28, no. 4: 763-788.
Harrison, G.L. (1992) “The cross-cultural generalizability of the relation between participation, budget emphasis and job-related attitudes”, *Accounting, Organizations and Society*, vol. 17, no. 1: 1-15.
Hartmann, F. (2000) “The appropriateness of RAPM: towards the further development of theory”, *Accounting, Organizations and Society*, vol. 25, no. 4-5: 451-482.
Hofstede, G.H. (1967) *The Game of Budget Control*, London: Tavistock.
Hofstede, G.H. (1980) *Culture’s Consequences: International Differences in Work-related Values*, Los Angeles: Sage Publications.
Hofstede, G.H. (1983) “The cultural relativity of organizational practices and theories”, *Journal of International Business Studies*, vol. 14, no. 2: 75-89.
Hofstede, G.H. (1984) “The cultural relativity of the quality of life concept”, *Academy of Management Review*, vol. 9, no. 3: 389-398.
Hofstede, G.H., Hofstede, G.J.& Minkov, M. (2010) *Culture and Organizations: software of the mind, 3rd edition*, New York: McGraw-Hill.

Hopper, T., Tsamenyi, M., Uddin, S. & Wickramasinghe, D. (2009) "Management accounting in less developed countries: what is known and needs knowing", *Accounting, Auditing and Accountability Journal*, vol. 22, no. 3: 469–514.

Hopwood, A.G. (1972) "The relationship between accounting and personnel management — past conflicts and future potential", *Personnel Review*, vol. 1, issue 2: 40-47.

Horvath, P. (2011) *Controlling,12. Aufgabe*, München: Verlag Vahlen.

Islam, J. & Hu, H. (2012) "A literature review on contingency theory in managerial accounting", *African Journal of Business Management*, vol. 6, no. 15: 5159-5164.

Jaruga, A. & Ho, S.S.M. (2002) "Management accounting in transitional economies", *Editorial Management Accounting Research*, vol. 13, no. 4: 375–378.

Johnson, H.T. & Kaplan, R.S. (1987) *Relevance Lost*, Boston: Harvard Business School Press.

Keller, G. (2012) *Managerial Statistics*, Boston: South-Western Cengage Learning

Khandwalla, P. (1972) "The effects of different types of competition on the use of management controls", *Journal of Accounting Research*, vol. 10, no. 2: 275-295.

Khandwalla, P. (1977) *Design of organisations*, New York: Harcourt Brace Jovanovich.

Klassen, M. (2014) *Value logics and management control systems*. In: PhD Thesis. Lancaster University, UK.

Lawrence, P. & Lorsch, J. (1967) *Organization and Environment*, Irwin: Homewood.

Luft, J. & Shields, M.D. (2002) "Zimmerman's contentious conjectures: describing the present and prescribing the future of empirical management accounting research", *European Accounting Review*, vol. 11, no. 4: 795–803.

Luther, R.G. & Longden, S. (2001) "Management accounting in companies adapting to structural change and volatility in transition economies: A South African study", *Management Accounting Research*, vol. 12, no. 3: 299-320.

Macintosh, N.B. & Daft, R.L. (1987) "Management control systems and departmental interdependencies: an empirical study", *Accounting, Organizations and Society*, vol. 12, issue 1: 49-61.

Macintosh, N.B. (1981) "A contextual model of information systems", *Accounting, Organizations and Society*, vol. 6, issue 1: 39-52.

Malmi, T. & Granlund, M. (2009) "In search of management accounting theory", *European Accounting Review*, vol. 18, no. 3: 597-620

Mendoza, C. & Bescos, P.L. (2001) "An explanatory model of managers' information needs: implications for management accounting", *The European Accounting Review*, vol. 10, no. 2: 257-289.

Merchant, K.A. (1981) "The design of the corporate budgeting system: influences on managerial behaviour and performance", *The Accounting Review*, vol. 56, no. 4: 813-829.

Merchant, K.A. (1984) "Influences on departmental budgeting an empirical examination of a contingency model", *Accounting, Organizations and Society*, vol. 9, no. 3-4: 291-307.

Merchant, K.A. (1985) "Budgeting and the propensity to create budgetary slack", *Accounting, Organizations and Society*, vol. 10, no. 2: 201-210.

Merchant, K.A. (1990) "The effects of financial controls on data manipulation and management myopia", *Accounting, Organizations and Society*, vol. 15, no. 4: 297-313.

Merchant, K.A. (1998) *Modern Management Control Systems. Text and Cases*, Upper Saddle River: Prentice Hall.

Miles, R.W. & Snow, C.C. (1978) *Organizational strategy, structure and process*, New York: McGraw-Hill.

Mockler, R.J. (2002) *Multinational Strategic Management: An Integrative Entrepreneurial Context-Specific Process*, New York: International Business Press.

Nita, B. (2009) *Rola rachunkowości zarządczej we wspomaganiu zarządzania dokonaniami przedsiębior-stwa*, Wrocław: Uniwersytet Ekonomiczny we Wrocławiu.

Nita, B. (2013) "Teoria uwarunkowań sytuacyjnych w rachunkowości zarządczej", *Zeszyty Teoretyczne Rachunkowości*, no. 71(127): 193-209.

O'Connor, N. (1995) "The influence of organizational culture on the usefulness of budget participation by Singaporean-Chinese managers", *Accounting, Organization and Society*, vol. 20, no. 5: 380-403.

Otley, D.T. (1978) "Budget use and managerial performance", *Journal of Accounting Research*, vol. 16, no. 1: 122-149.

Otley, D.T. (1980) "The contingency theory of management accounting: Achievement and prognosis", *Accounting, Organizations and Society*, vol. 5, no. 4: 413–428.

Otley, D.T. (2016) "The contingency theory of management accounting and control: 1980-2014", *Management Accounting Research*, vol. 31: 45-62.

Pierce, B. & O'Dea, T. (2003) "Management accounting information and the needs of managers. Perceptions of managers and accountants compared", *British Accounting Review*, vol. 35, no. 3: 257-290.

Sharma, D.S. (2002) "The differential effect of environmental dimensionality, size, and structure on budget system characteristics in hotels", *Management Accounting Research*, vol.13, no.1: 101–130.

Simons, R. (1987) "Accounting control systems and business strategy", *Accounting, Organizations and Society*, vol. 12, no. 4: 357-374.

Sobczyk, M. (2000) *Statystyka*, Warsaw: PWN

Subramaniam, N. (1993) "A managerial perspective on management accounting system adequacy gap", *Accounting and Finance*, vol. 17, no. 2: 19-37.

Szychta, A. (2002) "The scope of application of management accounting methods in Polish enterprises", *Management Accounting Research*, vol. 13, no. 4: 401-418.

Szychta, A. (2008) "Procesowe ukierunkowanie współczesnej rachunkowości zarządczej", *Zeszyty Teoretyczne Rachunkowości*, no. 44: 91-100.

Waterhouse, J.H. & Tiessen, P. (1978) "A contingency framework for management accounting systems research", *Accounting, Organizations and Society*, August, vol. 3, issue 1: 65-76.

Waveru, N.M. (2010) "The origin and evolution of management accounting: a review of the theoretical framework", *Problems and Perspectives in Management*, vol. 8, no. 3: 165-182.

Woods, M. (2009) "A contingency theory perspective on the risk management control system within Birmingham City Council", *Management Accounting Research*, vol. 20, no. 1: 69-81.

Yule, G.U. (1912) "On the Methods of Measuring Association between Two Attributes", *Journal of the Royal Statistical Society*, vol. 75, no. 6: 579-652.

Zimmerman, J.L. (2001) "Conjectures regarding empirical managerial accounting research", *Journal of Accounting and Economics*, vol. 2, no. 1–3: 411–427.

Appendix. **Summary of the results of the research on determining the impact of the examined factors on the assessments made by managers**

Analysed variables		**Assessment of extent to which the information provided by the MA department is used in performing management tasks**		**Assessment of the suitability of certain types of information provided by the MAS, in the context of the management process**		**Assessment of specific quality characteristics of internal reports, prepared by management accountants**		**Assessment of specific communication channels for the information delivered by the MAS**	
Country		**POLAND**	**ROMANIA**	**POLAND**	**ROMANIA**	**POLAND**	**ROMANIA**	**POLAND**	**ROMANIA**
Company profile	***Type of the company***	weak or very weak relationship	moderate relationship only for R&D decisions	weak or very weak relationship	weak or very weak relationship	weak or very weak relationship	weak or very weak relationship	weak or very weak relationship	weak or very weak relationship
	Size of the company	moderate relationship only for budget preparation	moderate relationship only for R&D decisions	moderate relationship for: actual financial data, non-financial indicators	moderate relationship only for actual financial data	moderate relationship only for IT support	moderate relationship only for: comments in reports	weak or very weak relationship	moderate relationship for: printed version of reports, mobile applications, online reporting
	Origin of the capital	moderate relationship only for budget preparation	moderate relationship only for R&D decisions	moderate relationship only for financial indicators	moderate relationship for: financial results and indicators (stronger relationship), variance analysis, non-financial indicators	moderate relationship only for relevance	moderate relationship only for degree of detail	weak or very weak relationship	moderate relationship only for online reporting
Manager profile	***Professional experience***	weak or very weak relationship	weak or very weak relationship	moderate relationship only for revenues	moderate relationship for: financial indicators, variance	moderate relationship only for reference to the future	moderate relationship only for clarity	weak or very weak relationship	moderate relationship only for printed version of

					analysis				reports
	Education	weak or very weak relationship	weak or very weak relationship	weak or very weak relationship	weak or very weak relationship	weak or very weak relationship	moderate relationship for: completeness, comparability	weak or very weak relationship	weak or very weak relationship
	Managed department	moderate relationship for: budget preparation (stronger relationship), investment decisions	moderate relationship for: budget preparation, department management, R&D decisions, cost control and assessment of internal projects	weak or very weak relationship	moderate relationship for: costs, results, financial indicators, actual financial data (stronger relationship), planned financial data	weak or very weak relationship	moderate relationship for: graphical presentation, IT support	weak or very weak relationship	moderate relationship only for printed version of reports
Operations of the MA department	***Organisation of MA department***	weak or very weak relationship	weak or relationship	moderate relationship only for variations analysis	weak or very weak relationship	weak or very weak relationship	weak or very weak relationship	weak or very weak relationship	weak or very weak relationship
	Frequency of reporting	moderate relationship only for investment decisions	moderate relationship for: long-term planning, cost control	weak or very weak relationship	moderate relationship only for costs	moderate relationship only for IT support	weak or very weak relationship	weak or very weak relationship	moderate relationship only for mobile reporting
	Frequency of meetings between managers and management accountants	moderate relationship for: strategy implementation, budget preparation, performance measurement, making short-term decisions	moderate relationship for: strategy implementation, performance measurement	moderate relationship for: revenues, financial indicators, variance analysis	moderate relationship for: financial results and indicators, variance analysis, planned financial data	weak or very weak relationship	moderate relationship only for: clarity, comprehensibility, degree of detail and references to the future	weak or very weak relationship	weak or very weak relationship

(*Source*: Authors' own elaboration)

Accountants are not robots! How professional accounting judgment is affected by individual optimism, risk taking and self-confidence

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Abstract: *Chaotic dynamics of today's global business environment exert a tremendous pressure on professionals accounting judgment performance. A survey was mailed to Romanian professional accountants to examine their perception on accounting judgments and decisions. The results based on 531 valid responses indicate that professionals considered that a judgment in accounting is influenced by the responsibility of the accountant in preparing the financial statements accordingly to the regulatory financial reporting framework. Also, they think that an adequate accounting judgment is best characterized by: "logical, consistent and substantiated", characteristics. Exploring statistical differences between accountants, grouped by age, gender, as well as years of practice, we found that younger investigated accountants are more optimistic that the ones over 45. We have used Chi-Square test and Pearson's correlation coefficient and showed that there is a correlation between accountants' propensity towards optimism and their perception regarding the need of a theoretical framework of JDM, and between accountants' propensity towards risk and their choice regarding the aspects that influence accounting judgment. Also, accountants' self-confidence is in direct correlation with their opinion regarding the aspects that influence JDM in accounting, but there is no statistical correlation between accountants' propensity towards optimism and their choice regarding the aspects that influence accounting judgment. Our results show that is on interest to further investigate these correlations to identify new ways to improve JDM in accounting. The role of professional accountant is shaped by the pressure of several external factors that also mark their behaviour, so, accountants are not robots, are humans.*

Keywords: *Professional accountants, judgment and decision making, optimism, risk taking, self-confidence*

1. Introduction

Given that the accounting standards offer mainly general guidance regarding preparation of financial statements, accounting professionals are found many times in situations requiring specialized skills, use of cognitive skills and exercise professional judgment (Brown, Collins and Thornton, 1993), as the financial reports are the end of the product of numerous judgments and decisions (Hronsky and Houghton, 2001). Judgment and decision-making in accounting is part of the psychological research area "Behavioral Decision Theory", which explores how the accountants make use of

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these skills - judgment and decision (Trotman, 1998). The subject of judgment and decision-making in accounting, I found treated in literature since the twentieth century, when Mapp (1937) supports the idea that “factual information and accuracy in its procurement are essential, but its value is submerged unless with it is synchronized the development and training of the judgment”. Later, in 1987 Treadway Commission emphasizes that “bona fide differences of opinion arise in financial reporting, especially if novel or complex transactions are involved. Generally accepted accounting principles may not always be clear on the appropriate accounting treatment and the company and its independent public accountant must use judgment in making a decision” (Treadway Commission, 1987). Although we are in a time when research is highest in all areas, we support the idea that the accounting is very different from other areas, even from the audit because significant difference in various problems or analysis appear, or even in accounting judgment (Mason and Gibbins, 1991). In terms of accounting professionals, constantly subjected to pressure in order to make the best decisions – “accounting professionals, in general routinely think about actions, situations, objects, persons, or events outside the realm of their *direct* experience”. That is, they think about the future or the past distant locations rather than proximate locations, other individuals' perceptions or experiences, or hypothetical events rather than actual events. They also make plans, render judgments, and make choices based upon, or influenced by those thoughts (Weisner, 2015). Chand and Patel (2011), in their research analysed the period between 1972 to 2010, where in the five top-tier accounting journals, they made review of what have been published on accounting judgment and decision making. The review of the studies propose that judgment and decision making in accounting has some basic points: “(i) to identify the extents of similarity in the meanings of key accounting concepts held by various parties involved in the preparations and use of financial reports, (ii) to describe how professional accountants interpret and apply accounting standards, in particular examining the ambiguity in the interpretation of uncertainty expressions, (iii) to identify the influence of other factors, including national and linguistic culture, on the interpretation and application of accounting standards, and (iv) to provide some insight into the theoretical and conceptual issues in accounting judgment and decision-making research”.

The present study is based on a survey of Romanian professional accountants’ opinion on judgment and decision making in accounting and is part of the studies that analyse the behaviour of professional accountants. Taking into account the review of previous work on the topic we have set up research questions and elaborated hypotheses. We consider our endeavour adds value to the existing behavioural accounting research by questioning and investigating some potential correlation between individual traits such: optimism, risk taking and self-confidence and judgment and decision making in accounting. Our work is organized as follows: a brief introduction on behavioural accounting research and the first studies conducted on judgment and decision making in accounting announcing our intentions of research, prior research on the topic which highlights several studies related to accounting judgments, estimates and decision making, the methodology and sample selection process, descriptive statistics of the interested received responses from professional accountants, research questions and hypotheses based on the analysis of similar studies, the section of discussion of obtained results from the statistical testing of the work hypotheses and in the last section of the paper we have outlined the main findings, limits of our study and potential for future works on the topic.

2. Previous research conducted on judgment, decision making and accounting professionals behaviour

Accounting is not an exact science, because getting relevant information is necessary to carry out the reasoning for each case (Istrate, 2004). Given this, becomes imperative, at a time when the truth is not only one, to investigate perceptions of professional accountants on accounting judgment and decision making. Reporting to timing, the "50is, when in judgment and decision making (JDM) prevailed mathematical models, now the reviews are structured by task categories, with section headings such as "preferences," "beliefs," and "decisions under risk and uncertainty" (Payne *et al*., 1992), and "risky choice," "intertemporal choice," and "social decisions" (Loewenstein *et al.,* 2007). As far as the notion perception is concerned (Solomon and Trotman, 2003), noticed that judgments refer to "***subjective assessments made as a prelude to taking action***" and decision mean "*action that people take to perform some task or resolve some problem*". Thus, investigating perceptions of professional accountants on accounting judgment and decision making has shown that judgments of professional accountants are not made in a vacuum and that a number of factors, like culture, level of education, experience, accounting firm affiliations, influence the accountants when making professional judgement (Libby and Luft, 1993; Fraser and Hatherly, 2003). Chand and Patel (2011), found in the five top-tier accounting journals only 17 papers for the period 1972-2010, that fall within the domain of accounting judgment research. There are studies that provide some insight into the theoretical and conceptual issues in accounting judgment and decision making research (Belkaoui, 1978; Gibbins, 1984; Emby and Gibbins Brown *et al*., 1993; Hornsky and Houghton, 2001; Doupnik and Richter, 2003; Clor-Proell and Nelson, 2007). Also, in 1999 and 2005 were tested the attitude towards flexibility of a number of Romanian accountants (Olimid and Calu, 2010) and the authors observed that, over time, accountants' attitude moved to less uniformity. Mustață *et al.* (2011) showed the sociological-psychological environment of accountants and their everyday problems and considered that Herzberg's theory can identify and explain reasonably well the motivational factors of today's Romanian accounting professionals. Barcellos, Cardoso and deAquino (2016) conducted an exploratory analysis on Brazilian professional accountants' cognitive reflection abilities measured through Frederick's (2005) cognitive reflection test (CRT). The results revealed that male Brazilian accountants tend to be more reflective than their female counterparts. Also, Barcellos, Cardoso and deAquino (2016), found that professional accountants tend to become less reflective and more impulsive, as they age. Patel (2006) empirically examined through a survey questionnaire administered to a sample of senior professional accountants from Big Five accounting firms, the cultural influences on professional judgment of Australian, Indian and Chinese Malaysian accountants in relation to auditor-client conflict resolution, and whistle-blowing as an internal control mechanism. Patel's (2006) results showed that Australian professional accountants are less likely to resolve audit conflicts by acceding to clients than Indian and Chinese Malaysian professional accountants, and are also less accepting of resolving audit conflicts in this way. Furthermore, Australian professional accountants are more likely to engage in whistle-blowing as an internal control mechanism than Indian and Chinese Malaysian professional accountants, and are also more accepting of doing so. The empirical study conducted on 251 professional accountants employed in Hong Kong firms, by Lui, Ngo and Tsang (2001), examined inter-role conflict influence on job satisfaction and propensity to leave. The obtained results from hierarchical regression analysis revealed that inter-role conflict was associated with low job satisfaction and high propensity to leave. Another study written by Shafer (2002), examined the effects of ethical pressure on management accountant's perception of organizational-professional conflict, and related work outcomes. In order to asses Certified Management Accountants perception on the relevant variables a survey was mailed to a random sample of professionals and the obtained results indicated that ethical pressure was associated with higher levels of perceived organizational-professional conflict and also, higher levels of conflict were associated with lower levels of organizational commitment and job satisfaction. While, results of Patten's (1990) survey on lower level accounting professionals indicate that accountants have a higher perception of the importance of the heart traits (first identified by Maccoby) that have been associated with ethical inclinations than both managers and business students previously surveyed.

3. Research methodology and sample selection process

3.1. Methodology

We carried out this study based on the results of previous research (Bogdan, Tara and Ban, 2016; Bogdan, Ban and Tara, 2015; Bogdan, Meșter and Popa, 2015) which had as central objective testing the correlations between various endogenous psychological variables or certain personality traits and the perception of MA students in accounting and finance regarding the accounting professional judgment. Our study is among questionnaire-based studies conducted by the investigation of professional accountants on their cognitive abilities, their specialist competences and transversal or professional judgment. The main objective of our study is to investigate the perception of professional accountants on professional judgment and accounting decision making. In this view, the research instrument used was the questionnaire that was sent to professional accountants. In this endeavour we have included in the category of professional accountants the people who operate mainly in accounting and who are chartered accountants or certified accountants certified by the professional body CECCAR.

The questionnaire contains 43 questions out of which:

- 7 questions aim at general information on education and professional qualification, experience, the organization of business and professional income, age and gender of respondents;
- 20 questions investigating the professional judgment and accounting options, as follows: three questions aim at the perception of professional accountants of the influences and motivations in exercising the professional judgment and the interest in selecting accounting policies, six questions are related to the theoretical framework of professional accounting judgment (KPMG, 2011), four questions seek the respondents' perception on the attributes of professional accounting judgment and the behaviour of professionals to its characteristics, a question envisages the professional judgment exercised in order to the award an accounting treatment, four questions are intended to interview the respondents in terms of the relationship between the time factor, customer satisfaction, the expectations of managers and the professional

accounting judgment and two questions target the link between the professional reasoning and costing;

- 16 questions are considering testing some of the personality traits of the respondents such as their ability to make decisions autonomously, the optimism of people, their tendency to assume risk, their creativity, the fact that they are self-confident and convincing people, and their resistance to stress. The last four questions are noticeable in the questionnaire since they took into account the testing of the personality traits of respondents by projective techniques, using the association method (Bogdan *et al.*, 2016; Balaciu *et al.*, 2014).

Of the 43 questions a number of six questions are open, mostly being closed questions where was asked to tick one or more responses as appropriate. The Likert scale with five response options has been used. The period of application of the questionnaire was October 2016 - January 2017. It was administered for completion by meeting, face to face, the professional accountants at the monthly meetings that took place at the branch. To be completed by as many professional accountants in the country the questionnaire was posted at the link https://docs.google.com/forms/d/1FcAX8-B3N2N9ltmhowS60z9hTjjVVauatM6WZdN5wc/edit. The link where the questionnaire could be accessed for completion was mailed with an accompanying message to all the professional accountants contained in the 2016 CECCAR, published in the Official Gazette no. 417 bis/02.06.2016, Part I. Obviously, messages were sent to request the completion of the questionnaire by professionals with valid email addresses.

Below is the formation process of the sample of professional accountants, investigated.

The statistical processing of the responses was carried out using SPSS v.20. We have used Cronbach's alpha, in order to check the internal consistency of our questionnaire, the value of the statistic being 0.83, which confirms its reliability. For the validation of our research hypothesis, we have used the Chi-Square test, which is a non-parametric test used for the analysis of the existence of a correlation between two variables (numerical or alpha-numerical), as well as the Pearson's correlation coefficient, in order to evaluate its direction and intensity.

3.2. Sample selection process

From the 2016 CECCAR Picture published in the Official Gazette no 417 bis/02.06.2016, Part I, we selected the email addresses of the chartered accountants, certified accountants, natural persons and the email addresses of auditing and consulting companies, for all the counties of the country. Botoşani and Brăila counties were excluded from the sample because they had not published the email addresses of the CECCAR either in the Official Gazette or on their own web pages. The mail addresses were collected for the board members of CECCAR both in the picture published in the Official Gazette and on the public web pages of CECCAR organizations subsidiaries. About 20% of the emails sent were invalid because of incorrect or inexistent email addresses and the average response rate per county was between 7 and 10%.

At the end of the period of administration of the questionnaire a number of 531 valid responses were obtained.

4. Descriptive statistics

Most of the professional accountant respondents, around 44%, are university graduates with bachelor degree in economics, followed by those with higher economic education, bachelor and master, around 33%. And, as it can be seen in the diagram below, regarding the professional profile of the respondents, most of them are chartered accountants (54%), followed by those qualifying as chartered accountants and auditors, the least being the liquidators (6,3%). In terms of practical professional experience in accounting, 76.8% said they had over 10 years of experience in accounting, only 1.1% of them not having at all or being inactive. And regarding the organization of work for accounting services rendered, 40.9% of the total, are freelancers without employees, a close share (38.6%) having those who are the employees of an entity. An interesting situation is that of the responses on the annual income obtained from accounting services rendered. As seen in the chart below, most of the respondents obtained from accounting services rendered, annual income between 10,000 lei and 25,000 lei, and 25,000 lei and 50,000 lei, respectively. 38% of the professional accountants investigated are over 50 years of age, 30.5% are aged between 35 and 45 years and those aged 23 to 30 have the smallest share. A surprising situation for us is the distribution of respondents by gender, thus more than three quarters of the respondents are female persons (76.2%). On the main aspects that influence the exercise of professional accounting judgment when seeking the election of an accounting treatment for accounting the economic and/or financial events and transactions, the largest share of the respondents consider that the responsibility of the accountant to prepare financial statements in line with the economic reality and the provisions of the regulatory framework for accounting and financial reporting are relevant, while the expectations of owners to obtain dividends as favourable as possible exercise the smallest influence on the accounting professional judgment. Most of the respondents (64% of them) totally agree with the fact that professional accounting judgment may only be exercised after the information on economic/financial event or transaction has been collected and analysed. Almost half of the interviewed subjects (49% of them) believe that the professional accounting judgment can be exercised only in the context of a conceptual applicable accounting framework, of accounting standards or regulations and other accounting guides. Almost half of the interviewed subjects (48%) agree with the fact that the professional accounting judgment may be exercised only after a process of appropriate logical judgments, a figure close to these being strongly in agreement with this statement and almost two thirds of the respondents strongly agree with the fact that the professional accounting judgment should be properly documented. Nearly half of the subjects, the share of 47%, consider that the choice of an accounting treatment following the exercise of a professional accounting judgment will be done in consultation with the management of the entity, while more than half of the respondents strongly agree with the statement that adequate and quality professional accounting judgment affect the relevance of the financial accounting information. More than half of those surveyed (56%) strongly agreed with the statement that the exercise of professional accounting judgment is a key skill for the accounting professionals, while less than half of those surveyed (48%) agree with the statement that professional accountants must question the economic events/transactions to exercise a proper professional judgment. An interesting perspective was outlined in the analysis of responses to the question which concerned the most important characteristics of an adequate accounting reasoning. The respondents to this question were asked to choose and to number on a scale Likert 5, in terms of importance, 5 of the 8 characteristics mentioned. As seen in the chart below, according to the respondents, the adequate accounting judgment is characterized best by the following characteristics: "*logical, consistent and substantiated*", followed by "*independent, without being influenced by the will of managers*" and in the lowest proportion by "*flexibility*". To the open question which related to the listing of the first words that come to the mind of the respondents when they hear the phrase *professional accounting judgement*, the analysis of responses indicates a multitude of options out of which the following can be distinguished, in order of preference of the respondents: *fairness, logic, experience - professionalism or balance*. The analysis of responses to questions that test the main personality traits of the respondents shows that 75% of the respondents surveyed consider to a large or very large extent that, under conditions of uncertainty, their expectations are positive. This is confirmed by the result of responses to the question what they would do if they held a garden party and on the day of the event it would rain heavily, showing that two-thirds of the respondents felt they had bad luck and that the next party would be a success. Therefore, from the analysis and interpretation of the above responses we can recognize and identify *a trend toward optimism of professional accountants* interviewed in what concerns the perception of unforeseen or uncertain events. Further, being asked if they are willing to take a failure when they do something innovative, more than half of the respondents (53.9%) say yes to a large extent and 21.6% to a very large extent and the fact that they usually have concerns that something unforeseen could ruin their plans, more than 60% of the respondents say that only slightly and only 25% say that to a high or very high extent. We can thus recognize from the interpretation of responses that there is *an inclination of professional accountants investigated to taking risks*. The subjects were also interviewed on the ability to have confidence in themselves so that the results of the interpretation of results obtained indicate that 69.6% of the respondents believe that they are largely convincing people, and 21.1% to a very high extent and also, 63.7% of the respondents believe that they easily recognize their mistakes to a high extent and 29.8% to a very high extent. Therefore, we can identify *a trend of professional accountants investigated towards self- confidence and the ability to persuade.*

5. Research questions and hypotheses

Gray (1988) using Hofstede's (1980) societal cultural patterns showed that the value systems or attitudes of accountants may be expected to be related to and derived from societal values with special reference to work related values. As a consequence, accounting values will, in turn, impact on accounting systems (Gray, 1988). Given those shown by us in previous studies conducted with reference to the professional accounting judgment (Bogdan, Tara and Ban, 2016; Bogdan, Ban and Tara, 2015; Bogdan, Meșter and Popa, 2015), we formulate the following research questions:

RQ1. *What is the perception of professional accountants investigated on the need for a theoretical framework of professional accounting judgment?*

RQ2. *Do the personality traits considered (optimism, risk and self-confidence) influence the choice of respondents in what concerns the choice of the main aspects that determine the exercise of an accounting judgment when seeking the allocation of an accounting treatment for economic and / or financial events or transactions?*

RQ3. *Do the personality traits considered (optimism, risk and self-confidence) influence the perception of professional accountants to investigate the need for a theoretical framework of professional accounting judgment?*

To answer the above questions, we have developed the following research hypotheses, grouped in three analysis panels.

5.1. Optimism and accounting professionals' judgment

Conservatism versus optimism, as cultural dimension of accounting has been studied and investigated by many researchers from the impact on accounting measurement practices. As Gray (1988) emphasized conservatism versus optimism means a preference for a cautious approach to measurement so as to cope with the uncertainty of future events as opposed to a more optimistic, laissez-faire, risk taking approach. Optimism may be defined as a generalized expectancy for positive outcomes independent of the source of the outcomes (McKenna, 1993). According to Weinstein (1980) people believe that they are less at risk than their peers for many negative events and also, the optimistic bias can be assessed either directly or indirectly (Weinstein and Klein, 1996). In a meta-analysis of 27 independent samples Klein and Larsen (2002) investigated the relationship between optimistic bias and perceived control finding out that the greater control people perceive over future events, the greater their optimistic bias but this relationship was shaped by participants' nationality, education status and risk status. Birnberg (2011) observed that, in the last decades, psychologists, experimental economists and accountants have begun to examine the role of the decision maker's emotional state (affect) on the decision process. Thus, Chung *et al.* (2008) analysed auditors' behaviour making inventory valuation decisions and find that mood state affects the degree of conservatism in the audit mission. Hence, the author highlighted that auditors in a positive mood are less conservative than those in a negative mood. We must understand and do not forget that specialists, either they economists, engineers, accountants, judges, etc. before being specialists are humans. Humans do not act like robots. Lerner and Keltner (2000; 2001) reported that fearful individuals make more pessimistic estimates and more risk-averse choices, while anger leads individuals make more optimistic risk estimates and risk-seeking choices.

Considering those shown above, we formulated the following hypotheses:

H1: *There is a correlation between the trend toward optimism of professional accountants and the option of the respondents on the main aspects that determine the exercise of the accounting judgment.*

H2: *There is a correlation between the tendency towards optimism of professional accountants and their perception towards the need for a theoretical framework of professional accounting judgment.*

5.2. Risk taking and accounting professionals judgment

According to Kahneman (2011), the author who knows perhaps more than anyone else about the oddities of human assessment of risk is Paul Slovic. The same Kahneman (2001), identifies in Slovic's work studies both on ordinary citizens, led by emotion rather than by reason, easily influenced by unimportant details and having an inadequate sensitivity to the differences between the low probabilities and the negligible ones, and on the experts who are far superior in operations with figures and amounts. Slovic, quoted by Kahneman (2001), shows that the experts exhibit the many of the same biases as ordinary people, in attenuated forms, but often their assessments and their preferences for risk disagree with those of other people. The same Kahneman (2001) stresses the fact that Slovic challenged the full control of experts on risk management policies and the idea that risk is objective. Risk does not exist outside of us, irrespective of our culture and mind, waiting to be measured; human beings have invented the concept of risk to help them understand and adjust to the uncertainties of life (Slovic, 2000). Weber and Johnson (2009) noted that psychophysical risk return models assume that perceptions of risk and return are psychological constructs that can vary between individuals and as a result of past experiences and decision content and context. Observed risk taking is the result of a long list of cognitive and affective evaluation and integration processes (Weber and Johnson, 2009). An important premise is one of Miller's (1987) that business is inherently risky and all decisions in business involve risk. Masters and Deines (2011) focused on the examination of risk taking propensity of management accountants and whether gender and professional certification affects their tendency to take risk. In the opinion of Masters and Deines (2011) differences in risk taking propensity exist between CPAs and noncertified accountants because of the differences in their training and experience. Helliar *et al.* (2002) examined through a large survey among accountants and managers the attitudes to risk by Scottish chartered accountants and considered whether their risk-taking attitudes are similar to or different from those of other business managers in the U.K. The results of Helliar *et al.* (2002) study showed that accountants and managers exhibit many of the biases that have been documented for executives in other countries: a focus on the framing of a decision, an emphasis on the magnitude of negative outcomes and an insensitivity to probability estimates. We share Weber and Johnson's (2009) view regarding the study of risk taking propensity of management accountants, CPA's and non-CPA's, that identifying the differences will help the management clarify the type of controller needed in the firm's approach to taking risk and also it will assist accountants in understanding their role as a controller.

Considering of interest, in the light of the above, the inclination toward risk of professional accountants we have developed the following assumptions:

H3: *The propensity towards risk of the professional accountants investigated affect their option on the main aspects that determine the exercise of the accounting judgment.*

H4: *The propensity towards risk of the professional accountants investigated is in an inverse correlation with the need for a theoretical framework of professional accounting judgment.*

5.3. Self-confidence and accounting professionals' judgment

Siegel (2000) as a result of the interview conducted on management accountants in respect to the skills needed for entry level management accountants' positions observed that several professionals mentioned the confidence factor. In professionals' view, schools could better prepare people for the work environment, teach student show to talk to people and not step on their feet. Siegel (2000) underlined that surveyed management accountants considered that one solution for professionals is to do things that generate self-confidence like getting a broader education or becoming involved in sports. On the other hand, Jones and Abraham (2008) noted that accounting practitioners are no longer merely required to undertake tasks such bookkeeping, data analysis or tax preparation, instead their role is extended to knowledge professionals with a greater emphasis on emotional intelligence. Thus, Jones and Abraham (2008) investigating the role of emotional intelligence in accounting education found out that academics who had been employed as practicing accountants had higher perceptions of the importance of particular roles undertaken and skills needed by graduates, which included personal skills like self-confidence, self-belief and management proficiency. An exploratory study made by Gul (1983) was interested in obtaining preliminary evidence on whether age, experience, cognitive styles influence accountants' decision confidence. Gul (1983) hypothesized that accountants who are relatively field dependent are likely to make decisions more confidently than their relatively more field dependent accountants, when provided with ambiguous type information. More accounting studies are concerned with analysing overconfidence. As Russo and Schoemaker (1992) noted good decision making requires more than knowledge of facts, concepts and relationships but unfortunately we tend to have a deeply rooted overconfidence in our beliefs and judgments. Russo and Schoemaker (1992) considered that overconfidence has remained a hidden flaw in managerial decision making. There are several ways to define or to measure overconfidence and also overconfidence shows up in many different ways (Bar-Yosef and Venezia, 2014). DellaVigna (2009) defined overconfidence as the overestimation of one's own performance in task requiring ability, that includes the precision of one's own information. As Ifchner and Zarghamee (2014) observed overconfidence is a systematic deviation from standard economic theory about beliefs. Barber and Odean (2001) showed that overconfidence has been identified among psychologists, physicians, nurses, investment bankers, engineers, entrepreneurs, lawyers, negotiators and managers and showed that particularly in financial markets men are more overconfident than women. Empirical evidence of overconfidence's effect on economic decisions we found in Malmendier and Tate (2005), showing that overconfident CEOs make inferior corporate investments and Oyer and Schaefer (2005), empirical investigating employees' overconfidence in order to analyse the company's policy on stock options for compensation. From the perspective of those shown in the above lines we proposed the hypothesis testing:

H5: *Self-confidence of professional accountants interviewed positively influence their option on the main aspects that determine the exercise of the accounting judgment.*

H6: *Self-confidence of professional accountants interviewed directly influence their option on the need for a theoretical framework of professional accounting judgment.*

6. Discussion of results

We have first investigated a potential statistical difference between accountants, grouped by gender, age as well as years of practice in what concerns optimism, risk taking and self-confidence. We have conducted a T-test for the difference between the means in each group, the value of the statistics being presented together with their corresponding probability of acceptance of the null hypothesis.

Table 1. **Potential statistical difference between accountants**

	Gender		**Age**		**Years of practice**	
	F	M	25-45	Over 45	Under 10 yrs	Over 10 yrs
Optimism average coefficient	3,639279	3,792373	3,782511	3,523636	3,601064	3,648010
T stat	-1,36644		**2,599386**		0,369743	
P	0,172301		**0,009617**		0,711732	
Risk Taking average coefficient	3,082164	3,148305	3,089686	3,080000	3,095745	3,078358
T stat	-0,845936		0,137421		-0,193319	
P	0,397917		0,890754		0,846789	
Self-confidence average coefficient	4,090180	4,038136	4,060538	4,114545	4,031915	4,105721
T stat	0,915873		-1,08414		1,172375	
P	0,360092		0,278830		0,241612	

(*Source:* Authors' processing)

Our conclusion was that there is a statistical significant difference only in what regards the optimism of the accountants, grouped by age. The younger accountants are more optimistic that the ones over 45. Further on, in this stage of our research each hypothesis was analysed and interpreted, using specific statistic calculations, qualitative appreciations and direct observations of data gathered.

H1: *Professional accountants' propensity towards optimism is correlated to their choice regarding the main aspects that influence the professional accounting judgment.*

For the validation of this hypothesis we have analysed the answers to the following questions: *Q30. When in uncertainty, your expectations are usually positive? Q31. You planned an outdoor party but in the day the party should take place it pours cats and dogs. What do you think about? as well as Q8. Which are the aspects that you believe to influence the professional accounting judgment when choosing an accounting treatment for economic and/or financial events and transactions?* In order to investigate this research hypothesis, based on answers to questions Q30 and Q31, we have determined an average score for each subject, ranging from 1 to 5, the highest value indicating a maximum propensity towards optimism. A similar average score has been computed, using the answers to question 8, these scores ranging from 1 to 5 as well, the lowest value reflecting a total disagree with the particular aspects that influence the professional accounting judgment. The Chi square value associated to the distribution of the answers to the questions is 30,5, the value is higher than 0, which indicates a correlation between the accountants' propensity towards optimism and their choice regarding the main aspects that influence the professional accounting judgment. The value is not statistically significant as the critical value for a 5% level of confidence and 24 degrees of freedom is 36,42, higher than our calculated value. **H1 research hypothesis is therefore not validated.**

Our second assumption is:

H2: *There is a correlation between the accountants' propensity towards optimism and their perception regarding the need of a theoretical framework of professional accounting judgment.*

For the validation of this hypothesis we have analysed the answers to the following questions: *Q30. When in uncertainty, your expectations are usually positive? Q31. You planned an outdoor party but in the day the party should take place it pours cats and dogs. What do you think about? as well as Q11. Do you believe that the accounting professional judgment can be carried out only after all the information regarding the event or economic/financial transaction had been collected and analysed? Q12. Do you believe that the accounting professional judgment can be carried out only in the presence of an applicable accounting conceptual framework for the accounting standards, regulations and other accounting guide books? Q13. Do you believe that the accounting professional judgment can be carried out only after a proper logical reasoning process? Q14. Do you believe that the accounting professional judgment should be adequately documented?* In order to investigate this research hypothesis, based on questions Q30 and Q31, we have used the average scores computed previously, the highest value indicating a maximum propensity of towards optimism. A similar average score has been computed, using the answers to questions 11, 12, 13 and 14, these scores ranging from 1 to 5 as well, a high value reflecting a strong agreement with the necessity of a theoretical framework of the accounting professional judgment. The Chi square value associated to the distribution of the answers to the questions is 115,01, which indicates a correlation between the answers in the sample. The value is statistically significant as the critical value for a 5% level of confidence and 90 degrees of freedom is 113,15, lower than our calculated value. **H2 research hypothesis is therefore validated.**

H3: *Accountants' propensity towards risk influence their choice regarding the main aspects that influence the professional accounting judgment.*

For the validation of this hypothesis we have analysed the answers to the following questions: *Q32 Are you usually taking upon yourself the blame of a failure when trying to do something innovative? Q33 Do you usually fear that something unpredictable could ruin the plans? as well as Q8. Which are the aspects that you believe to influence the professional accounting judgment when choosing an accounting treatment for economic and/or financial events and transactions?*
We have computed average scores for the answers to questions 32 and 33 ranging from 1 to 5 - the higher the value, the higher the propensity towards risk. The Chi

square value associated to the cross tabulation between the average values is 357,01 which indicates a strong correlation between the answers in the sample. The value is statistically significant as the critical value for a 5% level of confidence and 266 degrees of freedom is 305,04, lower than our calculated value. **H3 research hypothesis is therefore validated.**

H4: *An inverse correlation between accountants 'propensity towards risk and their perception regarding the need of theoretical framework in what concerns the accounting professional judgment can be recognized.*

For the validation of this hypothesis we have analysed the answers to the following questions: *Q32 Are you usually taking upon yourself the blame of a failure when trying to do something innovative? Q33 Do you usually fear that something unpredictable could ruin the plans? as well as Q11. Do you believe that the accounting professional judgment can be carried out only after all the information regarding the event or economic/financial transaction had been collected and analysed? Q12. Do you believe that the accounting professional judgment can be carried out only in the presence of an applicable accounting conceptual framework for the accounting standards, regulations and other accounting guide books? Q13. Do you believe that the accounting professional judgment can be carried out only after a proper logical reasoning process? Q14. Do you believe that accounting professional judgment should be adequately documented?* The average scores for the answers to questions 32 and 33 were correlated with the corresponding average scores for the answers to questions 11, 12, 13 and 14, the higher the values, the stronger the belief that there is a need of theoretical framework in what concerns the accounting professional judgment. The Pearson's correlation coefficient is equal to 0, so there is absolutely no correlation between the answers to the 2 sets of average scores. **H4 research hypothesis is therefore not validated.**

H5: *Professional accountants' self-confidence is in direct correlation with their opinion regarding the main aspects that influence the carrying out of an accounting judgment process.*

We have analysed answers to questions *Q36. As a rule, do you consider yourself as being convincing? Q37. Do you usually admit when you are wrong?* as well as *Q8. Which are the aspects that you believe to influence the professional accounting judgment when choosing an accounting treatment for economic and/or financial events and transactions?* The self-confidence was evaluated by computing average scores ranging from 1 to 5, a high value of the indicator reflecting a high self-confidence. These values were used in correlation to the average scores reflecting the answers to question 8, computed as stated previously. The Pearson's correlation coefficient which equals 0.122 reflects a direct but weak correlation between accountants' self-confidence and their opinion regarding the main aspects that influence the carrying out of an accounting judgment process. The value is statistically significant for a 0.05 level of confidence, hence, **H5 research hypothesis is validated.**

H6: *Professional accountants' self-confidence is in direct correlation with their opinion regarding the need of a theoretical framework of accounting professional judgment.*

We have analysed answers to questions *Q36. As a rule, do you consider yourself as being convincing? Q37 Do you usually admit when you are wrong?* as well as *Q11. Do you believe that the accounting professional judgment can be carried out only after all the information regarding the event or economic/financial transaction had been collected and analysed? Q12. Do you believe that the accounting professional judgment can be carried out only in the presence of an applicable accounting conceptual framework for the accounting standards, regulations and other accounting guide books? Q13. Do you believe that the accounting professional judgment can be carried out only after a proper logical reasoning process? Q14. Do you believe that the accounting professional judgment should be adequately documented?* Pearson's correlation coefficient which equals 0.09 reflects a direct but weak correlation between the accountants' self-confidence and their opinion regarding the need of a theoretical framework of accounting professional judgment. The value is statistically significant for a 0.05 level of confidence, hence, **H6 research hypothesis is therefore validated.**

7. Conclusions, limits and further research

Study and investigate, in many and different ways, judgment and decision making in accounting, nowadays, is of huge interest due to the need of better understanding how a true professional accountant can successfully handle the multitude of challenges that put pressure on him. Performance indicators of company, managers' expectations, financial reporting framework and standards, time deadlines of various reports, auditors' opinion, budgeting policies, accounting options, online business development, and other several factors, exert a tremendous pressure on the performance of professional judgment in accounting and also on decision making. In this context, in order to face gracefully all these challenges, professional accountants should be endowed with personality traits and cognitive abilities such as self-confidence, optimism, clarity in thinking, stress resistance, ability to adapt to changes, ability to withstand risks, uncertainties and vulnerabilities, and so on. So, today is more about individual and transversal skills and abilities and less about specialized skills concerning bookkeeping, accounts and preparing the reports. In this paper through a survey on Romanian professional accountants we have investigated their perception regarding judgment and decision making in accounting, collecting a total of 531 valid responses to our questionnaire. The analysis of obtained results showed that most of the investigated accounting professionals considered that a specific professional judgment in accounting is mainly influenced by the responsibility of the accountant in preparing the financial statements in line with the economic reality and accordingly to the provisions of the regulatory financial reporting framework and accounting standards. Also, the investigated professionals think that an adequate accounting judgment is best characterized by the following characteristics: "*logical, consistent and substantiated*". Further on, exploring a potential statistical difference between accountants, grouped by gender, age, as well as years of practice in what concerns optimism, risk taking and self-confidence, we have conducted a T-test for the difference between the means in each group, and found that there is a statistical significant difference only in what regards the optimism of the accountants, grouped by age. Thus, the younger investigated accountants are more optimistic that the ones over 45. Our hypothesis test results have shown that there is no statistical correlation between professional accountants' propensity towards optimism and their choice regarding the main aspects that influence the professional accounting judgment, as there is no inverse correlation between accountants' propensity towards risk and their perception regarding the need of theoretical framework of professional accounting judgment. On the other hand, the results shown that there is a correlation between the accountants' propensity towards optimism and their perception regarding the need of a theoretical framework of professional accounting judgment, and between accountants' propensity towards risk and their choice regarding the main aspects that influence the professional accounting judgment. Also, professional accountants' self-confidence is in direct correlation with their opinion regarding the main aspects that influence judgment and decision making in accounting and with their opinion regarding the need of a theoretical framework of accounting professional judgment. The limits of our study are found in the sampling process and survey questions formulation. However, it contributes to enriching judgment and decision making literature by testing the links between several personality traits variables and accounting professional judgment. Future works will be oriented towards statistical investigation of different correlations between received answers concerning professional accounting judgment, demographic variables and time deadlines, managers' and clients' expectations and satisfaction.

References

Birnberg, J.G. (2011) "A proposed framework for behavioral accounting research", *Behavioral Accounting Research*, vol. 23, no. 1, pp. 1-43

Barber, B.M., Odean, T., (2001) "Boys will be boys: gender, overconfidence and common stock investment", *The Quarterly Journal of Economics*, pp. 261-292

Bar-Josef, S., Venezia, I., (2014) "An experimental study of overconfidence in accounting numbers predictions", *International Journal of Economic Sciences*, vol. 3, no. 1, pp. 78-89

Bogdan, V., Tara, I.G., Ban, O.I., (2016) "Experimental research of economics MA students' perception on the theoretical framework of professional judgment in accounting in connection with individual personality traits", *Review of Research and Social Intervention*, vol. 55, December, pp. 98-111

Bogdan, V., Mester, I.T., Popa, D.N. (2015) "Testing master students' perception regarding judgment and decision making in accounting", *Annals of University of Oradea, Economic Sciences*, Tom XXIV, University of Oradea, ISSN 1222- 569X (printed format), ISSN 1582-5450, 1st issue/july 2015: 1339-1347

Bogdan, V., Ban, O.I., Tara, I.G. (2015) "Endogenous human variables affecting performance of JDM in accounting. Experimental research on Romanian students", *Proceedings of the 14th European Conference on Research Methodology for Business and Management Studies*, University of Malta, Valetta, ISBN 978-1-910810-11-8, E-book ISBN 978-1-910810-12-5, pp. 55-62

Brown, G. A., Collins, R., Thornton, D.B. (1993) "Professional Judgment and Accounting Standards" *Accounting, Organizations and Society.* 18 (2). pp. 275-289

Brown, T.J., Churchill Jr, G.A. Peter, J.P. (1993), "Improving the measurement of service quality", *Journal of Retailing*, Vol. 69 No. 1, pp. 127-39

Barcellos, L.P., Cardoso, R.L., Busanelli de Aquino, A.C. (2016) "An assessment of professional accountants' cognitive reflection ability", *Advances in Scientific and Applied Accounting*, vol. 9, no. 2, pp. 224-239

Chad, P., Panel C. (2011) "Cultural and Noncultural Factors Affecting Judgments of Professional Accountants: A Comparative Study of Australia and Fiji", in Parmod Chand, Chris Patel (ed.) *Achieving Global Convergence of Financial Reporting Standards: Implications from the South Pacific Region (Studies in Managerial and Financial Accounting, Volume 22)* Emerald Group Publishing Limited, pp. 105 – 139

Chung, J.O.Y., Cohen J.R., Monroe G.S. (2008) "The Effect of Moods on Auditors' Inventory Valuation Decisions", *Auditing: A Journal of Practice & Theory*, vol. 27, no. 2, pp. 137-159

Clor-Proell, S., Nelson, M. (2007) "Accounting Standards, Implementation Guidance, and Example-Based Reasoning" *Journal of Accounting Research*, 45 (4), 699

DellaVigna, S. (2009) "Psychology and Economics: Evidence from the Field", *Journal of Economic Literature*, 47, no. 2, pp. 315-372

Doupnik, T., Richter, M. (2004) "The Impact of Culture on the Interpretation of "In Context" Verbal Probability Expressions", *Journal of International Accounting Research*, 3 (1), pp. 1-20

Frederick, S., (2005) "Cognitive Reflection and Decision Making", *Journal of Economic Perspectives*, 19 (4), pp. 25-42

Gray, S.J, (1988) "Towards a theory of cultural influence on the development of accounting systems internationally", *Abacus, A Journal of Accounting, Finance and Business Studies*, vol. 24, issue 1, pp. 1-15

Gul, F.A. (1983), "A Note on the Relationship between Age, Experience, Cognitive Styles and Accountants' Decision Confidence", *Accounting and Business Research*, vol. 14, issue 53, pp. 85-88

Helliar, C.V., Lonie, A.A., Power, D.M., Sinclair, C.D., (2002) "Managerial attitudes to risk: a comparison of Scottish chartered accountants and UK managers", *Journal of International Accounting, Auditing and Taxation*, vol. 11, issue 2, pp. 165-190

Hofstede, G. (1980), "Culture and Organizations", *International Studies of Management & Organization*, vol. 10, issue 4, pp. 15-41

Hronsky, J. J. F., Houghton, K.A. (2001) "The Meaning of a Defined Accounting Concept: Regulatory Changes and the Effect on Auditor Decision Making." *Accounting, Organizations and Society*, 26 (2), pp. 123-139

Ifchner, J., Zarghamee, H., (2014) "Affect and Overconfidence: A Laboratory Investigation", *Journal of Neuroscience, Psychology and Economics*, vol. 7, no. 3, pp. 125-150

Istrate, M. (2004*) Cahle din Transilvania şi Banat de la începuturi până la 1700*, Ed. Accent, Cluj-Napoca, 2004

Jones, G.E., Abraham, A., (2008), "Preparing accountants for today's global business environment: the role of emotional intelligence in accounting education", University of Wollongong, Research Online, pp. 1-16

Kahneman, D. (2011). *Thinking, fast and slow*. New York: Farrar, Straus and Giroux

Lerner, J.S., Keltner, D., (2000), "Beyond valence: Toward a model of emotion-specific influences on judgment and choice" *Cognition and emotion. Special issue: Emotion, cognition and decision making*, 14, pp. 473-493

Lerner, J.S., Keltner, D., (2001), "Fear, anger, and risk". *Journal of Personality and Social Psychology*, 81, pp. 146-159

Libby, R., Luft, J. (1993) "Determinants of Judgment Performance in Accounting Setting: Ability, Knowledge, Motivation and Environment" *Accounting, Organization and Society*, 18 (5), pp. 425-450

Lin, K.Z., Fraser, I., Hatherly, D.J., (2003) "Auditor analytical review judgement: A performance evaluation", *British Accounting Review*, 35 (1), pp. 19-34

Loewenstein, G.F., Rick, S., Cohen, J., (2007) "Neuroeconomics". *Annu. Rev. Psychol.* 59, pp. 1–26

Lui, S.S., Ngo, H.J., Wing-Ngar, Tsang, A., (2001), "Interrole conflict as a predictor of job satisfaction and propensity to leave. A study of professional accountants", *Journal of Managerial Psychology*, vol. 16, no. 6, pp. 469-484.

Malmendier, U., Tate, G. (2005) "CEO overconfidence and corporate investment", *Journal of Finance*, 60, pp. 2660-2700

Mason, A. K., Gibbins, M., (1991), "Judgment and U.S. Accounting Standards", *Accounting Horizons* Masters, R., Deines, D., (2011), "Risk Taking Propensity of Management Accountants: Certified vs Noncertified", *The Journal of Applied Business Research*, vol.4, no. 3, pp. 9-14

McKenna, F.P., (1993), “It won’t happen to me: Unrealistic optimism or illusion of control?”, *British Journal of Psychology*, 84, pp. 39-50

Miller, W., (1987), “How CEOs Make Decisions”, *Industry Week*, February, pp. 41-44

Mustață, R.V., Fekete, S., Matiș, D., Bonaci, C.G. (2011) “Motivating accounting professionals in Romania. Analysis after five decades of Communism ideology and two decades of accounting harmonization” *Accounting and Management Information Systems*, 10 (2), pp. 169-201

Klein, C.T.F, Larsen, M.H., (2002), “Perceived control and the optimistic bias: a meta analytic review”, *Psychology and Health*, vol. 17, no. 4, pp. 437-446

Olimid, L., Calu, D. A., (2010), “An Explanation of the Change in Accountants’ Attitude Towards Flexibility Using the Theory of Reasoned Action” Revista Analele Universităţii din Oradea, seria ŞtiinţeEconomice, Tom XIX 2010. Available at SSRN: https://ssrn.com/abstract=2852021

Oyer, P., Schafer, S., (2005), “Why do some firms give stock options to all employees? An empirical examination of alternative theories”, *Journal of Financial Economics*, vol. 76, no. 1, pp. 99-133

Patel, C., (2006), “A comparative study of professional accountants’ judgements”, *Studies in Managerial and Financial Accounting,* Elsevier, vol. 15

Patten, D.M., (1990), “The differential perception of accountants to Maccoby’s head/heart traits”, *Journal of Business Ethics*, vol. 9, issue 10, pp. 791-798

Payne, J.W., Bettman, J.R., Johnson, E.J. (1992) “Behavioral decision research: a constructive processing perspective” *Annu. Rev. Psychol.*, 43, pp. 87–131

Russo, J.E., Schoemaker, P.J., (1992), “Managing Overconfidence”, *Sloan Management Review*, Winter, p. 7.

Shafer, W.E. (2002), “Ethical pressure, organizational-professional conflict, and related work outcomes among management accountants”, *Journal of Business Ethics*, july, vol. 38, no. 3, pp. 263-275

Siegel, G. (2000), “Skills needed for entry level management accounting positions”, Practice analysis, *Strategic Finance*, pp. 79-80

Slovic, P. (2000), “*The Perception of Risk*”, Sterling, VA, EarthScan

Solomon, I., Solomon, T. K. (2003) “Experimental judgment and decision research in auditing: the first 25 years of *AOS", Accounting, Organization and Society,* 28 (4), pp. 395-412

Trotman, T.K., (1998), “Audit judgment research—Issues addressed, research methods and future directions”, *Accountign and Finance*, 38, (2), pp. 115-156

Weber, E.U., Johnson, E.J., (2009), “Mindful Judgment and Decision Making”, *Annu. Rev. Psychol.*, 60, pp. 53-85

Weisner, M. (2015), “Three Studies Examining the Effects of Psychological Distance on Judgment and Decision Making in Accounting”, *University of Central Florida,* Doctoral Dissertation

Weinstein, N.D., (1980), “Unrealistic optimism about future life events”, *Journal of Personality and Social Psychology*, 39, pp. 306-320

Weinstein, N.D., Klein, W.M. (1996), “Unrealistic optimism: present and future”, *Journal of Social and Clinical Psychology*, 15, pp. 1-8

Productivity of knowledge workers. How can we analyze and measure it?

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Abstract: *During the industrial period, calculating the productivity of a business was related to production and time spent on producing a certain product or developing a service. Today, as the percentage of services in the global economy is higher than the production, more activities are related to knowledge workers. This paper examines labor productivity from a methodological point of view, with a focus on understanding the impact of new key performance measurements. This discussion could further provide a better understanding to large companies, but also to small businesses on how to increase productivity for higher performance and better competitive advantage on the market.*

Keywords: *Productivity, knowledge economy, measurement*

1. Introduction

The knowledge economy changed the way in which the business processes develop and thus, how employees work. Peter Druker first introduced the term knowledge worker in 1959 stating that "the most valuable asset of a 21st-century institution, whether business or non-business, will be its knowledge workers and their productivity" (Druker, 1959).

This change is visible in the current employment structure of companies. The transformation became more visible with the evolution of services compared with production activities. Another important aspect relates to the increase of industrial production in countries like China or other Asian countries. Industrial production had eight-fold increase in 2015 compared to 1997 (The World Bank, 2016). As more and more companies decide to move their manufacturing operations to Asian countries, there is an increasing challenge toward increasing productivity of knowledge workers. But managers, often seek to increase productivity on the same principles of manual workers that Frederick Winslow Taylor stated more than 100 years ago in his famous book "The Principles of Scientific Management" (Taylor, 1911). In this book, the author, emphasize the importance of assessing motions, effort and time in order to increase the efficiency of repetitive tasks. So, in today's knowledge economy, managers often think in terms of standardizing the activities and derive them to more repetitive ones. Of course, this will not lead to competitive advantage because innovation is needed from the knowledge workers. Or, economic theory looks at manual workers in terms of cost. But, to achieve higher productivity, knowledge

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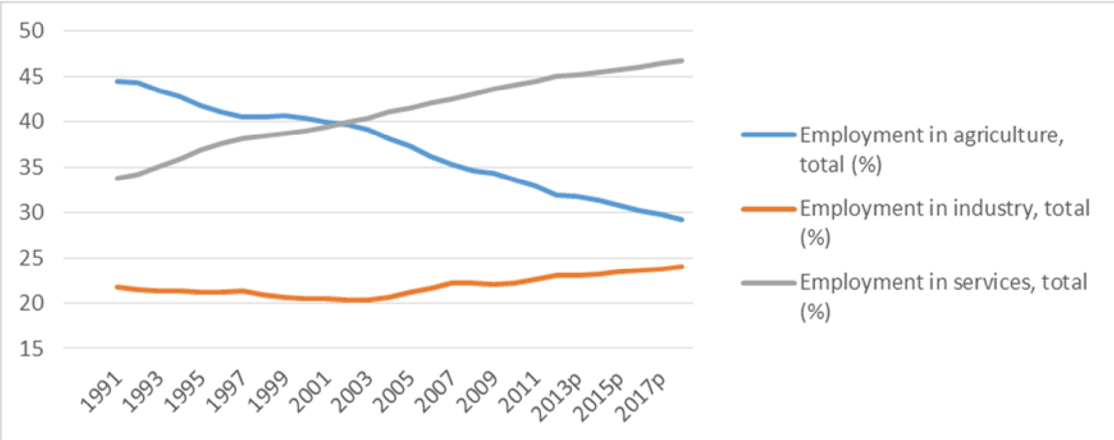
workers should be seen a capital asset, with the purpose of growing and acquiring new knowledge (Druker, 1999).

According to International Labour Organization, services weight more than 46% in the total employment, with more than 74% in developed economies. The industry employment weights 24% globally and less than 22.5% in developed economies (International Labour Organization, 2014). The same organization states that more than 1.56 billion people are estimated to work in services until 2018. The evolution of employment between 1991 and forecasted 2018 can be seen in Figure 1. Moreover, the services evolution can be seen also in Fortune 500 financial data. In 2015, the financial, technology and healthcare sector cumulated 57.2% of the profits of all Fortune 500 companies. Even, by excluding the technology sector which besides services includes also manufacturing, we are left with 37.9% for financial and healthcare sector, showing the impact of services (Tully & Rapp, 2016).

Figure 1. **Evolution of employment worldwide, by sectors**



(*Source:* International Labour Organization, 2014)

2. Theoretical background

One of the most important challenges for managers today is to increase productivity of knowledge and service workers (Druker, 1995). Peter Druker states that in manufacturing activities, capital and technology are factors of production, which could replace work, while in the knowledge work these are tools of production, which may or may not replace work.

The difference between production and non-production work has been emphasized by Maruta (2012) at several business levels. Thus, the author considers that at the worker level, in the production activities, there is a skilled work where front-line workers yield uniform outputs according to given standard procedures. In the non-production activities, the first level are front-line workers that yield individually unique outputs according to self judgements. This difference is crucial related to outputs in the knowledge economy. At the middle management stage, in the production work we find the setting and improving of standard process while in the non-production work there is a function of assistance for front line workers. This difference is known in the literature as white-collar versus blue-collar work. Thus, the blue-collar work which is more standardized, related to manufacturing, can be planned and scheduled, and create the traditional model of productivity for increasing output and lowering input.

The white-collar productivity becomes a broader concept because of the involvement of efficiency, effectiveness and transformations (Davis, 1991).

The current methods of analysis of productivity focus more on the manual worker activities, mainly for cases of production companies. Thus, the current reality of the economy, challenges the traditional approach by providing new solutions for companies willing to analyze this indicator. Thus, there are two methods of analyzing productivity: extensive, through working time and intensive through work productivity and profit per employee.(Robu et al., 2014) This methods further assess the impact of different factors on the actual indicators, but also the consequences of the changes in the main indicators on the main indicators. For instance, the analysis of working time could be impacted by the effective working time, holidays and other vacation, but also as an influence of working time on revenues or profit. Moreover, work productivity is an indicator that could be influenced by the number of employees, the number of days worked or average worked time per day. The traditional approach takes into consideration the productivity from a quantitative point of view, on the idea of output over input, as well as both of the terms are known. For knowledge workers even if the input could be considered the worked time, there is still a question on what is the actual output and how or rather if this could be measured.

3. Hypotheses

The discussion on how to analyze and measure knowledge worker productivity needs to start from the current models used by companies and analysts. We form the following related hypotheses:

Hypothesis 1. *Tradition measures should be understood in a larger context (revenues workers vs. non revenues workers that provide important information for revenues workers)*

Hypothesis 2. *The need of adding other key performance indicators as KPIs for the effect in the Effect/Effort formula of calculating productivity.*

Hypothesis 3. *Rethinking the "Effort" not only related to time not only in the time spent but in the idea of "time well-spent" (e.g. a knowledge worker could work on a project for 6 hours instead of average 4 hours of a team).*

4. The challenge: input, activities, and output

In this section we question the traditional way of measuring productivity by discussing the three components: input, activities and output. These three components form the basis of measuring the productivity of manual workers.

Input

For a manual worker, tracking the input has been the essence of many studies and procedures of companies. Tracking time through different methods has changed since the development of technology and complexity of work. But still, manual workers have a fix schedule, breaks that are set through procedures. Moreover, there are efficient ways to increase productivity during a shift change to reduce downtime. The data related to manual workers is so vast that there are a lot of studies on the impact of night shifts on workers' productivity and influence on health. (Folkard and Tucker, 2003). In production, this type of schedule is common as there is a strong need to continue the production seven days a week. But today, there are a lot of knowledge workers that have shifts mainly because differences in time zones. As support and outsourcing centers are placed in emerging economies, the effect of this input could be relevant to study in the future. For a normal job time from 9 to 17 there are still questions on how to measure input. Although, the 8 hours per day for work which could increase with one hour for lunch, are the basis of the working contract, it is difficult to measure if the 8 hours are the actual "input" for each employee. Meaning, if through the 8 hours the employee actually was focused on doing his work in a productive way.

Activities

If the input of the knowledge worker is difficult to analyze, the same thing might apply for the activities. For manual workers, the activities consisted in standardized procedures and movements set in order to increase the productivity and reach the target production. The activities were uniform and predictable in terms of output. This was necessary in order to reduce costs and better perform in a highly competitive environment. Workers couldn't innovate or produce breakthroughs on individual products. The best case scenario, some improved work methods where transformed in procedures for increasing efficiency, being rapidly implemented across the organization. This isn't the case today for knowledge workers. They are expected to produce better results than before, by innovating simple tasks and being more creative than ever. In this sense, the actual activities are not a measure of quantity and uniformity, but rather a challenge of innovation and discovering unique individuals. But, a lack of measuring productivity could lead to negative results. So, if there is a need for measuring productivity, there is certainly a need for understanding the quantitative side of activities done by knowledge workers. If we take a look at an IT company, we could understand its activity through the structure of the departments. There are revenue employees and non-revenue employee. Mainly, employee directly involved in the actual products and services, and those that are part of the secondary activities like support or administrative work. A sales team has direct goals in terms of sales for a year. Calculating their productivity in terms of sales per employee could be difficult if the actual service or product depend as well on the involvement of other departments.

Output

The final component is the output. Measuring the productivity of manual workers is looking at the output from the perspective of results. So, in a production sector, outputs are the goods produced in a given period, expressed in units or monetary terms. The standardized way of measuring productivity for manual workers provides a comprehensive image on what the output should be. Thus, there are standards on the amount of goods to be produced by each worker on a given time. This is not the case for knowledge worker. As there are many attempts to standardize the knowledge worker output through managerial systems or human resources procedures, this could only lead to poorer outputs. For example, if a knowledge worker has to prepare a monthly report, this will be completely different depending on the experience in the field, amount of information and time for the analysis. Even if, the report would have standard fields, we cannot consider the output the report itself, but the quality of the date in the report. For instance, two knowledge workers could have as an indicator for productivity to deliver 1 monthly report, but this will not be enough to measure their productivity. The content of the report, the information provided by the knowledge and skills of the workers will determine their productivity.

5. Indicators to measure productivity: A critical analysis

Measuring and analysis of efficiency of human potential, both at the sector level and company, can be done through a system of indicators calculated as a ration of Effect/ Effort or Effort/Effect.

For the traditional sectors of the economy, the frequent indicators for measuring effect are Gross Value Added (GVA) and Value of industrial production (Q). For measuring effort, several indicators are needed as the number of employees (Ne) and the total time expressed by number of hours worked in that sector (T). Thus, we can calculate indicators for work productivity used in the „old economy" which is the annual work productivity based on gross value added per employee (GVA/Ne) and gross value added per hour (GVA/T) and indicators of productivity based on industrial production (Q/Ne and Q/T).

In the knowledge economy, at the sector level, the recommended indicators to measure effect are the revenues (R), profit (Pr), gross value added (GVA). The measurement of the effort is made through number of employees, resulting in indicators for efficiency of workforce, through productivity based on revenues (R/Ne), productivity based on gross value added (GVA/Ne) and profit per employee (Pr/Ne).

For a company in the knowledge economy, the efficiency of human potential, can be measured through productivity per employee calculated related to revenues (R/Ne), gross value added (GVA/Ne), earnings before interest and taxes per employee (EBIT/Ne) and economic value added per employee (EVA/Ne). This last indicator is suitable for companies also listed at the stock exchange.

We consider that the work productivity based on the revenues per employee (R/Ne) has the advantage of comparison between companies from the same sector, and for average of the sector, but has the disadvantage of lack of comparison between different sectors.

The work productivity calculated based on gross valued added per employee (GVA/Ne) has a higher informational value than Revenues/employee because it takes into consideration the higher degree of integration of activities and allows comparison between companies from the same industries but also between different sectors.

Analysis of the productivity in the knowledge economy can be further seen in companies by looking at the product or project level based on the time needed to finish them. By looking at the product or project level, the management could better include this information in their operational decisions. The productivity per product or service can be also analyzed on stages, and the result could be in average time needed for each stage. This is a form of partial productivity of work.

The analysis of work productivity in the knowledge economy must be correlated with the analysis of the evolution of salary expenses per employee (Sal.exp/Ne), resulting in the efficiency of such expenses. For this purpose, we recommend calculating the indicator salary expenses for 1 monetary unit of revenues (Sal.exp/R). This indicator allows comparison in time on the same company, comparison between companies in the same sector or with the average of the sector, but also with the average on the national level.

6. A quantitative view on productivity

For presenting the difference in terms of measuring productivity, we chose two sectors related to the Romanian economy.

- Food industry – a traditional sector with mainly blue collar workforce;
- IT services sector – a recent developed industry, with mainly white collar workforce.

We identified two samples based on an initial sample at the economy level of 1102 companies with good performance, with a COFACE rating good and very good, revenues higher than 1 million euro. The final sample included 44 companies in the food sector and 22 companies in IT, analyzed between 2008 and 2015.

Our analysis included 31 indicators. The result shows significant difference between the two sectors in terms of profitability ratios, as presented in table 1.

Table 1. **Profitability ratios**

	Food industry		**IT services sector**		
	Median	**Average**	**Median**	**Average**	**Difference in average**
EBITDA	7.70%	9.00%	13.10%	14.30%	58.30%
Profit margin	4.70%	6.10%	11.10%	10.80%	77.60%
Net profit	232,450	1,044,921	494,583	1,919,296	83.70%
Equity	3,025,504	9,093,138	1,116,997	6,869,331	-24.50%
ROE	11.60%	12.30%	38.00%	48.00%	290.80%
ROA	4.00%	5.50%	15.70%	21.00%	278.20%
OROA	7.50%	10.50%	26.60%	40.60%	286.10%
ROIC	14.20%	19.50%	42.70%	49.50%	154.30%
Sal. Exp	1,348	1,792	3,928	4,558	154.40%
Value added (%)	20.70%	21.10%	40.30%	40.10%	90.30%
Sal.exp/ VA	48.00%	47.40%	54.80%	63.60%	34.20%

(*Source*: Authors' processing)

There is a significant difference between the two sectors. One sector, the food industry, is considered to be a blue collar sector, in which the productivity is measured through the number of units made by each employee. Although, the degree of automatization in this sector is increasing, there is an important consideration towards measuring productivity of employees. In the IT sector, characterized as a white collar sector, measuring productivity is correlated with the actual work of employees involved in different projects. We can notice important differences between indicators for results but also profitability ratios. This difference is almost 300% for return on equity. By looking at the salary expenses on value added we calculated a difference of 34.20% between the two sectors in favor of the IT sector. This differences, calculated based on the average of the sectors, shows the challenges of measuring productivity in a knowledge-based sector, as it is the IT sector. The complexity of the work in the IT sector can be seen also through the salary expenses, because jobs in this field require particular skills and certifications. This generates other question on how to measure the productivity, because the projects are different and customized to the clients.

7. Conclusions

As the globalization impacts how companies manage their business, the new ways of working will impact the methods to measure productivity. For instance, a company working with many sub-contractors will be interested to measure, as pointed before, the partial productivity of different stages of the product development or service delivery. Thus, productivity expands also to others stakeholders than employee, especially for complex business processes. For instance, the partial productivity could be analysis as cost per suppliers per hours. Because of increase in outsourcing activities, this could become another important indicator. Working from home might affect productivity through the time needed for performing a task.

Measuring productivity becomes an important challenge for companies in the knowledge economy, also because of frequent interruption (e-mail, social networks) of employees, which reduce the focus on the actual tasks and projects.

As new type of business will be created in the next years, new jobs will provide the need of measuring productivity. Whether it's a large corporation, or a small business working in the knowledge economy, understanding the productivity of employees will continue to trigger questions in the boardrooms or in the human resources departments. And because of this complexity of the business world, the quantitative measures will be correlated with other factors like behavior, expectations or overall impact of the work on the value of the business.

References

Davis, T. R. V. (1991). „Information technology and white-collar productivity". *Academy of Management Executive*, *5*(1), 55–67.

Druker, P. F. (1959). *The Landmarks of Tomorrow*. New York: Harper and Row.

Druker, P. F. (1995). *Quality in higher education. Chapter 2 - The new productivity challenge*.

Druker, P. F. (1999). „Knowledge-worker productivity: The Biggest Challenge." *California Management Review*, *41*(2), 79–94.

Folkard, S. & Tucker, P. (2003). „Shift work, safety and productivity." *Occupational Medicine*, *53*(2), 95–101. http://doi.org/10.1093/occmed/kqg047

International Labour Organization. (2014). *Global Employment Trends 2014: Risk of a jobless recovery?* Retrieved from http://www.ilo.org/wcmsp5/groups/public/---dgreports/---dcomm/---publ/documents/publication/wcms_233953.pdf

Maruta, R. (2012). „Transforming knowledge workers into innovation workers to improve corporate productivity." *Knowledge-Based Systems*, *30*, 35–47.

http://doi.org/10.1016/j.knosys.2011.06.017
Robu, V., Anghel, I. & Şerban, E.-C. (coord.), Cismaşu, I., Hristea, A. M. & Sobolevschi-David, I. M. (Capitol 3). (2014). *Analiza economico-financiara a firmei*. Editura Economică.
Taylor, F. W. (1911). *The Principles of Scientific Management*. Harper & brothers publishers.
The World Bank. (2016). Global Economic Monitor. Retrieved November 23, 2016, from http://data.worldbank.org/data-catalog/global-economic-monitor
Tully, S. & Rapp, N. (2016). Here are the big trends shaping the 2016 Fortune 500. Retrieved November 23, 2016, from http://fortune.com/fortune-500-trends-profits-losses/

PS13 CSR

Chairperson: Allan Hodgson, University of Queensland, Australia

The interrelation between the CSR and the accounting information system data – the case of the Polish financial institutions

Justyna Fijałkowska

Beata Zyznarska-Dworczak

Przemysław Garsztka

Under-reporting of corporate R&D expenditure in Poland – consequences for verifying possible crowding-out effect of private investment by public subsidies. Evidence from Polish pharmaceutical sector

Anna Białek-Jaworska

Barbara Grabińska

The relation between the CSR and the accounting information system data – the evidence of the Polish financial institutions

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Abstract:

Idea: *Financial institutions play a fundamental role in determining the sustainability of modern economies. However, the financial crises made many financial institutions lost their credibility. CSR engagement is perceived as a remedy. The aim of this paper is to analyse the interrelation between being socially responsible and tangible financial outcome of financial institutions in Poland.*

Data: *Financial and market data of all the public companies from the financial sector in Poland – 116 financial institutions. The analysed period is 2012-2015 that gives 257 observations.*

Tools: *The empirical part analyses the CSR with CFP interrelations using Spearman's rank correlation coefficient, logit regression and Two-way Factorial ANOVA test.*

What's new? *The empirical results reveal that in case of financial institutions the slack resources are strongly related to CSR involvement, however being socially responsible is not reflected in the bottom line. Market and the public are reluctant in considering the CSR importance and the CSR engagement is not rewarded. This undermines the role of CSR commitment in financial institutions. It may be assumed that CSR efforts are not focused properly, or they are not communicated effectively.*

So what? *The findings are important in better understanding of the link between CSR engagement and its tangible outcomes. The conclusions may lead to the improved decision-making processes concerning CSR activities and their communication.*

Contribution: *This research contributes to the need for greater clarity and knowledge on the interrelations between CSR and CFP that may shed new light on the engagement and communication of CSR in financial institutions.*

Keywords: *CSR, financial performance, financial institutions, banks*

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1. Introduction

Financial institutions play a fundamental role in determining the stability of financial markets, sustainability of modern economies and economic fortunes of nations. However, after the financial crises of 2008 many financial sector institutions have lost their credibility in the eyes of the consumers and investors. The economic crises originated from the financial markets and led to the lower trust in financial institutions, inferior investments and the recession (Fijałkowska and Zyznarska). Social responsibility has been found to be a way for banks and other financial institutions to earn back their credibility (Cornett *et al.*, 2014). Accounting information system is responsible for the collection, storage and processing of financial and accounting data that is used for internal management decision making, including nonfinancial transactions that directly affect the processing of financial transactions (Belfo and Trigo, 2013: 537). Reporting is probably the most important feature of accounting information system. As Huang and Watson (2015: 3) underline "there is a natural link between CSR and accounting because the accounting profession has a general responsibility for the measurement, disclosure, and assurance of information, including CSR-related information".

Accounting information system should be therefore adjusted to the requirements of the public that becomes highly aware and sensitive regarding the accountability and disclosure of financial institutions. The accountability and responsibility accounts may play an important role in the legitimizing of the financial institutions' activities and may be crucial in the reconstruction of the public trust. This issue becomes even more important nowadays, in the face of the new directive concerning the non-financial information disclosure by the biggest companies in the European Union (Directive 2014/95/EU), that is applicable also to the biggest financial institutions. As Yilmaz (2016: 96) underlines "The concepts of responsibility, accountability, transparency, equality and protection of interests, which represent the main components of corporate management, are impactful and important concepts not only in terms of social responsibility of accounting, but the whole information system of the business and specifically the accounting information system".

CSR value has attained extensive interest among practitioners and academics. Moreover, the substantial investments in the CRS makes the question concerning the link between CSR and Corporate Financial Performance continuously noteworthy. The interest of investors in company's non-financial performance has grown significantly over the past few years (Ernst & Young, 2009). It is assumed that 67 % of investors, while taking economic decisions, consider the non-financial information disclosed by companies, 89% of investors threats them as the most important source of information influencing their decision (ACCA, 2013: 50). Moreover, it is expected that CSR activities may have an influence on the companies' overall performance and financial results.

The primary objective of this paper is to empirically analyse if there is an impact of being socially responsible on the tangible financial consequences of financial institutions in Poland. The empirical analysis aims also in analysis if the financial resources make companies get involved in CSR. The paper is structured as follows: the next section concerns the social responsibility and sustainability in financial institutions, the third sections focuses on the relation between CSR and corporate financial performance. This part is based on the CSR / CFP relation analysis based on assumptions concerning the social impact hypothesis, available funding hypothesis (slack resources hypothesis), positive synergy hypothesis, negative synergy hypothesis, trade-off hypothesis and managerial opportunism hypothesis. The fourth section contains the results of empirical analysis and is followed by concluding remarks. The findings of this study are important for the financial institution sector in order to better understand the link between their CSR investment and tangible outcomes that may lead to the improved decision-taking processes. In the paper the normative approach to accounting and management is adopted.

2. Corporate social responsibility and financial institutions

The financial services sector is viewed as a central pillar of modern capitalist economies (Merton,1995; Levine, 1997; 2005). The services executed by banks and other financial institutions are characterized by information asymmetry and uncertainty which makes trust a necessary condition for doing business (Beck, 2006; Schanz, 2006). Trust is a central strategic issue for financial services firms (Llewellyn, 2005; Olsen, 2008) and is strictly related to the reputation, that is a multi-faceted concept embracing many components. Rossier (2003) highlights a number of reasons why bankers, in particular, have to consider issues of reputation. The bankers and other participants of financial sector trade money which represents other people’s security and well-being. They are also involved in a profession that has been held in contempt, since medieval times because of usury (Fijałkowska, 2012: 141). Today the credibility, accountability and reputation of financial sector is in its foundations and determines the stability of financial markets (Gaultier-Galliard and Louisot, 2006). Decker and Sale (2009: 137) notice that “reputation is built on the trust that is established with all stakeholders and as an intangible asset it directly affects the value of financial services firms and is crucial to their sustainability and to the economic sustainability of society”.

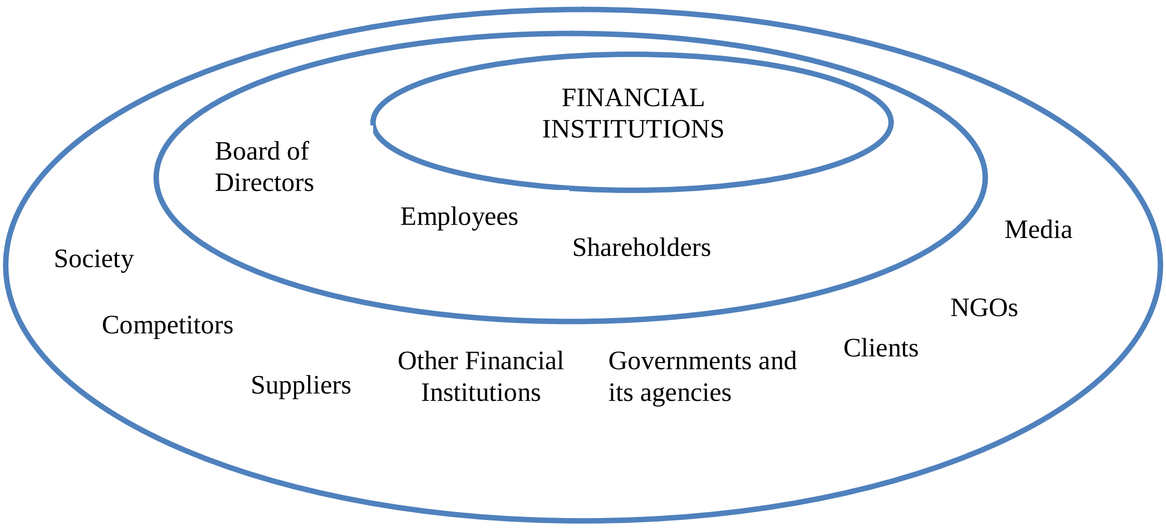
As Stansfield (2006: 470) states reputation in financial institutions concerns “financial performance and strength, client trust and confidence, client service, corporate social responsibility, corporate governance practices, corporate ethics, corporate disclosure practices, as well as relations with regulatory authorities and compliance in a broad sense”. Decker and Sale (2009: 137) add that “key CSR principles such as accountability and transparency are at the heart of regulatory efforts to ensure banks and bankers operate with trust”. They continue underlining that “reputation is built on the trust that is established with all stakeholders and as an intangible asset it directly affects the value of financial services firms and is crucial to their sustainability and to the economic sustainability of society”. Bossone (2000) and Olson (2006) argue that trust and confidence in banking will continue to be important and vital to society’s financial well -being.

The concept of Corporate Social Responsibility (CSR) is closely related to trust and reputation and therefore it is an increasingly important issue in the international banking industry (Scholtens, 2009) and in the financial sector as a whole. According to Minor (2009), when managers are asked why they engage in CSR, they claim it is to secure a better brand and reputation. However, as Fombrun (1996: 53), suggest “the activities that generate CSR do not directly impact the company’s financial performance, but instead affect the bottom line via its stock of 'reputation capital' – the financial value of its intangible assets".

Financial institutions face various pressure to shift to a new business framework that requires social responsibility approach to their activities. Corporate social responsibility has been a subject of great interest for more than 30 years among scholars from multiple management perspectives (Wang *et al*., 2016: 1084). CSR can be defined as "the process of communicating the social and environmental effects of organizations' economic actions to particular interest groups within society and to society at large" (Gray *et al*., 1987: ix). The concept of CSR is related with sustainability. The relation between CSR and sustainability is underlined in the definition published by International Organization for Standardization's, stating that "Social responsibility is the responsibility of an organisation for the impacts of its decisions and activities on society and the environment, through transparent and ethical behaviour that contributes to sustainable development (..)" (ISO 26000).

CSR is widely understood as an obligation of entrepreneurs to contribute to the sustainable socio-economic development (IBLF 2003). Sustainable business models "follow a comprehensive sustainability logic that integrates economic, ecological, and social considerations with regards to present and future generations" (Schneider, 2015: 525) - while disclosing information concerning CSR and sustainability financial institutions often use those two related concepts interchangeably. As Jurek (2016: 68) underlines "CSR in financial institutions should not be seen only in terms of interactions between different stakeholders (Shareholders, investors, depositors, borrowers, regulators) and financial institutions" in the fields of economic, legal, ethical and philanthropic responsibility, but "also in the context of their distinctive function of financial intermediaries" The figure below presents the main internal and external groups of financial institutions' stakeholders (as the most important players in the whole financial institutions' sector) towards which they should be responsible.

Figure 1. **Internal and External stakeholders of financial institutions**



(*Source:* Own work)

As it was underlined during the World Economic Forum in 2012 "finance plays a critical role for society at large, serving individuals, families, businesses, governments and civic institutions. The financial sector performs indispensable functions such as enabling saving and investment, providing protection from risks and supporting the creation of new jobs and enterprises. It is critical that the sector operates to provide these functions for society in a stable, sustainable way". The dimensions of CSR in financial institutions, based on the Carrols' (1991) framework are presented in the table 1.

Table 1. **Dimensions of CSR in financial institutions**

Dimension of responsibility	Description
Economic	Financial institutions should improve the wealth of the owners, create new opportunities for risk management and offer the efficient transfer of funds
Legal	Legal responsibility is largely determined by legal regulations concerning for example the requirement of maintaining confidence, the limitations of risk taking, arbitrate relationship between the financial sector and society. Regulations constitute a pillar of financial institutions' responsibility and are supposed to rebuild trust and prevent from similar to 2007 and 2008 crises.
Ethical	Ethical codes should be implemented in banks and financial institutions. Honesty and good faith, professional integrity, transparency and accountability are ethical values crucial for banks and financial institutions. Regarding banks, that are the biggest players in the whole sector of financial institutions, Cowton (2002) indicates three aspects of ethics in banking: Integrity – as it helps banks to generate trust that is vital for a financial system to flourish; Responsibility – in the ways that banks have the responsibility to lend fairly (i.e. they have the responsibility not to exclude certain groups) and not being too hasty to foreclose when calling in loans; Affinity – reflecting the ways in which depositors and borrowers can be brought closer together.
Philanthropy	Philanthropy is concerned with altruistic acts not required by law that create social reputation and represent a social distribution of some proportion of profits. Philanthropy may be expressed also by the volunteering actions and charitable donations of the employees.

(*Source:* Own work)

Financial sector due to the crisis in 2007 and 2008 suffers the loss of trust and credibility. Before the crises banks were not extensively involved in CSR and in its disclosure (Novokmet and Rogosic, 2016: 115). Vigano and Nicolai (2006) indicate that European bankers have been slow in considering issues of sustainability. Moreover, the financial sector was traditionally viewed as not having much negative environmental impact, relatively non-polluting. The main impact on the society was always concerned mainly with its significant size. After the financial crisis however, the situation changed; financial sector reputation suffered from the consumers' perceptions of the sectors' crucial role in the crisis. Therefore, since then CSR activeness and CSR reporting in financial institutions have become one of the main tools of rebuilding trust (Novokmet, Rogosić, 2016: 115). It was always more important for financial institutions to focus on the "sustainable finance" that is defined by Strandberg (2005) as the provision of financial capital and risk management products and services in ways that promote or do not harm economic prosperity, ecological and community wellbeing. The imperative for the financial sector became also the proper communication on the responsible attitude to the business running. Nowadays, one of the most important ways to express the social responsibility of financial institutions is the publication of CSR/sustainable reports and website disclosure. The question arises if the involvement and communication on CSR brings the concrete tangible results that can be expressed by improved financial results. The empirical analysis is the subject of the research that is included in part 4 of this article.

3. Relation between corporate social responsibility (CSR) and corporate financial performance (CFP) – literature review

There are three major theories which suggest that companies should be sustainable and should incorporate corporate sustainability in their core strategic goals, namely legitimacy theory, stakeholder theory and agency theory (Zyznarska-Dworczak 2016: 308). In the literature these theories are often contrasted with Friedman's (1970) well-known criticism of a firm's corporate social responsibility initiatives. These theories primarily suggest positive relationship between corporate sustainability and company performance (Aggarwal 2013: 63). Together with slack resources theory they give foundations to our analysis.

The relationship between CSR and corporate financial performance (CFP) has been a subject of numerous scientific studies since 50 years (Friedman, 1970; Preston and O'Bannon, 1997; Waddock and Graves 1997; McWilliams and Siegel 2001; Smith 2002; Orlitzky *et al.*, 2003; Allouche and Laroche 2005; Margolis *et al.*, 2007; Aggarwal 2013; Kleine *et al.*, 2013; Wang *et al.*, 2015). The results do not lead to uniform conclusions, moreover they are inconclusive and conflicting. Some of these contradictory results stem from conceptual, operationalization, and methodical differences in the definitions and application of both social and financial performance (Griffin and Mahon, 1997: 7).

There is a group of researchers that empirically confirm that the relation between CSR and CFP is stronger for firms from advanced economies than for firms from developing economies. This relationship is also significantly different between industries, sectors and institutions (Wang *et al.*, 2015; Ioannou and Serafeim 2010). Furthermore, the researchers affirm that the heterogeneity of the CSR and CFP relationship may result from the measurement strategies of the two key constructs of CSR and CFP (Wang et al. 2015: 24). There is no common way of the CSR measurement. One approach to judge a company as a socially responsibility is its inclusion into one of the CSR indexes, e.g. Indexes of Corporate Governance (CG), Indexes of Corporate Social Responsibility (CSR), index of Corporate Social Performance (CSP), GRI-based Disclosure Index Scores, Respect Index. Another way to define that a company is socially responsible is the publication of CSR/sustainability reports. These approaches of CSR measurement are combined to the various types of CFP indicators that may be generally divided into two groups:

1. Accounting-based measures – like ROE (Return of Equity), ROA (Return of Assets), ROS (Return of Sales), Debt/Equity, Current Ratio, Debt/Assets, EBIT/Interest Expense, Quick Ratio, Total Assets, EPS, and

2. Market-based measures – like Alpha, Beta, Price/Earnings, CAR (Capital Adequacy Ratio), Total Return, Mean Abnormal Returns, Risk Adjusted Return, Stock Price, Market to Book Value.

Combination of these different approaches to CSR and SFP results in multitude of diverse applications and results of empirical analysis. Additionally, the interrelation between CSR and CFP may be analyzed twofold:

1. The direction of the CSR-CFP relation,

2. The causality of the CSR-CFP relation:
   (a) prior CSR related to subsequent CFP;
   (b) prior CFP related to subsequent CSR;
   (c) concurrent and across relationship between CSR vs CFP.

The direction of the relationship may indicate positive, negative, mixed or neutral linkages between CSR and financial performance. Separately, it is possible that changes in CSR influence financial performance, or the opposite, that change in financial performance influence CSR (Waddock and Graves 1997: 305), or there is a synergistic relationship between the two, either positive or negative. By combining these two dimensions of variation Preston and O'Bannon (1997) yield the six possible causal and directional hypotheses (Preston and Bannon, 1997: 419-424):

1. With positive direction: social impact hypothesis, available funding hypothesis (slack resources hypothesis) and positive synergy hypothesis;

2. With negative direction: negative synergy hypothesis, trade-off hypothesis and managerial opportunism hypothesis.

Positive impact of social performance on financial performance explains social impact hypothesis, which is a "social impact" version of the stakeholder theory. This hypothesis assumes that CSR enhances the satisfaction of various stakeholders – and consequently the firm's external reputation – leading to better financial performance, in particular by increasing the efficiency of their organization's adaptation to external demands "by addressing and balancing the claims of multiple stakeholders" (Orlitsky *et al.*, 2003:405). Social impact hypothesis assumes that CSR increases managerial competencies, contributes to organizational knowledge about an entity's market, social, political, technological, and other environments, and thus enhances organizational efficiency (Orlitsky *et al.*, 2003:407. All these "good" effects of CSR are labelled by Waddock and Graves (1997) under "good management theory". Other scholars (McGuire *et al.*, 1988; Waddock and Graves 1997; Orlitzky *et al.*, 2003; Seifert et al. 2004; Daniel *et al.*, 2004, Margolis *et al.*, 2007; Albertini 2012) suggest that CSR and CFP are positively associated, "but that the causal relationship is from financial to social performance" (Preston and O'Bannon, 1997: 423).

This slack resources hypothesis means that better financial results potentially effect the availability of slack (financial and other) resources that support companies in investing in social performance activities, such as employee and community relations, or environmental protection (Waddock and Graves 1997: 312). In this theory CSR is treated as an outcome of better financial performance and not a cause of it. The positive synergy hypothesis supposes that higher levels of CSR lead to an improvement of CFP, which offers the possibility of reinvestment in socially responsible actions (Allouche and Laroche, 2005). There is a kind of "virtuous circle" formed by a simultaneous and interactive positive relation between CSR and CFP (Waddock and Graves, 1997: 306). However, there is also a negative synergy hypothesis that indicates a "vicious circle"; higher levels of CSR may lead to decreased CFP. Therefore, synergy hypothesis assumes that social and financial performance are synergetic, but whether positive or negative it should be detected based on the available statistical data (Preston and Bannon, 1997: 424).

Negative social-financial performance relationships can be predicted by other two hypotheses: trade-off hypothesis and the managerial opportunism hypothesis. The trade-off hypothesis indicates, in accordance with Friedman`s attitude (1970) and other neoclassical economists' arguments, that "a firm's higher levels of social performance may lower its financial performance as compared to competitors" (Preston and O'Bannon, 1997: 421). "Because social action will have a price for the firm it also entails a competitive disadvantage" (Smith, 2002: 232) to other firms that are less socially active. The trade-off hypothesis claims that social accomplishments involve higher costs for an entity, for example capital expenditures on special equipment, machinery and real estate devoted to CSR, cost materials and services by purchase of inputs from suppliers who are socially responsible, higher wages and benefits as well as additional workers to enhance policies social performance (McWilliams, Siegel 2001: 123). The costs, according to this argument, fall directly to the bottom line, reducing profits and thus shareholder wealth (Waddock and Graves 1997: 310).

The managerial opportunism hypothesis indicates negative social-financial performance relationships stating: higher levels of financial performance lead to lower levels of social performance and in the opposite direction. While gaining better financial performance, the management may attempt to cash in by reducing social expenditure in order to increase their own short-term private gains. Inversely, with worse financial performance managers may attempt to offset and justify their disappointing results by engaging in conspicuous social programs (Preston and O'Bannon, 1997: 423).

Some theorists (Griffin, Mahon, 1997; McWilliams, Siegel 2001) have a generally negative attitude to the CSR and CFP analysis; they ponder that the link between CSR and CFP disappears when more accurate variables are introduced into econometric models, such as research and development intensity (Allouche and Laroche, 2005). They argue also that there are so many intervening variables between CSR and CFP that there should be no reason to expect any relationship at all. Additionally, the measurement problems are still so wide that it alone can mask any real linkage that could exist (Waddock and Graves, 1997: 310).

These theoretical assumptions concerning CSR and CFP relationship are summarized, through the literature review covering the period of 1963-2013 in the Table 2. They focus in two perspectives regarding CSR / CFP relation: its direction and its causality.

The analysis of literature review presented in table 2 indicates that the most popular causality regards social impact hypothesis. Most of analysed results (Margolis and Walsh 2001, Peloza 2009, Aggarwal 2013; Clark *et al.*, 2015; Kochalski 2016) indicate the positive impact of CSR on corporate financial performance (CSR as dependent variable). The strength of this relation varies from 44% to 85%. Furthermore, some of the researchers (Margolis and Walsh, 2001; Orlitzky *et al.*, 2003; Margolis *et al.*, 2007; Albertini, 2012) indicate an inverse existing positive impact, in which the financial results determine the results of the CSR activities. This finding, in turn, confirms the assumption of slack resources hypothesis. Margolis and Walsh (2001) indicate that 53% of the empirical research reviewed confirms a positive impact of good financial performance on CSR activities, while 24% shows no relation, 19% mixed and 5% negative relation. This kind of causality of CSP and CFP researched is often the subject of integrative, quantitative meta-analyses with a methodologically more rigorous review in many substantive areas of the bidirectional relationship between CSR andCFP (Orlitzky *et al.*, 2003; Daniel *et al.*, 2004; Allouche and Laroche, 2005; Margolis *et al.*, 2007; Wang *et al.*, 2015). Meta-analysis however concentrates on the strength but not on the direction of the relation.

Table 2. **The results of studies of the empirical relationship between CSP and CSR presented in the literature**

Positions of literature	**The causality of CSP**		**The time interval**	**The number of empirical research reviewed**	**The direction of the CSP-CFP relationship**			
	CSP as dependent variable: CSP=> FP	CSP as independent variable CFP=>CSP			**Positive**	**No relation***	**Mixed**	**Negative**
Mikołajewicz, Nowicki 2016	X		1970-2013	85	85.0%	6.0%	13.0%	1,0%
Clark et al. 2015	X		1970-2014	110	85.5%	5.1%	0.9%	8.5%
Kleine et al. 2013	X		1963-2011	182	30.8%	31.9%	7.7%	29.7%
Albertini 2012	X	X	1975-2011	52	meta-analysis			
Aggarwal 2013	X		2005-2012	11	45.5%	36.4%	9.1%	9.1%
Peloza 2009	X		1972-2008	159	63.0%	22.0%	15.0%	0%
Margolis et al 2007	X		1972-2007	192	meta-analysis			
Margolis et al. 2007		X	1972-2007	66	meta-analysis			
Orlitzky et al. 2003	X		1970-2002	52	meta-analysis			
Orlitzky et al. 2003		X	1970-2002	52	meta-analysis			
Margolis, Walsh 2001		X	1972-2002	95	53.0%	24.0%	19.0%	5,0%
Margolis, Walsh 2001	X		1972-2002	95	68.0%	16.0%	16.0%	0,0%
Griffin, Mahon 1997	X		1990s	10	70.0%	-	-	30.0%
			1980s	32	43.8%	9.4%	-	46.9%
			1970s	17	70.6%	23.5%	-	5.9%

The negative relation, confirming the trade-off hypothesis, was observed only in one direction: negative impact of CSR on the CFP. According to the analysis presented in table 1 most of the tested research indicates the ratio of CSR-CFP influence below 10%. The exception - with the much strongest influence - was a research conducted by Griffin and Mahon (1997). The researchers stated that in the 1980s almost 47% of tested literature position was a study that indicated the negative impact of CSR on the CFP and in the 1990s - 30%. One more study (Kleine *et al.*, 2013) has also shown such a high level of negative ratio (29,7%).

We can conclude that in the period from 1972 to 2001, round-about ninety-five empirical evidences have been provided by Margolis and Walsh (2001) and Orlitzky et al. (2003) regarding CSR and financial performance. Many academics tried to analyze the relation between CSR and CFP. The results are not coherent neither conclusive. The literature review confirms the conclusions of Griffin and Mahon stated almost two decades ago; they underlined that "although numerous researches have explored the empirical relationship between SCP and CFP, no definitive consensus exists. The results have often been contradictory, even within a given analysis" (Griffin and Mahon, 1997: 6). Despite many empirical research there is still diversify and lack of a uniform understanding of CSR-CFP relations, which points to the need for the research that would order and synthetize the results as well as conclude on the CSR-CFP direction importance, its strength and dependence on the industry and size factor. There is also a need of the cohesive understanding of the influence of the CSR on the economic development in the micro and macro scale. The interest in CSR among practitioners as well as academics is still growing and as it plays a distinctive role within the financial sector institutions the following analysis will focus on this sector.

4. Relation between corporate social responsibility (CSR) and corporate financial performance (CFP) – empirical research

4.1. Sample

The financial data has been obtained from audited consolidated financial statements derived from EMIS database. To the great extent the accounting-based measures have been used because the audited accounting data is likely to be authentic and credible and is not influenced by market perceptions or speculations, and is thus considered less noisy in comparison to market based indicators like stock returns, share prices, etc. (Lopez *et al.*, 2007). Market value was applied only as a control variable for size of companies. The data used to verify the hypotheses concerns listed companies which have the status of financial institution. Financial institutions in Poland are defined in the Code of Commercial Companies (Art. 4. § 1. 7) and comprise banks, investment companies, investment funds and trust funds, insurances, reinsurances, trusts, company pensions, retirement funds or brokerage houses, established in the Polish Republic or in a country belonging to the OECD.

The research embraced all the companies from the financial sector quoted on the Warsaw Stock Exchange in Poland. The analysed period is 2012-2015. The collected data made it possible to calculate the change in earnings year on year. Then, the values obtained for each company separately for three consecutive years were treated as separate observations. In this way, the resulting study sample consisted of 298 observations. After removal of the observations for which there were missing data, calculations were performed on a sample of 257 observations.

4.2. Variables

CSR variable

CSR is difficult to measure. One of the approaches defines a socially responsible company as the one incorporated into one of the CSR indexes. The growth in the demand for ratings of CSR has resulted in a marked increase in the number of initiatives supplying CSR ratings to investors and customers (Marquez and Fombrun, 2005: 304). The examples are KLD index, The FTSE 4 Good, Dow Jones S.UI. Stoxx, Domini 400 and Respect Index (RI) introduced by Warsaw Stock Exchange. In many empirical works the definition of being socially responsible is likened to one of these indices memberships. Another approach defines socially responsible company as the one that communicates its CSR engagement disclosing CSR/sustainable report. In this study both approaches were applied and analysed.

Financial Performance Measures variable

In this study the following measures of financial performance were considered and analysed: book value, market value, ROA and ROE.

Control Variables

The control variable used in this research was the size of the company, based on the assumption that larger firms are likely to have higher profitability as they have greater resources for investing in profitable ventures. Other control variables used in this study are long-term debt to assets ratio as a proxy for risk, and - for the purpose of verifying hypothesis H1 - the dummy variable indicating companies incorporated into PL-WIG-BANKI index for banks. We introduce this variable assuming that banks are financial institutions subject to more stringent reporting requirements and generally better managed than other financial institutions.

4.3. Research model

The first model intends to examine the impact of the overall sustainability rating of the financial institution (independent variable - CSR) and CSR reporting on its financial performance (dependent variables – CFP).

H1: Corporate social performance and financial performance are related (positively or negatively) across the financial sector institutions

This research hypothesis is based on two other hypotheses:

1. Social impact hypothesis (↑ CSR => ↑ CFP)

2. Trade-off hypothesis (↑CSR => ↓ CFP)

To verify the research hypothesis about the impact of the publication of the CSR report and the impact of the fact that the company is listed in a RESPECT Index (RI) on the change of its financial result in the following reporting year we used an econometric model:

$$CFP_t = \alpha + \theta \cdot CSP_{t-1} + \sum_{i=1}^{I} \beta_i \cdot X_{i,t-1} + \varepsilon_t$$

where CFP_t means the change of financial performance at time t (or financial performance where it is justified), $X_{i,t}$ is control variable at the same time t and CSP_t (corporate social performance) is dummy variable indicating fact of publication the CSR report or the fact that the company is listed in *RI*.

Before we estimated model (1) we check if is there any correlation between CSR_t (or RI_t) and financial variables. We used standard Spearman's rank correlation coefficient. Second test was to show whether the average financial results differ between companies with different *CSR* (*RI*). We used Two-way Factorial ANOVA (analysis of variance).

The second model intends to examine the impact of financial results on the probability of publishing a CSR report and on the probability incorporating the company into RI.

H2: Financial results of financial institution impact (positively or negatively) the probability of its CSR reporting and the probability of incorporating the company into Respect Index

This hypothesis concerns two other hypotheses that may be found in the literature:

1. Available funding hypothesis (slack resources hypothesis) (↑ CFP =>↑ CSR)

2. Managerial opportunism hypothesis (↑CFP => ↓ CSR),

In order to verify the second research hypothesis, we estimated binary logistic regression:

$$\pi_j = \Pr(CSR_{j,t} = 1 \mid X_i = x_i)$$
$$\log\left(\frac{\pi_j}{1-\pi_j}\right) = \alpha + \theta_1 \cdot FP_{j,t-1} + \theta_2 \cdot WIG_{j,t-1} + \sum_{i=1}^{I} \beta_i \cdot X_{i,t-1} + \varepsilon$$

where $CSRj,_t$ is response variable, equal 1 when company *i* published CSR report, or when company *i* was incorporated into RI, $WIG_{j,t}$ is dummy variable indicated companies incorporated into PL-WIG-BANKI index for banks and *Xi* are the control variables.

4.4. Results of the analysis

The first analysis aimed to test the hypothesis about the impact of the CSR report publication and the impact of the company's presence on the RESPECT Index (RI) on the change in the financial results of the following reporting year.

Spearman's correlation coefficients results are presented in Table 3. Statistically significant correlation occurs between CSR variables (CSR reports / RI) and book value change, as well as between CSR variables and market value (capitalization).

However, correlation coefficients do not show a clear relationship between these variables.

Table 3. **Spearman correlation between financial data and CSR & RI from previous year**

Spearman	ΔROA_t	ΔROE_t	*(Market value)* $_t$	Δ*(Net profit)* $_t$
CSR_{t-1}	-0.0589	-0.0496	0.367565 ***	0.06459
RI_{t-1}	-0.0693	-0.0989	0.43707 ***	0.01864

* p<0.1 ** p<0.05 ***p<0.01 ****p<0.001

(*Source:* Authors' own computation)

The next stage of verification of the first research hypothesis is to check whether there are significant differences in the average value of the variables reflecting financial results for the following year between the companies that have published the CSR report and those that did not published it. In order to analyse it we use Two-way Factorial ANOVA.

The ANOVA test showed that the hypotheses about equality of vectors concerning mean value of changes in financial results between groups cannot be rejected (stat. F= 1,5926; p=0,1627). To verify whether the individual values are significantly different, one-dimensional results (Table 4) are checked.

Table 4. **Two-way Factorial ANOVA of financial data for CSR**

	ΔROA_t	ΔROE_t	*(Market value)* $_t$	Δ*(Net profit)* $_t$
Source	F - stat	F – stat	F – stat	F – stat
CSR_{t-1}	0.0348	0.2898	2.3429	1.8174
RI_{t-1}	0.0331	0.0086	72.115 ****	0.0207
$CSR_{t-1}*RI_{t-1}$	0.0264	0.5536	0.0639	1.3054

(1 – publication of the report; 0 – otherwise) **and RI** (1 – company in RESPECT Index; 0 – otherwise) as a treatment. Depend variables are change of financial data.

* p<0.1 ** p<0.05 ***p<0.01 ****p<0.001

(*Source:* Authors' own computation)

The only statistically significant difference regarded the changes in the book value. A similar test was used for companies that were part of the RESPECT Index compared to other companies. For the vector of average change of the financial result between the analysed groups, the hypothesis should be rejected (stat F = 16,2967; p <0.0001). In this case, for a one-dimensional result (Table 4), the statistically significant difference occurs between the average market valuation for RI companies and the rest.

In case of interaction effect study between CSR and RI it cannot be argued that the mean values of dependent variables are significantly different (stat. F = 0.2966; p = 0.9145). Since there are statistically significant differences between the average market value of the RESPECT Index companies and the others, as the next step the econometric model was applied to test the relationship between the market value and the RI variable (1 – company in the RESPECT Index; 0-otherwise). As control variables, the employment size and the variable indicating the affiliation to the PL-

WIG-BANKI index were used (1 - company in PL-WIG-BANKI; 0 - otherwise). The obtained model is shown in Table 5.

Table 5. **Linear regression analysis for market value as depend variable**

Dependent variable: (market value)$_t$	*Coefficients*	
Independent variable: RI_{t-1}	5228.723 ****	**3026.79 ********
Intercept	-222.736	-59.83
Control variables:		
PL-WIG-BANK index (0-1)	2026.756 ***	-2697.59 ****
Number of employees	1.48606 ****	
Dept/total assets	-208.691	27.27
Book value		1.90 ****
Stat. F=	514.88 ****	879.03 ****
R^2=	0.896	0.9319

* p<0.1 ** p<0.05 ***p<0.01 ****p<0.001

(Source: Authors' own computation)

Using standard test, we observe that the relationship between all independent variables in the model and the market value is statistically significant. Similarly, the fit of the model is high (R2 = 89.6%), the random component is not heteroscedastic Thus, the relationship between market value and RI can be indicated.

The second research hypothesis concerned the impact of the financial result on the company's probability to publish a CSR report and the impact of the financial result on the probability of the incorporation of the company to the Respect Index. In order to verify the hypothesis, logit models were constructed separately for the CSR report publication and RI variables. The results of the analysis are presented in Tables 6-9.

In each of the estimated models, the ROA and ROE values of the previous year were used as the financial result. At the same time, it was also verified whether the fact of being quoted within the PL-WIG-BANKI index of the largest banks quoted on the Warsaw Stock Exchange, influences the probability of the CSR report being published by the company and whether it increases the likelihood of incorporation into the RESPECT Index.

Table 6. **Logit regression analysis using CSR**

Dependent variable: publication of the report	*Model 1*	*Model 2*	*Model 3*
Independent variable: ROA	7.668	7.911	7.657
Intercept	-9.492***	-9.431 ***	-9.538 ***
PL-WIG-BANK index (0-1)	2.167***	2.085**	2.127***
Control variables:			
Dept/total assets	7.206 **	7.366**	7.211**
Book value	0.00003		
Market value		0.00002	
Number of employees			0.00004
Hosmer Lemeshow test:	0.9933	0.9954	0.9917
p =	0.4715	0.4949	0.4745
Nagelkerke R^2:	78,019	73.849	77.672
AIC:			

(1 – publication of the report; 0 – otherwise) as depend variable and financial data from previous year as independent variables

* p<0.1 ** p<0.05 ***p<0.01 ****p<0.001

(*Source:* Authors' own computation)

Table 7. **Logit regression analysis using CSR**

Dependent variable: publication of the report	*Model 1*	*Model 2*	*Model 3*
Independent variable: ROE	0.128***	0.279****	0.126***
Intercept	-6.41 ****	-6.388 ****	-6.412 ****
PL-WIG-BANK index (0-1)	2.47 ***	2.040**	2.419***
Control variables:			
Dept/total assets	2.413	2.283	2.416
Book value	-0.00001		
Market value		-0.00005	
Number of employees			0.0000004
Hosmer Lemeshow test:	0.9182	0.9981	0.9917
p =	0.48396	0.5544	0.4745
Nagelkerke R^2:	76,587	67.108	77.672
AIC:			

(1 – publication of the report; 0 – otherwise) as depend variable and financial data from previous year as independent variables

* p<0.1 ** p<0.05 ***p<0.01 ****p<0.001

(*Source:* Authors' own computation)

Table 8. **Logit regression analysis using RI**

Dependent variable: company in Respect Index	*Model 1*	*Model 2*	*Model 3*
Independent variable: ROA	-4.5651	-4.693	-4.519
Intercept	3.9043***	3.6968**	3.503***
PL-WIG-BANK index (0-1)	0.8131	0.9185**	1.1149***
Control variables:			
Dept/total assets	-1.3951	-1.289	-1.093
Book value	-0.0002**		
Market value		-	
Number of employees		0.00008****	-
			0.00012***
Hosmer Lemeshow test:	0.5017	0.1377	0.5636
p =	0.4617	0.5018	0.4373
Nagelkerke R^2:	96.828	89.247	100.204
AIC:			

(1 – company in Respect Index; 0 – otherwise) as depend variable and financial data (ROA) from previous year as independent variables
* p<0.1 ** p<0.05 ***p<0.01 ****p<0.001

(*Source:* Authors' own computation)

Table 9. **Logit regression analysis using RI**

Dependent variable: company in Respect Index	*Model 1*	*Model 2*	*Model 3*
Independent variable: ROE	0.1447***	0.294***	0.151***
Intercept	-4.116****	-3.7867	-4.060****
PL-WIG-BANK index (0-1)	1.917**	****	2.440***
Control variables:		1.543	
Dept/total assets	-0.4726		-0.6893
Book value	0.00098 *	-1. 3714	
Market value			
Number of employees		0.00019	0.00006
Hosmer Lemeshow test:	0.4818	0. 6335	0.294
p =	0.4638	0. 5189	0.4466
Nagelkerke R^2:	89.993	80.291	92.560
AIC:			

(1 – company in Respect Index; 0 – otherwise) as depend variable and financial data (ROE) from previous year as independent variables
* p<0.1 ** p<0.05 ***p<0.01 ****p<0.001

(*Source:* Authors' own computation)

In all estimated models, it appears that the ROA value has no statistically significant impact either on the likelihood of a CSR report being published or on the likelihood of incorporation into the RESPECT Index (see Table 6 and Table 9).

Models in which the independent variable is ROA tend to generally model the probability of a dependent variable in a proper way. However, this is the result of other variables. In turn, the models in which the ROE is taken an independent variable have a significant effect on the probability of the dependent variable. The higher the ROE value, the greater the likelihood that the company will decide to publish a CSR report or that it will be included in the RESPECT Index the following year. In almost all models, the company's PL-WIG-BANK index participation has a significant impact on the probability of a dependent variable.

Apart from one case (Table 8, Model 1), this is the most important factor increasing the likelihood of a CSR report being published and increasing the probability of inclusion in the RESTECT Index. In all analysed cases, the best results were obtained for Model 2, where the control variables are the debt ratio and the market value of the company. They have the lowest Akaike (1974) information criterion (AIC), and the highest R^2. Also based on the Hosmer-Lemeshow (2013) test there is no reason to reject the hypothesis that the observed and predicted values are equal.

5. Conclusions

The 2008 financial crisis brought social responsibility to the important issues agenda in many financial institutions all over the world. Applying more responsible attitude to the business running and communicating on that was treated as the way of re-establishing credibility and regaining legitimacy by financial sector. In our study we tried to analyse if there is a link between being socially responsible and achieving tangible financial outcomes. The study attempted also to check if having financial sources influences the involvement in the socially responsible actions and reporting on that.

The statistical results reveal that the publication of a CSR report has not influence the changes in the company's financial results; correlation coefficients have not shown that there is such a link. A relatively weak relationship was found only in case of a change in market value. The results of analysis demonstrate also that the fact of publishing CSR report did not reveal significant differences in the financial performance compared to companies that do not publish this kind of report. A similar analysis was carried out in the group of companies that were included in the RESPECT Index and the rest of companies. In case of companies listed in the RESPECT Index the results demonstrated however, that there is a clear correlation between the fact that the company is listed on that index and the market value. This means that companies included in that index tend to have higher market value. Also the average market value of companies in RESPECT Index is different from the average market value of other companies.

An econometric model was developed to explain the relationship between the RESPECT Index and the market value in the following year. In this model as the explanatory (independent) variable, apart from Respect Index variable (1 in the RESPECT Index; 0 - otherwise) the size of employment and the participation in the PL-WIG-BANKI index (embracing the largest listed banks in Warsaw) were taken into account. There was a statistically significant relationship between the market value and the three variables tested. These empirical results give grounds for rejecting the first research hypothesis. In the same way the social impact and the trade-off hypothesis are denied.

This is a clear sign that the market and the public is reluctant in considering the CSR importance of financial institutions. The results obtained from the first part of research highlight that the CSR activities do not impact the bottom line of the financial institutions or at least that the effects are not seen in the following year. It may be assumed that or CSR efforts are not focused properly, or they are not communicated effectively. We assume also that the factor of time is important, we may expect that the reaction of the public on the CSR activities, especially in case of the loss of trust, may be delayed. In this study one-year time-lag was applied. Maybe the public needs more time to recognize the CSR involvement that would contribute to the improvement of financial performance of socially responsible institutions. To rebuilt trust and credibility it takes time. One should also consider that the Polish financial market is still quite young therefore we may assume that the institutional factors and the development stage of this market influences the reaction of the public on the CSR initiatives and the degree to which CSR reports publications/ being listed on the Respect Index contributes to the financial bottom line.

In order to verify the second research hypothesis, the probability logit models were constructed, testing the probability of CSR report publishing and the probability of incorporating the company into the RESPECT Index depending on the financial result obtained in the preceding year. It has been shown that ROE is an important independent variable for both the likelihood of publication of the CSR report for the following year as well as for the probability of inclusion in the RESPECT Index. Similarly, the statistically significantly higher probability for the dependent variable was obtained with the variable informing about affiliation to the PL-WIG-BANKI index. On the other hand, ROA does not significantly influence the probability of a dependent variable. This is a result other than that obtained at work (Waddock and Graves, 1997), where the significant independent variable was ROA. We may therefore conclude that there is a will of companies from the financial sector to get involved in the CSR activities (and communicate on them) when the financial resources permit it. The involvement is surely related to the expectations of its positive results. This study proves that the awareness of positive impact of CSR is higher in the institutions that are willing to engage in the CSR than of the market and public that stills fails to react on the CSR efforts of financial institutions in the way it would translate into measurable results for the companies.

The present study is subject to certain limitations. Firstly, the sample size is relatively small, however it covers all the public companies in the financial sector in Poland in 2012-2015. Secondly, the time frame of the research is fairly short (i.e. 4 years). Thirdly, the study ignores control variables like age of firm, growth of firm, capital intensity, leverage, risk, R&D intensity, industry type, etc. that may have significant influence on this relationship. Several control variables that were considered during data collection included the capital structure (including whether the company is part of an international financial corporation), the type of financial activity (banks, insurance companies, investment firms) or the fact that CSR report submitted to external audit. Due to incomplete data in the database or in some cases due to heterogeneous information contained in the databases used, these explanatory variables are also excluded. Another restriction concerns a variable that informs the CSR report as a variable informing about the applicable social responsibility policy. We do not have information on the standards that published CSR reports meet.

Therefore, the results of study should be interpreted in light of these limitations. The directions of future research could be an attempt to overcome those limitations. The cross-national comparison could also be valuable to better understand the specifics of the Polish financial market and CSR in the international context. Future research could also focus on the analysis of the CSR activity on the CFP in much longer lag period; the reconstructed credibility and trust, if ever, may occur after many years and as a result of a very focused engagement in CSR supported by its effective communication.

References

ACCA (2013) *What do investors expect from non-financial information?* http://www.accaglobal.com/content/dam/acca/global/PDF-technical/sustainability-reporting/tech-tp-wdir.pdf (access: 08.01.2017).

Akaike, H. (1974) “A new look at the statistical model identification”, IEEE Transactions on Automatic Control, vol. 19 (6): 716–723, doi:10.1109/TAC.1974.1100705.

Albertini E. (2012) “Does Environmental Strategy Improve Financial Performance? A Meta-Analytical Review”, *Academy of Management*, Boston USA.

Allouche, J. & Laroche P. (2005) “A Meta-analytical investigation of the relationship between corporate social and financial performance”, Revue de Gestion des Ressources Humaines, 57 (1): 8–41.

Aggarwal, P. (2013) "Impact of Sustainability Performance of Company on its Financial Performance: A Study of Listed Indian Companies", *Global Journal of Management and Business Research*, vol. 13, no. 11: 60-70.

Beck, T. (2006) Creating an Efficient Financial System: Challenges in a Global Economy, World Bank Policy Research paper WPS 3856.

Belfo, F. & Trigo A. (2013), “Accounting Information Systems: Tradition and Future Directions”, *Procedia Technology*, vol. 9: 534-546.

Bossone, B. (2000) “What Makes Banks Special? A Study of Banking, Finance, and Economic Development”, *World Bank Policy Research Working Papers*, no. 2408.

Caroll, A.B., (1991) “The pyramid of corporate social responsibility: Toward the moral management of organizational stakeholders”, *Business Horizons*, vol. 34, Iss 4, July-August: 39-48.

Clark, G. L., Feiner A. & Viehs M. (2015) “From the Stockholder to the Stakeholder: How Sustainability Can Drive Financial Outperformance”, doi:10.2139/ssrn.2508281.

Cornett, M. Erhemjamts, O. & Tehranian, H. (2014) “Corporate social responsibility and the impact on financial performance: Investigation of U.S. commercial banks”, Boston college, from https://www2.bc.edu/hassan-tehranian/CSR-Performance%20Relationship%20for%20Banks%20Jan%202014.pdf

Cowton, C. J. (2002) “Integrity, responsibility and affinity: three aspects of ethics in banking”, *Business Ethics: A European Review*, vol. 11 (4): 393-400.

Daniel F, Lohrkeb F. T., Fornaciari Ch. J. & Turner R. A. (2004), “Slack resources and firm performance: a meta-analysis”, *Journal of Business Research*, vol. 57: 565-574.

Decker, S. & Sale, C. (2009) “An Analysis of Corporate Social Responsibility, Trust and Reputation in the Banking Profession”, in: eds. S.O. Idowu, W.L., Filho, *Professionals perspectives if corporate social responsibility*, Springer-Verlag, Berlin-Heidelberg.

Ernst & Young. (2009) “Non-financial reporting”, Retrieved Feb. 28, 2016, from http://www.ey.com/Publication/vwLUAssets/Nonfinancial_reporting/$FILE/Climate%20change_Non%20financial%20reporting.pdf

Fijałkowska, J. (2012), „Społeczna odpowiedzialność wyzwaniem dla rachunkowości”/ „Corporate Social Responsibility as a Challenge for Accounting”, *Przedsiębiorczość i Zarządzanie*, No. 13, (1): 141-154.

Fijałkowska, J., Zyznarska-Dworczak, B., “Społeczna odpowiedzialność biznesu a tworzenie wartości banków” / “Corporate Social Responsibility and Value Creation of Banks”, *The Journal of Management and Finance* (forthcoming).

Friedman, M. (1970) “The social responsibility of business is to increase its profits”, *New York Times Magazine,* September 13.

Gaultier-Galliard, S., & Louisot, J-P., (2006) “Risks to Reputation: A Global Approach”, *The Geneva Papers,* 31: 425–445.

Gray, R., Owen, D. & Maunders, K. (1987) “Corporate Social Reporting”, Prentice-Hall, Englewood Cliffs, NJ.

Griffin, J.J. & Mahon, J.F. (1997) “The Corporate Social Performance and Corporate Financial Performance Debate: Twenty-Five Years of Incomparable Research”, *Business and Society,* vol. 36, no. 1: 5-31.

Hirigoyen, G. & Poulain-Rehm, T. (2015) “Relationships between corporate social responsibility and financial performance: What is the causality”? *Journal of Business and Management*, vol. 4 (1): 18-43.

Hosmer, D. W. & Lemeshow, S. (2013) *Applied Logistic Regression*, New York: Wiley. ISBN 978-0-470-58247-3.

Huang, XB & Watson L (2015) “Corporate social responsibility research in accounting”, *Journal of Accounting Literature,* vol. 34(1): 1-16

International Business Leaders Forum (IBLF), 2003, IBLF Members. http://www.iblf.org/csr/csrwebassist.nsf/content/g1.html, (access: 23.05.2015).

Ioannou, I. & Serafeim, G. (2010) “What Drives Corporate Social Performance? International Evidence from Social, Environmental and Governance Sources”, Harvard Business School.

ISO 26000, 2010, *Guidance Standard on Social Responsibility,* International Organization for Standardization’s, http://www.cnis.gov.cn/wzgg/201405/P020140512224950899020.pdf, (access: 23.05.2015).

Kleine, J., Krautbauer M. & Weller T. (2013) *Nachhaltige Investments aus dem Blick der Wissenschaft: Leistungsversprechen und Realität,* Research Center for Financial Services Steinbeis- Hochschule, Berlin.

Levine, R. (1997) “Financial development and economic growth: views and agenda”, *Journal of Economic Literature,* vol. 35: 688–726.

Levine, R. (2005) “Finance and growth: theory and evidence”, in: Aghion, P & Durlauf, S. (eds.), *Handbook of economic growth,* Elsevier Science, The Netherlands.

Llewellyn, D. (2005) “Trust and confidence in financial services: a strategic challenge”, *Journal of Financial Regulation and Compliance,* vol. 13(4): 333–346.

Lopez, M. V., Garcia, A., & Rodriguez, L. (2007) „Sustainable development and corporate performance: A study based on the Dow Jones Sustainability Index”, *Journal of Business Ethics*, vol. 75(3): 285-300.

Margolis, J. D., Elfenbein H. & Walsh J.P. (2007) “Does it pay to be good? a meta-analysis and redirection of research on the relationship between corporate social and financial performance”, Working Paper, Ross School of Business - University of Michigan.

Margolis, J. D. & Walsh, J. P. (2001), “People and profits? The search for a link between a company’s social and financial performance”, Mahwah, N.J: Lawrence Erlbaum Associates.

Marquez A., & Fombrun, C.J. (2005) “Measuring Corporate Social Responsibility”, *Corporate Reputation Review*, vol. 7 (4): 304-308.

McGuire, J. B., A. Sundgren, & T. Schneeweiss (1988) “Corporate Social Responsibility and Firm Financial Performance”, *Academy of Management Journal,* 31 (4): 854-872.

McWilliams A. & Siegel D. (2001) “Corporate social responsibility: A theory of the firm perspective”, *Academy of Management Review,* 26 (1): 117-127.

Merton, R.C. (1995) “A functional perspective of financial intermediation”, *Financial Management,* vol. 24(2): 23–41.

Minor, D.B., (2009) *Corporate Social Responsibility as Reputation Insurance: Theory and Evidence*, Haas School of Business, UC Berkeley.

Mikołajewicz G. & Nowicki J. (2016) „Tworzenie wartości przedsiębiorstwa z uwzględnieniem aspektów środowiskowych i społecznych" /Creation of company value, with environmental and social aspects", in: Kochalski, C., *Zielony controlling i finanse. Podstawy teoretyczne/Greening and finance. Theoretical Foundations*, Wydawnictwo C. H. Beck, Warszawa: 75-104.

Nagelkerke, N.J.D. (1991) "A note on a general definition of the coefficient of determination", *Biometrika*, vol. 78: 691-692.

Novokmet, A.K. & Rogošić, A. (2016) "Bank Sustainability Reporting within the GRI-G4 Framework", *Zeszyty Teoretyczne Rachunkowości*, vol. 88, no. 144: 109-123

Olsen, R. (2008) "Trust as risk and the foundation of investment value", *Journal of Socio Economics*, No. 37(4): 2189–2200.

Olson M. W. (2006) "Are Banks Still Special?", Annual Washington Conference of the Institute of International Bankers, Washington, D.C., BIS Review, no. 20.

Orlitzky, M., Schmidt, F. L. & Rynes, S. L. (2003) "Corporate social and financial performance: A meta-analysis", *Organization Studies*, vol. 24 (3): 403-441.

Peloza, J. (2009) "The Challenge of Measuring Financial Impacts from Investments in Corporate Social Performance", Journal of Management, vol. 35 (6): 1518–1541.

Preston L.E. & O'Bannon D.P. (1997) "The corporate social-financial performance relationship: a typology and analysis", *Business and Society*, no. 36: 419-429.

Rossier, J. (2003) "Ethics and Money: What is required of the banking professional", La Lettre, Geneva" Geneva Private Bankers Association, no. 23, March.

Schanz, K. (2006) 'Reputation and reputational risk management', The Geneva Papers on Risk and Insurance, 31: 377–381.

Scholtens B. (2009) "Corporate social responsibility in the international banking industry", *Journal of Business Ethics*, no. 86: 159–175.

Seifert, B., Morris S.A. & Bartkus B.R. (2004) "Having, giving, and getting: Slack resources, corporate philanthropy, and firm financial performance", *Business & Society*, vol. 43(2): 135-161.

Smith, N. C. (2002) "Arguments for and against corporate social responsibility", In: L. P. Hartman (Ed.), *Perspectives in business ethics*, New York: The McGraw-Hill Companies: 231-236.

Strandberg, C. (2005) "Best practices in sustainable finance", Standberg Consulting, from http://www.corostrandberg.com/pdfs/Sustainable%20Finance%20%20Best%20Practices.pdf.

Stansfield, G. (2006) "Some Thoughts on Reputation and Challenges for Global Financial Institutions", The Geneva Papers, no. 31: 470-479.

Waddock, S. A. & Graves S. B. (1997) "The corporate social performance-financial performance link", *Strategic Management Journal*: 303-319.

Wang Q., Dou, J. & Jia, S. (2015) "A Meta-Analytic Review of Corporate Social Responsibility and Corporate Financial Performance", *The Moderating Effect of Contextual Factors*, vol. 55, no. 8: 1083-1121.

World Economic Forum (2012) "The Role of Financial Services in Society. A Multistakeholder Compact", from http://www3.weforum.org/docs/WEF_FS_RoleFinancialServicesSociety_Report_2013.pdf (20.03.2017).

Yilmaz, B., Yilmaz, O. & Akmese, H. (2016) "The Role of Accounting Information System in Business in Terms of Corporate Governance and Social Responsibility of Accounting in Crisis Periods and a Research", RSEP International Conferences on Social Issues and Economic Studies.

Zyznarska-Dworczak, B. (2016) "Determinanty rozwoju sprawozdawczości niefinansowej w świetle pozytywnej i normatywnej teorii rachunkowości/The Development of Non-Financial Reporting in the Light of Positive and Normative Accounting Theories, Prace Naukowe Uniwersytetu Ekonomicznego (AE) we Wrocławiu, 436: 307-315.

Under-reporting of corporate R&D expenditure in Poland – consequences for verifying possible crowding-out effect of private investment by public subsidies. Evidence from Polish pharmaceutical sector

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Abstract:

Idea: *To address the problem of R&D miss-measurement in pharmaceutical sector due to under-reporting of R&D expenditures. To recognize the implications of R&D under-reporting for evaluation of effectiveness of public innovation policy. One of the most significant criterion in designing efficient innovation policy is based on whether private and public R&D expenditures behave like complements or substitutes (resulting in "additionality" or "crowding-out" effect).*
Data: *Panel data from annual reports of 137 pharmaceutical companies for years 2010-2014 linked with data on patents retrieved from the WIPO database and domestic Patent Office.*
Tools: *Tobit panel analysis with different measurements of the gap between subsides and recognition of R&D expenses.*
What's new? *Three key findings: (1) the lack of R&D expenses in financial statements do not indicate a lack of their R&D outcomes measured by patents, (2) system of support for innovation based on R&D grants with marginal use of tax incentives has not provided incentives to proper recognition of R&D expenditures. (3) Because most beneficiaries of subsidies did not recognized expenses on R&D outcomes, there is a huge problem of evaluation of the crowding-out / crowding-in effect in Poland.*
So what? *The results create foundations for evaluating the effectiveness of public subsidies in inducing additional private investment on R&D.*
Contribution: *Identifying a presence of the "pseudo-blank R&D" in pharma industry. Comparison of R&D expenses with amounts of subsidies show substantial differences. The considerable under-reporting of corporate R&D expenses strongly limits evaluation of effectiveness of public innovation policy.*

Keywords: *R&D, subsidies, crowding-out effect, pharma*

1. Introduction

This paper aims to recognize the implications of R&D under-reporting for evaluation of effectiveness of public innovation policy. We focus on the difficulties with verifying the presence of crowding in/crowding out of private R&D investment by public subsidies, when companies under-report R&D expenditures in their financial statements. Complex and intangible nature of R&D activity imposes serious difficulties in measurement and reporting of R&D. The concern over appropriate

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measuring and disclosing of corporate R&D activity arose from a concern over the influence of R&D outcomes on productivity and economic growth. This problem however cannot be seen in isolation and should be interlinked with several country and sector characteristics.

There is a belief, that corporate R&D expenditures in Poland are underestimated in official statistics due to under - reporting from the companies themselves. The reasons for this kind of behaviour have been recently analysed in DELab Report (2016), which points that companies tend to expense immediately all R&D costs through profit and loss statement and avoid its recognition as intangibles in the balance sheet. This tendency is explained by the influence of tax regulations on accounting policy what is the case for small and medium firms in Poland. Tax law allows to decrease tax base by deducting R&D costs. Furthermore, expensing R&D costs (instead of its capitalization as intangibles) is perceived by some to be more conservative from the accounting perspective (Chandra, 2011).

Measurement problems of corporate R&D are connected with incentives for managers to engage in discretionary R&D reporting. Although there are accounting guidelines for categorizing R&D expenses, this is dependent on subjective and discretionary manager's decision, especially when R&D activity is performed outside R&D department (in regular operational units) or connected with engaging resources used also in other types of firm activity. The other aspect is that companies (especially SME) tend to classify R&D expenditures in other group of costs (i.e. operating costs). In consequence it leads to under-reporting of R&D expenditures in P&L statement and under-reporting of intangibles created on the basis of R&D activity in the statement of financial position.

The issue of under-reporting business R&D expenditures is not only a problem of accounting. The issue is also important for policy makers in terms of fostering R&D investment (Tödtling and Trippl, 2005). Public support for R&D is an area typically identified as a candidate for smart public spending because of its alleged growth effects. But planning and conducting optimal innovation policy-mix require information of corporate expenses on R&D (evidence based policy). One of the most significant criterion in designing efficient innovation policy is based on whether private and public R&D expenditures behave like complements (resulting in "additionality effect") or substitutes (causing "crowding out effect").

Well informed innovation policy is especially required under difficult budgetary conditions, when it is crucial for the government to ensure efficiency of public spending on research and innovation programmes and enhance its leverage over private investment. At present the empirical evidence on the effects of public R&D support on private R&D is vast and rapidly growing, but it yields ambiguous findings. The main methodological difficulties in such evaluation studies relates to: applying econometric method addressing selection problem and measurement of corporate R&D investments. The problems of proper measuring business R&D expenses are also addressed in international empirical literature, which investigates both under- and over- reporting of corporate R&D efforts. The results of the study will contribute to the empirical literature on R&D disclosure and creates foundations for evaluating the effectiveness of public subsidies in inducing additional private investment on R&D.

The paper is organized as follows: section 2 presents the accounting treatment of R&D investments, sections 3 is a selective literature review concerning motivations for under – reporting of R&D, section 4 presents characteristics of pharmaceutical industry in Poland with special focus on its R&D activity, section 5 deals with consequences of miss-measurement of R&D in companies for important questions of innovation public policy. Section 6 describes briefly research sample and design. Finally, we present results of our analyses and conclude.

2. The accounting treatment of R&D investments – review of practices

Today in the world of knowledge economy, R&D and innovations are regarded as a crucial factor for sustainable and high economic growth. This belief is in fact very well grounded in economic theory. On the other hand, innovative investment in R&D are uncertain, intangible and risky in nature and this is connected with difficulties with assigning monetary value to R&D. The determination of appropriate accounting treatment of R&D costs is very important issue in accounting is. One of the most controversial matter connected with R&D accounting is capitalization of R&D expenditures. The accounting dilemma whether R&D outlays should be expensed or capitalized is reflected in different approaches undertaken in accounting standards present in different countries.

According to International Accounting Standards (IAS 38), there is no possibility of recognizing any form of an asset arising from research activities as an asset in the financial statement. All research expenditure shall be recognized as an expense in the income statement when it is incurred. With reference to the development phase costs, an intangible asset shall be recognized under several conditions: (1) the company possess the technical feasibility and adequate resources of completing the intangible asset so that it will be available for use or sale; (2) the company intends to complete the intangible asset so that it can be used or sold; (3) the company is able to use or sell the intangible asset; (4) the company can demonstrate that the intangible assets will generate probable future benefits; (5) company is able to measure reliably the expenditure attributable to the intangible asset during its development.

Polish Accounting Act, which allows for the capitalization of a completed development project, if: (1) product or production technology is clearly defined and related costs are reliably measured; (2) technical usefulness of a product or technology has been determined and documented and on this basis the company has made a decision to manufacture products or implement technology and (3) it is predicted that development costs will be covered with the revenues from the sales of products or implementation of the technology.

It is worth to emphasize that either under IAS or Polish Accounting Act it is up to the management's subjective decision whether to capitalize development costs or not. Both sets of accounting rules give managers considerable flexibility in validation process of recognizing intangible asset arising from development phase. Contrary to these provisions, treatment of development costs under the US GAAP is more conservative. Provisions of SFAS No. 2 Accounting for Research and Development Costs states that all R&D costs shall be expensed in the current period. The only exception to this rule relates to software development costs after establishing technical feasibility for them.

Accounting practitioners, researchers and representatives of regulator institutions are not unanimous when it comes to choosing the most appropriate accounting treatment of R&D expenditures. The choice between capitalization of R&D versus immediate expensing seem to be fundamental not only to firms' owner and managers but also to policymakers and academics, because it is crucial to measure and understand the degree of innovativeness in corporate sector. Capitalization of R&D costs can be justified on the ground of future economic long – lived benefits generated by assets arising from R&D (e.g., Hirschey and Weygandt, 1985; Bublitz and Ettredge, 1989; Ballester *et al.*, 2003). There is also sample evidence that point out that R&D positively influence market value of the company as it indicates the prospects for future growth of the company and information on R&D is very important source of information for the company investors (e.g., Shevlin, 1991; Sougiannis, 1994; Aboody and Lev, 1998; Lev and Zarowin, 1999; Healy *et al.*, 2002; Monahan, 2005). On the other hand, Dinh *et al.* (2016) provide empirical evidence for high intensive R&D German companies that capitalization of development cost does not lead to increase in market value of the company.

Among arguments against capitalization of R&D costs, it is often repeated that R&D is highly risky and any estimation of future profits is not reliable (Kothari *et al.*, 2002) and for that reason accounting approach based on immediate expensing of all costs connected with research activity is usually treated as more conservative.

Besides Nelson *et al.* (2003) state that immediate expensing of R&D increases objectivity of financial statement and prevent against impairment of R&D assets. There is also growing stream of empirical research connected with using discretionary R&D capitalization to real earnings management (e.g. Bushee, 1998; Mande *et al.*, 2000). Assuming short-term perspective of investors in financial markets and the weight they give to accounted earnings, managers may be tempted especially in difficult times to inflate reported accounting earnings, as it is in line with the rise in their employment bonus and stock options they possess. In prosperous times, when firm's financial results are satisfactory, managers may choose to expense R&D and in this way reduce investors' expectations for future profits or smooth earnings (Bange and De Bondt, 1998).

3. Motivations of R&D underreporting – literature review

Apart from the problem of capitalization of R&D expenditures, much more important is whether R&D expenses are reported as separate (category) position, which is possible to differentiate from other kinds of investments or are included in operating expenses. This is the question of disclosing and reporting of R&D expenditures.

R&D is a kind of activity that also requires machinery, employees, buildings, etc., which can be also used in different activities of the company and proper classification of these expenses can be subjective. It is often difficult to assess what outlays can be treated under R&D category and it is often the manager's discretionary decision (Horwitz and Kolodny, 1980). This is the major problem for innovation studies, in particular in research on crowding out effect, but it also blurs the picture of business innovation, impedes the proper evaluation of innovation policy and causes underestimating of country's efforts in all kinds of innovation rankings. Although the issue of disclosing corporate R&D investment is very important, it doesn't seem to attract a lot of interest either from the part of academics or accounting regulatory bodies. However, differences concerning reporting R&D expenditures seem to be large among different countries, sectors and companies. Generally we can differentiate several factors affecting (R&D reporting practices) corporate disclosure of R&D expenditure: (1) general (country) level of financial disclosure and corporate transparency; (2) linkages between accounting and tax in national accounting system (book - tax conformity); (3) presence of R&D tax incentives; (4) system of governance R&D subsidies; (5) influence of recognition R&D outcomes on firm's market value; (6) costs of disclosing R&D activity results; (7) strategic impact of R&D disclosing (competitive disadvantage); (8) firm's size.

In general reporting of R&D expenditures can be considered as a part of broader picture of financial disclosure environment in a given country. It is difficult to define the aggregate level of country's financial disclosure and cross-country differences in this matter, but there has been in literature several attempts to construct comprehensive measures of financial disclosure and corporate transparency e.g. Bushman *et al.* (2004). Another issue can be connected with similarities between system of tax and financial accounting in a country. When these two systems are totally separated, companies may have incentive to disclose R&D for tax reason and these can be missing in their financial reports. The situation will be quite different when there is a strong link between accounting results and tax income.

Usually very important factor influencing reporting R&D costs is presence of tax credit or tax allowance in national system, where companies to be eligible to benefit from tax incentives have to "label" qualified expenses as R&D. Government policy on subsidizing innovative activity may also persuade firms to report its R&D, as government often use "picking – the winner strategy" and chances of being chosen for the grant program decrease when a company did not undertake R&D before.

Stoneman and Toivanen (2001) provide empirical evidence on the relationship between reporting R&D and its influence on company's market value. When firm's innovative efforts are inefficient, then the firm may be tempted not to disclose them and not to reveal unsuccessful investment. Some studies also suggest that firm's managers may exercise discretion in accounting treatment of R&D for earnings management practices. There are also studies on effect of accounting treatment of R&D (immediate expensing vs. capitalization) on the level of investment in R&D. Bushee (1998), Oswald and Zarowin (2007) come to a conclusion that obligatory expensing of R&D leads managers to limit R&D spending to meet performance targets, while R&D capitalization doesn't lead to underinvestment in R&D. This is the case of real earnings management. On the other hand, Seybert (2010) investigates whether capitalization can lead to overinvesting in ineffective R&D projects because abandoning a capitalized project result in asset impairment what creates a negative reporting effect which in turn deteriorate manager's reputation. The more managers held themselves responsible for the project, the greater the effect of real earnings management. But all these mentioned are examples of studies on the determinants of actual level of investment in R&D.

Strong motivation for not revealing R&D expenditure may be also connected with a strategic decision to hide information about high R&D investment from other firms in the industry. Reporting high expenditures on R&D may alarm competitors and affect the competitive advantage (Kafouros, 2008). Investors have difficulties in correctly evaluating R&D activity because of complex nature of R&D, which result in information asymmetry and also limitations in rules of accounting associated with intangible assets. Some authors point out that conventional measures for R&D tend to underestimate the R&D expenditures in small firms, because of both their engagement in developmental rather than fundamental research and smaller degree of formality in the organization of R&D activity, comparing to the large corporations (Roper, 1999).

4. Specifics of pharmaceutical sector in Poland and motivations for under-reporting

In 2014 the total R&D expenditure made by 122 pharmaceutical companies belonging to the most innovative firms in the European Union amounted to 31.9 billion Euros. Most of them were located in the United Kingdom (36), France (19) and Germany (13) (European Commission, 2016). None of the Polish producers who are not a branch of the international concern is not on this list. Polish pharmaceutical industry is created by mainly generic manufacturers. Some companies are working on innovative medicines, but research on new substances and their subsequent commercialization require high financial outlays. In Poland, the pharmaceutical companies benefit from subsidies to investment and innovation and they often operate in special economic zones (among others Polpharma, Adamed and Hasco-Lek).

The pharmaceutical sector includes companies engaged in production in Poland, both companies controlled by Polish investors and branches of international companies that deal in the production of drugs in Poland, as well as the active substances which are components of the drug. Most of the products made by “innovative” pharmaceutical companies are protected by patents, while the “generic” pharmaceutical companies produce drugs based on the solution, which patents have already expired. However, domestic manufacturers are referred to as “generics” invest in research and development more than local branches of international companies. In turn, the "innovative" companies often produce generics in their local plants. Product innovation is not only a completely new substance, but also one which formulation, composition or applications form have been improved. Innovation are also new and improved methods of synthesis of drugs (OECD Eurostat, 2005).

In 2010, 660 employees of “innovative” pharmaceutical companies in Poland worked in research and development departments (PwC, 2011) and in 2014 already 1,077 employees. 46% of companies engaged in pharmaceutical production in 2012-2014 introduced product innovation or process innovation, the most among all industrial sectors in Poland (GUS, 2015). In 2014 internal expenditures of domestic pharmaceutical companies accounted for 7.4% of total spending on research and development, while for innovation 3.1% investment in the industry. Metallurgical, electronic, machine and car industries spend more money for innovation. For comparison, in 2014, pharmaceutical and biotechnology companies outlay on research and development accounted for 18% of industry spending in the EU and 21% in the US. However, in Poland the pharma sector finances the product and process innovations primarily from its own funds (97.1%) and does not use bank loans for these purposes.

In Poland, there are 150 companies that produce pharmaceutical products. Most of them are small and medium-sized enterprises - only 25 of them employ more than 250 people, and there are three firms with more than 1,000 employees (GUS, 2016). Majority of the 30 largest companies in Poland are large international corporations. Only five among them are Polish companies. Most entities with the highest sales, has its production plants in Poland. The value of research equipment used by pharma companies accounted for 15.1% of the total value of this type of equipment in the industry - a larger share had only manufacturing of electrical equipment (21.7%).

In Poland, the majority of biotechnology companies engaged in the development of new drugs ends in a preclinical research phase (Deloitte, 2016). This is due to the high cost of research at subsequent stages, which domestic companies lack the resources. Research and development in biotechnology in Poland is focused in universities. Of the 8.4 thousand people involved in the issues of research and development of this sector, nearly 2.5 thousand are employed by the public sector and private non-profit institutions, and 5.1 thousand in the higher education institutions. Less than 10% of all researchers in the field (about 800 people) is employed in private companies. Biotechnology companies' internal expenditures on research and development accounted for a total of 5% of the total funds allocated in the economy on research and development in 2014. In a situation where the reimbursement policy is based primarily on the criterion of price, the negotiation position of domestic firms in relation to the government (Ministry of Health) is weakened - companies usually decide to lower drug prices, which in turn leads to a reduction in their income. Inside the pharmaceutical industry and, similarly, modern biological therapies industry, there is an increasing competition between companies which have in their portfolio the same substance, especially between Polish companies and international companies (Deloitte, 2015).

5. Potential consequences of miss-measurement of R&D investment for identifying crowding-out effect

One of the most significant issue discussed in empirical literature on research, development and innovation is related with effectiveness of government policy in supporting corporate innovation activities. Although innovation activity is not limited to R&D, it is widely accepted that R&D is the most important part of it. It is stressed that especially R&D performed by corporate sector are especially important factor of economic growth. Firms however tends to under-invest in R&D due to existing market failures. Arrow (1962) relates these market failures to: (1) some public goods characteristics (non-rivalry and non-excludability) of R&D, which result into spill-over effects, (2) incomplete appropriability of R&D returns, (3) capital market failure – due to their intangible nature, R&D activities cannot be used as collateral in loan contracts and as a result external capital for financing R&D activities is insufficient or too costly. Additionally, private R&D investments are highly pro-cyclical (Fung and Lau, 2013). All these reasons create theoretical justification for government intervention in supporting business R&D. Without public support, business R&D would not reach socially optimal level. On the other hand, macroeconomic effects of R&D financial support policies can result in substitution of private expenditure with public expenditure. Crowding out effect is defined as displacement of private economic activity by public activity (Buiter, 1975). The aim of financial instruments of innovation policy is to stimulate additional private investment in R&D resulting in crowding-in effect (additionality). R&D crowding-out is a key concept when evaluating the effectiveness of policy intervention in empirical studies.

As theory alone is not conclusive regarding not only the size but even the direction of the outcome of public R&D funding on private R&D investments and crowding-out hypothesis needs to be verified by empirical studies. At present the literature on the effects of government R&D incentives (both direct in the form of public subsidies and indirect in the form of tax credits/allowances) on corporate R&D activity is vast and rapidly growing.

Possibilities for the effect of subsidy on R&D expenditure (Dimos and Pugh, 2016):

- additionality – the R&D subsidy triggers additional firm financed R&D spending beyond the amount of the subsidy;
- no effect – firms just add the amount of the subsidy to their firm-financed R&D expenditures, which remain unchanged;
- partial crowding-out – a part of the subsidy amount is used in place of own R&D expenses which become less than they would have been spending without the subsidy;
- full crowding-out – when firm-financed R&D expenditures decrease by the full amount of the subsidy;
- over-full crowding-out – when firms decrease firm-financed R&D expenditures by more than the amount of the subsidy.

The review of empirical studies by Alonso-Borego *et al.* (2012) in their survey of 77 empirical studies performed for different countries in years 1960 - 2011 find that results about casual effect of public subsidies on private R&D are mixed, however results supporting the additionality hypothesis prevail (in 63,15% for firm level, 50% for industry-level and 59% for country-level studies). At the same time, they identify the possible reasons for the disparity of results, which are attributed to populations under study, the variable used and the empirical approach. But there are also valuable contributions in favour of crowding-out effect and many studies that provide evidence of negligible influence of subsidization on private R&D. Further analysis is directed to investigate a differentiated influence of R&D subsidies across many dimensions: the amount of grant received (Mariano *et al.*, 2016; Czarnitzki and Lopes-Bento, 2013), presence of R&D tax credit (Mariano *et al.*, 2016), degree of firm's appropriability (Gelabert *et al.*, 2009), interactions among different policy tools (Guerzoni and Raiteri, 2015).

The authors of the studies point out to several limitations to the studies, most of them being connected with methodological approach and access to data (e.g. only dummy variable of public subsidies, short time lag structure). It is surprising however that authors seem to disregard issues connected with problems of measurement of the level of firms R&D. Most recent studies are based on the data from Community Innovation Survey, occasionally enriched by data from other sources, so author use the information from the questionnaire declared by a surveyed enterprise (usually amount of in-house R&D – including current expenditures and capital expenditures on buildings and equipment specifically for R&D).

The indicators (proxies) of innovative activity of corporate sector usually focus on: input measure defined as expenditures on R&D and output measure – number of patents. Usually it is assumed that innovative firms both report R&D and have positive patent activity, however the relations between these two indicators is more complicated and dependent on many other factors. Firms with no patents and reporting any R&D are treated as engaging in zero innovation, while actually they may only not have reported R&D expenditures nor register patents. As Koh *et al.* (2016) state, little is known about the scale and magnitude of missing data innovation problem. They conclude however that undisclosed innovation systematically varies across firms and around the world. Firms that do not report R&D and register patents are not counted as innovative firms, however to assess the correctness of this solution it is necessary to be familiar with the nature of missing data. In practice we can come across four different combination of firm's R&D expenses and patents filed. Two cases do not lead to any serious problems. The first, when at the firm level there are recorded both R&D expenditures and patents – it means that the firm is innovator. The second, when there are no R&D expenditure and no patents – it indicates zero innovative firm. But when the firm does record R&D expenditure, but has not patents – it can mean that its innovative activity is unsuccessful or firm file for patent in alternative patent office. The most interesting is the situation of missing R&D – when the firm does not report R&D but has patents. Koh *et al.* (2016) suggest that these "pseudo-blank R&D" are caused by discretionary reporting choices and structure of firm's activities. Koh *et al.* (2016) find that missing R&D companies have average more patents per firm than their counterparts reporting R&D. Authors claim also that missing R&D varies across countries and on this ground they conclude that R&D are not missing completely at random. This is very important issue in terms of verifying effectiveness of public support for business R&D and providing policymakers with valuable feedback on their actions. This problem also influences the country's position on international innovation rankings.

We imply that the situation of "missing R&D" is also characteristic for pharmaceutical sector in Poland and therefore we are going to verify two hypotheses:

H1: *There is substantial under-reporting of corporate R&D expenditures in Poland, in particular in pharmaceutical companies.*

H2: *Under-reporting of corporate R&D expenditures in Poland (in particular in pharma companies) can influence the evaluation of possible stimulus effect of R&D public support used as a measure of the effectiveness of public innovation policy intervention in empirical studies.*

The aim of financial instruments of innovation policy is to stimulate additional private investment in R&D resulting in crowding-in effect (additionality). Public grants are the most important tool of supporting innovation in Poland. This is however an open question to what extent they induce firms to increase their private R&D spending. Empirical verification of this problem is hampered by missing information on R&D spending, as well as low propensity of Polish firms to protect their knowledge by patent protection.

6. Sample and research design

In order to identify the relationship between public grants and expenditures on research and development activity recognized as an asset in the balance sheet, we use data retrieved from financial statements of pharmaceutical private companies. The data base used for analysis contains 137 non-public limited liability and joint-stock companies' financial statements for the period of 2010-2014 (617 firm-year observations). The explanatory variables based on data from financial statements and data of patents retrieved from the World Intellectual Property Organization (WIPO) database and the patents registered in the Polish Patent Office. We proxy the gap between subsides and recognition of R&D expenses taking into account corporate investments in tangible and intangible assets (based on cash flow from investment activity or the increase of fixed and intangible assets corrected by amortization and depreciation when lack of cash flow statement in the data base). For this purpose, we use the ***invrd*** variable.

In our panel analysis we use functional form of the model proposed by Brown et al. (2009) based on the dynamic optimization of the Euler equation for imperfectly competitive firms that accumulate productive assets with quadratic adjustment cost technology. If firms do not face financing constraints, the model captures the influence of current expectations of future profitability on current investment decisions in fixed assets. To apply the model to R&D, profits are considered as a function of the accumulated stock of R&D scaled by fixed assets. The initial model was dedicated to investments in tangible assets. This explains why we use an extended measure of R&D expenditures. Additionally, net measure that allows to count R&D expenses over grants is commonly used in research on crowding-out/ crowding-in effect. A high number of zero observations resulted in our choice of estimation methods - a right-censored panel tobit analysis for $R\&D_{it} \geq 0.03$.

$$\boldsymbol{R\&D}_{it} = \alpha_0 + \alpha_1 \boldsymbol{R\&D}_{i\,t-1} + \alpha_2 \boldsymbol{R\&D}^2_{i\,t-1} + \alpha_3 savings_{it} + \alpha_4 \boldsymbol{grants}_{it} + \alpha_5 patent_{it} + v_i + \varepsilon_{it}$$

where:

R&D - expenditure on R&D equals to one of the following types of the explained variable:

rdexpen - expenditures on R&D / fixed assets,
rdexpen_net = *rdexpen* - grants recognized in the income statement / fixed assets,
invrd - (expenditures on R&D capitalized in the assets and investments in other intangible assets and tangible assets) / fixed assets,
invrd_net = *invrd* - grants recognized in the income statement / fixed assets,

grants are one of following three different types of the explanatory variable, measured with use of the natural logarithm or scaled by total assets:

grants_pl - grants recognized in the income statement,
grant_balance - subsidies for fixed assets and intangible assets recognized in the liabilities in the balance sheet as value of long-term other deferred income,
grant_balance+p&l - grants recognized in the income statement and subsidies for fixed assets and intangible assets recognized in the liabilities as long-term other deferred income,

control variables: *savings* - corporate cash resources measured by the share of cash and short-term financial assets in total assets. This is a proxy of accumulated cash flows that measures financial constraints;

patent - a dummy variable that takes the value of 1 if a company has got at least one patent registered in the World Intellectual Property Organization (WIPO) or the Polish Patent Office,

v_i - the random effects,

ε_{it} - purely random errors independently of v_i.

Before a tobit panel analysis of the level of expenditures on the R&D activity (with use of different measure: *rdexpen*, *rdexpen_net, invrd*, *invrd_net*), the descriptive statistics of variables have been determined and the correlation coefficients have been estimated (Table 1).

Table 1. **The correlation matrix of explanatory variables used in the tobit panel analyses**

	rdexpen	rdexpen_net	invrd	invrd_net	savings	patent	grants_pl	grant_balance	grant_balance+p&l	grants_pl_a	grant_balance_a	grant_balance+p&l_a
rdexpen	1.000											
rdexpen_net	0.968***	1.000										
invrd	0.206***	0.203***	1.000									
invrd_net	0.180***	0.190***	0.998***	1.000								
savings	-0.052	-0.048	-0.001	0.002	1.000							
patent	0.109***	0.127***	-0.041	-0.040	-0.159***	1.000						
grants_pl	0.131***	0.101**	-0.003	-0.028	-0.182***	0.436***	1.000					
grant_balance	0.093**	0.088**	-0.065	-0.070*	-0.256***	0.367***	0.446***	1.000				
grant_balance+p&l	0.093**	0.086**	-0.049	-0.060	-0.263***	0.367***	0.531***	0.969***	1.000			
grants_pl_a	0.277***	0.148***	0.065	0.006	-0.011	-0.009	0.402***	0.081*	0.163***	1.000		
grant_balance_a	-0.011	-0.016	-0.001	-0.002	0.060	-0.092**	0.025	0.253***	0.242***	0.043	1.000	
grant_balance+p&l_a	0.016	-0.002	0.006	-0.002	0.059	-0.092**	0.064	0.258***	0.256***	0.139***	0.995***	1.000

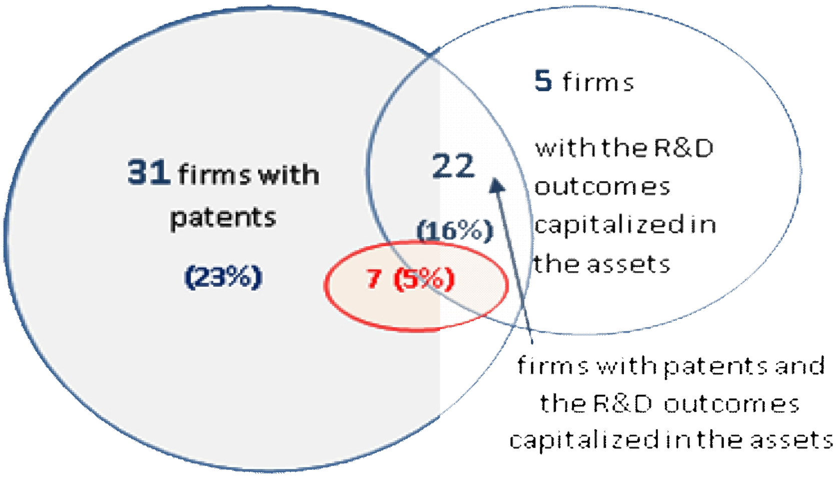
Significant at: *** - 1%, ** - 5%, * - 10%.

(*Source*: Authors' processing)

7. Results

We identify firms that have not disclosed R&D expenses, while their R&D activity resulted in patents. Statistical structure of our research sample identifies that 67% of private companies with patents registered in the Polish Patent Office or/and World Intellectual Property Organization did not recognize the capitalized expenditures on R&D outcomes in the assets (Fig. 1) at least in some years under analysis (31 out of 46 firms with patents). This confirms the hypothesis **H1**, according to which there is substantial under-reporting of corporate R&D expenditures in Poland, in particular in pharmaceutical companies.

Figure 1. **Patent activity versus capitalization of expenditures on R&D outcomes**



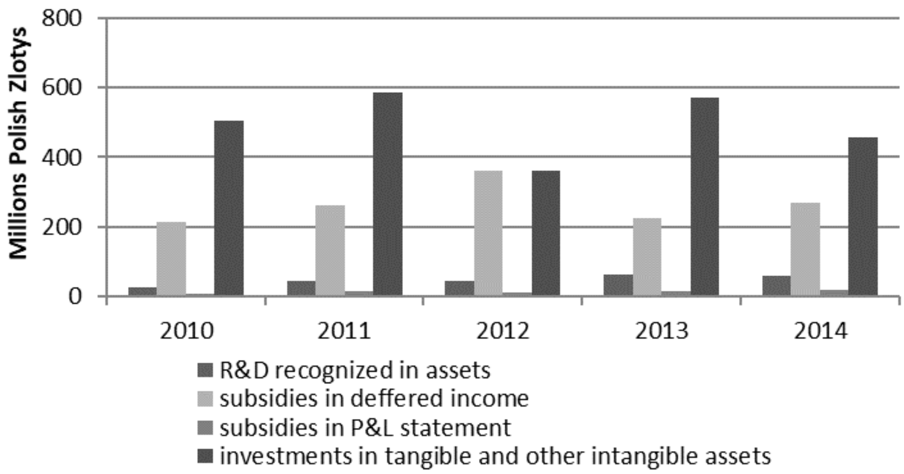
(*Source*: Authors' processing)

We observe 7 firms that have patented their technological breakthroughs while only in some years (not consecutive) recognize expenditures on R&D outcomes capitalized in the assets in the balance sheet. There are only 4% of companies that capitalize expenditures on R&D outcomes, although have not filed patents for their technological breakthroughs.

Pandit *et al.* (2011) observe positive correlations between R&D investment and patent counts and cites. Empirical research in accounting usually recoding the blank R&D fields as firms with zero R&D, while 10.5% of 1,737 NYSE-listed non-reporting R&D firms receive patents, with several of these firms receiving dozens of patents each year. Missing R&D firms with patent activity demonstrate patent filings analogous to the bottom 90–95% of the corporate population with positive R&D expenditures recognized in the financial statement (Koh and Reeb, 2015). On the other hand, not all innovative companies apply for patents (Arundel and Kabla, 1998).

Comparison of R&D expenses capitalized in the assets with amounts of subsidies presented in the profit & loss statement and in the balance sheet shows substantial differences (Fig. 2).

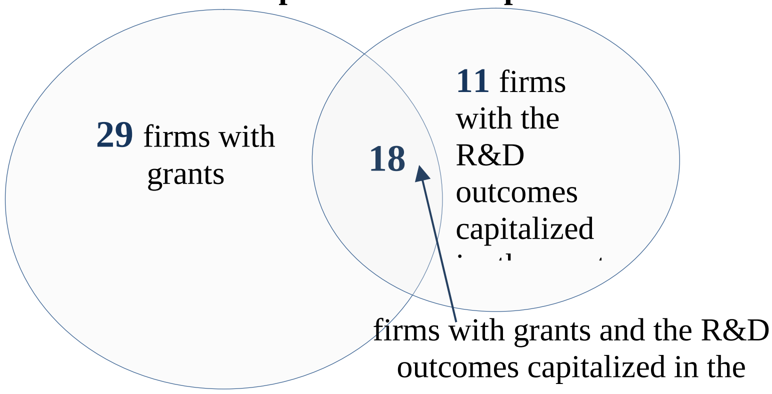
Figure 2. **Comparison of R&D expenses capitalized in the assets with amounts of subsidies**



(*Source*: Authors' processing)

However, when we include also capital expenses on other intangible assets and tangible assets, we could conclude that companies finance their investments from other sources than subsidies. And except 2012, their capital investments exceed total subsidies recognized both in the income statement and the balance sheet. However, Figure 3 discloses that most beneficiaries of subsidies did not recognized expenses on R&D outcomes capitalized in the assets.

Figure 3. **Subsidies versus capitalization of expenditures on R&D outcomes**



(*Source*: Authors' processing)

This explains why we could have a huge problem of evaluation of the crowding-out / crowding-in effect in Poland. The substantial under-reporting of corporate R&D expenditures strongly limits such evaluation and extended research of determinants of corporate expenses on R&D.

The coefficient of the lagged variable of expenditure on R&D is positive, and the lagged variable expenditure on R&D raised to the square is negative (for all models in Table 2 and 3), which is consistent with the results of Brown *et al.* (2009) and Brown and Petersen (2011). The results indicate, that if the company capitalized expenditures on R&D outcomes in a given year, it is likely to have decided to continue spending on R&D activity (and capitalize expenditures on R&D outcomes) in the following periods. The decrease in corporate **savings** determines higher probability of higher expenses on R&D outcomes, which results from the financing R&D activity at least partly by cash resources. Similar conclusions for R&D costs were drawn by Brown *et al.* (2012). However, it is at low 10-15% (or even 20%) level of significance (models for *rdexpen* or *rdexpen_net*). More significant results we could observed for relationship between savings and extended measure of investments in R&D, including also investments in other intangible assets and tangible assets (the *invrd* and *invrd_net* variable in Table 2 and 3). The significant negative relationship indicates the use of cash resources to finance investments in tangible and other intangible assets, including patents.

Our results for narrower measure of expenses on R&D indicate a significant positive role of intellectual property protection (patents) in companies conducting R&D activity. These results are consistent with Pandit *et al.* (2011) and Koh and Reeb (2015). Whereas it is less probably to patenting R&D outcomes among companies with higher investments in other intangible assets and tangible assets (insignificance of patents).

Our findings confirm that the estimated effect of subsidization on the level of expenditures on R&D is influenced by the applied measure of corporate investment in R&D. Because for the narrower measure of expenditures on R&D activity (the *rdexpen* and *rdexp_net* variables) we could observe significant positive relationship with subsidies and grants recognized in the income statement, no matter if we use logarithm transformation (Table 2) or rescaled them by total assets (Table 3). For models with natural logarithm transformation of grants (Table 2), our results indicate positive impact of public grants on private expenditures on R&D, no matter if we include subsidies recognized in the deferred income in liabilities or total subsidies and grants. This could be interpreted as a lack of crowding-out effect. Moreover, for the extended measure of expenditures on R&D activity, which includes investments in other intangible and tangible assets, our findings show crowding-in effect of private R&D investment by public subsidies for two out of three models, while insignificance for revenues from grants recognized in the P&L statement (Table 2).

However, if we consider grants rescaled by total assets (Table 3), we find **the reasons for crowding-out effect** for the narrower measure of expenses on R&D capitalized in the assets and the extended measure of expenditures on R&D activity less grants recognized in the income statement. Our findings disclose crowding-out effect for the model 2, model 3 (however significant only at a low 15% level), and for model 10 (Table 3). Whereas models 1, 4 and 7 show significant positive impact of grants on expenditure on R&D for the grants recognized in the income statement, which indicates rather crowding-in effect of private R&D investment by public subsidies (Table 3).

The rest models show insignificant negative correlation between extended measures of expenditures on R&D and grants recognized in liabilities as long-term other deferred income. We could expect that actual expenditures on R&D activity are higher than the amount recognized in the assets. Because of the under-reporting of the expenses on R&D activity it is very difficult to diagnose the role of subsidization of this kind of innovative activity. Our results show that there is no evidence to reject the **hypothesis H2**. So, we can conclude that under-reporting of corporate R&D expenditures (in particular in pharmaceutical companies) can influence the evaluation of possible stimulus effect of R&D public support used as a measure of the effectiveness of public innovation policy intervention in empirical studies.

8. Conclusions

Our results show that the lack of information of R&D expenses in financial statements of pharmaceutical companies in Poland do not indicate a lack of their R&D outcomes measured by patents. Because we identified firms (67% of our sample) that have not recognized the capitalized expenditures on R&D, while their R&D activity resulted in patents registered in the Polish Patent Office or/and the WIPO. Our results are in accordance with Koh *et al.* (2016) findings that explained presence of the "pseudo-blank R&D" by discretionary reporting choices and specific structure of firm's activities.

Moreover, Koh *et al.* (2016) find that missing R&D companies have average more patents per firm than their counterparts reporting R&D. Next, our findings of comparison of R&D expenses capitalized in the assets with amounts of subsidies show substantial differences. Based on this we could conclude that Poland system of support for innovative pharmaceutical companies, which is based on R&D grants with marginal use of tax incentives until 2016, has not provided incentives to proper recognition of R&D expenditures. Because most beneficiaries of subsidies did not recognized expenses on R&D outcomes capitalized in the assets, we could have a huge problem of evaluation of the crowding-out / crowding-in effect in Poland. The substantial under-reporting of corporate R&D expenses strongly limits such evaluation and extended research of determinants of corporate expenses on R&D in Poland.

Table 2. **Effect of subsidization on the level of expenditures on R&D for different applied measures of corporate investment in R&D with natural logarithm transformation of grants**

	rdexpen	rdexpen	rdexpen	rdexpen_net	rdexpen_net	rdexpen_net	invrd	invrd	invrd	invrd_net	invrd_net	invrd_net
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
rdexpen_lag	0.0882***	0.0828***	0.1410***									
	(0.0172)	(0.0176)	(0.0262)									
rdexpen_lag2	-0.1048***	-0.0991***	-0.1626***									
	(0.0218)	(0.0218)	(0.0324)									
rdexpen_net_lag				0.1249***	0.1261***	0.1275***						
				(0.0461)	(0.0469)	(0.0468)						
rdexpen_net_lag2				-0.1046*	-0.1087***	-0.1102*						
				(0.0614)	(0.0618)	(0.0617)						
invrd_lag							0.0658***	0.0616***	0.0558***			
							(0.0204)	(0.0205)	(0.0202)			
invrd_lag2							-0.0590***	-0.0556***	-0.0508***			
							(0.0180)	(0.0180)	(0.0177)			
invrd_net_lag										0.0483**	0.0391**	0.0382**
										(0.0190)	(0.0189)	(0.0188)
invrd_net_lag2										-0.0452***	-0.0372**	-0.0364**
										(0.0172)	(0.0170)	(0.0170)
savings	-0.0017##	-0.0014#	-0.0022#	-0.0027	-0.0024	-0.0025	-0.0097**	-0.0089*	-0.0087*	-0.0088**	-0.0078*	-0.0079*
	(0.0011)	(0.0011)	(0.0016)	(0.0022)	(0.0022)	(0.0022)	(0.0046)	(0.0047)	(0.0047)	(0.0045)	(0.0045)	(0.0045)
grants_pl	0.0001##			0.0003**			0.00071			-0.0001		
	(0.0001)			(0.0002)			(0.0004)			(0.0003)		
grant_balance		0.0002***			0.0003**			0.0006**			0.0006**	
		(0.0001)			(0.0001)			(0.0003)			(0.0003)	
grant_balance+p&l			0.0002**			0.0003**			0.0009***			0.0006**
			(0.0001)			(0.0001)			(0.0003)			(0.0003)
patent	0.0038***	0.0039***	0.0044***	0.0048**	0.0051***	0.0052***	-0.0033	-0.0029	-0.0039	-0.0003	-0.0032	-0.0032
	(0.0012)	(0.0011)	(0.0015)	(0.0020)	(0.0019)	(0.0019)	(0.0042)	(0.0042)	(0.0043)	(0.0041)	(0.0041)	(0.0041)
_cons	0.0011#	0.0001	0.0002	0.0014	0.0002	0.0001	0.0312***	0.0287***	0.0269***	0.0307***	0.0273***	0.0270***
	(0.0008)	(0.0008)	(0.0012)	(0.0014)	(0.0016)	(0.0016)	(0.0033)	(0.0036)	(0.0037)	(0.0032)	(0.0035)	(0.0035)
Number of obs	420	420	420	420	420	420	418	418	418	416	416	416
Number of groups	124	124	124	124	124	124	124	124	124	124	124	124
Wald test	49.28***	58.02***	57.63***	40.31***	39.45***	39.44***	21.61***	22.14***	27.05***	11.69**	16.64***	16.92***
Log likelihood	1411.3221	1414.0131	1308.2987	1188.8901	1188.7948	1188.699	258.7069	258.8552	261.36782	288.7389	291.0471	291.2023

Likelihood-ratio test	88.12***	84.24***	60.95***	23.49***	22.05***	22.01***	21.95***	23.57***	26.51***	23.42***	26.49***	27.25***

Significant at # 20%, ## 15%, * 10%, ** 5%, *** 1%. Integration method: mvaghermite Integration points 25 Standard errors are given in the brackets below coefficients.

(*Source*: Authors' processing)

Table 3. **Effect of subsidization on the level of expenditures on R&D for different applied measures of corporate investment in R&D with grants rescaled by total assets**

	rdexpen (1)	**rdexpen (2)**	**rdexpen (3)**	**rdexpen_net (4)**	**rdexpen_net (5)**	**rdexpen_net (6)**	**invrd (7)**	**invrd (8)**	**invrd (9)**	**invrd_net (10)**	**invrd_net (11)**	**invrd_net (12)**
rdexpen_lag	0.0911***	0.3691***	0.0946***									
	(0.0170)	(0.0510)	(0.0172)									
rdexpen_lag2	-0.1101***	-0.3979***	-0.1127***									
	(0.0215)	(0.0648)	(0.0219)									
rdexpen_net_lag				0.0948**	0.1115***	0.1109***						
				(0.0374)	(0.0393)	(0.0394)						
rdexpen_net_lag2				-0.0926*	-0.1104**	-0.1095**						
				(0.0506)	(0.0529)	(0.0530)						
invrd_lag							0.0687***	0.0687***	0.0688***			
							(0.0204)	(0.0206)	(0.0206)			
invrd_lag2							-0.0620***	-0.0617***	-0.0614***			
							(0.0181)	(0.0181)	(0.0181)			
invrd_net_lag										0.0521***	0.0479**	0.0481**
										(0.0193)	(0.0189)	(0.0189)
invrd_net_lag2										-0.0478***	-0.0449***	-0.0450***
										(0.0173)	(0.0171)	(0.0171)
savings	**-0.0019***	-0.0028	**-0.0018##**	**-0.0029#**	**-0.0026#**	**-0.0026#**	**-0.0104****	**-0.0099****	**-0.0098****	**-0.0082***	**-0.0087***	**-0.0087***
	(0.0011)	(0.0023)	(0.0011)	(0.0021)	(0.0021)	(0.0021)	(0.0046)	(0.0046)	(0.0046)	(0.0045)	(0.0045)	(0.0045)
grants_pl_a	**0.0171***			**0.0460****			**0.1217***			**-0.0919****		
	(0.0094)			(0.0179)			(0.0638)			(0.0371)		
grant_balance_a		**-0.0033***			-0.0019			-0.0024			-0.0016	
		(0.0019)			(0.0016)			(0.0035)			(0.0034)	
grant_balance+p&l_a			**-0.0013##**			-0.0016			-0.0019			-0.0023
			(0.0009)			(0.0016)			(0.0035)			(0.0034)
patent	**0.0044*****	0.0053	**0.0040*****	**0.0064*****	**0.0060*****	**0.0060*****	-0.0006	-0.0010	-0.0008	-0.0012	-0.0010	-0.0011
	(0.0012)	(0.0018)	(0.0012)	(0.0019)	(0.0019)	(0.0019)	(0.0040)	(0.0040)	(0.0040)	(0.0039)	(0.0039)	(0.0039)
_cons	0.0011#	0.0021##	0.0015*	0.0014	0.0021##	0.0021##	0.0312***	0.0325***	0.0322***	0.0311***	0.0308***	0.0310***
	(0.0008)	(0.0014)	(0.0008)	(0.0013)	(0.0013)	(0.0013)	(0.0033)	(0.0034)	(0.0034)	(0.0032)	(0.0032)	(0.0032)
Number of obs	419	419	418	419	419	418	417	418	417	416	416	416
Number of groups	124	124	124	124	124	124	124	124	124	124	124	124

Wald test	52.08***	100.16***	48.28***	34.85***	29.18***	28.67***	21.04***	17.88***	17.66***	17.57***	11.83**	12.10**
Log likelihood	1407.4483	1131.7879	1402.7682	1221.2788	1218.6777	1214.8474	259.6374	256.9453	257.4370	291.7309	288.7678	288.8956
Likelihood-ratio test	90.01***	6.71***	87.02***	46.83***	41.96***	41.51***	21.96***	21.66***	21.76***	22.93***	23.34***	23.23***

Significant at # 20%, ## 15%, * 10%, ** 5%, *** 1%. Integration method: mvaghermite Integration points 25 Standard errors are given in the brackets below coefficients.

(*Source*: Authors' processing)

References

Aboody, D. & Lev, B., (1998) "The value relevance of intangibles: The case of software capitalization", *Journal of Accounting Research*, vol. 36, no. 3: 161-191

Alonso-Borego, C., Forcadell, F.J., Galan-Zazo, J.I. & Zuniga-Vicente, J.A. (2012) "Assessing the Effect of Public Subsidies on Firm R&D Investment: A Survey", Working Paper no. 12-15

Arrow, K. (1962) „Economic Welfare and the Allocation of Resources to Invention" in: Nelson, R.R. (ed.), *The Rate and Direction of Inventive Activity: Economic and Social Factors*, Princeton NJ: Princeton University Press

Arundel, A. & Kabla, I. (1998) "What percentage of innovations are patented? Empirical estimates for European firms", *Research Policy*, vol. 27, no. 2: 127-141

Ballester, M., Garcia-Ayuso, M. & Livnat, J. (2003) "The economic value of the R&D intangible assets", *European Accounting Review*, vol. 12, no. 4: 605-633

Bange, M. & De Bondt, W. (1998) "R&D budgets and corporate earnings targets", *Journal of Corporate Finance*, vol. 4, no. 2: 153-184

Białek-Jaworska, A., Ziembiński, M. & Zięba, D. (2016) "*Innowacyjność polskich przedsiębiorstw. Działalność badawczo-rozwojowa i współpraca nauki z biznesem*", DELab Report, available on-line at http://www.delab.uw.edu.pl/wp-content/uploads/2016/09/DELabUW_PRB_raport .pdf (30.11.2016)

Brown, J.R., Martinsson, G. & Petersen, B.C. (2012) "Do financing constraints matter for R&D?", *European Economic Review*, vol. 56, no. 8: 1512-1529

Brown, J.R. & Petersen, B.C. (2011) "Cash holdings and R&D smoothing", *Journal of Corporate Finance*, vol. 17, no. 3: 694-709

Brown, J.R., Fazzari, S.M. & Petersen, B.C. (2009) "Financing innovation and growth: Cash flow, external equity, and the 1990s R&D boom", *Journal of Finance*, vol. 64, no. 1: 151-185

Bublitz, B. & Ettredge, M. (1989) "The information in discretionary outlays: Advertising, research and development", *The Accounting Review*, vol. 64, no. 1: 108-124

Buiter, W.H. (1975) "Crowding out and the effectiveness of fiscal policy", Econometric Research Programme, Research Memorandum no. 191, available on-line at http://willembuiter.com/CrowdingOutM191.pdf (05.07.2016)

Bushee, B.J. (1998) "The influence of institutional investors on myopic R&D investment behavior", *The Accounting Review*, vol. 73, no. 3: 305-333

Bushman, R.M., Piotroski, J.D. & Smith, A.J. (2004) "What determines corporate transparency", *Journal of Accounting Research*, vol. 42, no. 2: 207-252

Chandra, U. (2011) "Income Conservatism in the U.S. Technology Sector", *Accounting Horizons*, vol. 25, no. 2: 285-314

Czarnitzki, D. & Lopes-Bento, C. (2013) "Value for money? New microeconometric evidence on public R&D grants in Flanders", *Research Policy*, vol. 42: 76-89

Deloitte (2015) 2016 Global life sciences outlook. Moving forward with cautious optimism, available on-line at https://www2.deloitte.com/content/dam/Deloitte/global/Documents/Life-Sciences-Health-Care/gx-lshc-2016-life-sciences-outlook.pdf (10.11.2016)

Deloitte (2016) Biotechnologia w Polsce. Branżowy punkt widzenia, Warszawa: Deloitte, available on-line at https://ssl.deloitte.pl/people/forms/registration.php?document=83 (05.11.2016)

Dimos, C. & Pugh, G. (2016) "The effectiveness of R&D subsidies: a meta – regression analysis of the evaluation literature", *Research Policy*, vol. 45, no. 4: 797-815

Dinh, T., Kang, H. & Schultze, W. (2016) "Capitalizing Research & Development: Signaling or Earnings Management?", *European Accounting Review*, vol. 25: 373-401

European Commission (2016) *The 2015 EU Industrial R&D Investment Scoreboard*, Brussels, available on-line at http://iri.jrc.ec.europa.eu/scoreboard15.html (04.11.2016)

Fung, T.K.W. & Lau, C.K.M. (2013) “Financial development, economic growth and R&D cyclical movement”, *Journal of Applied Economics and Business Research*, vol. 3, no. 3: 133-145

Gelabert, L., Fosfuri, A. & Tribó, J.A. (2009) “Does the effect of public support for R&D depend on the degree of appropriability?”, *The Journal of Industrial Economics*, vol. 57, no. 4: 736-767

Guerzoni, M. & Raiteri, E. (2015) “Demand-side vs. supply-side technology policies: Hidden treatment and new empirical evidence on the policy mix”, *Research Policy*, vol. 44: 726-747

GUS (2015) *Działalność innowacyjna przedsiębiorstw w Polsce w latach 2012-2014*, Warszawa: GUS, available on-line at http://stat.gov.pl/download/gfx/portalinformacyjny/pl/default aktualnosci/5496/14/2/1/dzialalnosc_innowacyjna_przedsiebiorstw_w_polsce_w_latach_2012-2014.pdf (05.11.2016)

GUS (2016) *Nakłady i wyniki przemysłu w 2015 r.*, Warszawa: GUS, available on-line at http://stat.gov.pl/obszary-tematyczne/przemysl-budownictwo-srodki-trwale/przemysl/naklady-i-wyniki-przemyslu-w-2015,4,21.html (05.11.2016)

Healy, P., Myers, S.C. & Howe, C.D. (2002) “R&D accounting and trade-off between relevance and objectivity”, *Journal of Accounting Research*, vol. 40, no. 3: 677-710

Hirschey, M. & Weygandt, J. (1985) “Amortization policy for advertising and R&D expenditures”, *Journal of Accounting Research*, vol. 23, no. 1: 326-335

Horwitz, B. & Kolodny, R. (1980) “The economic effects of involuntary uniformity in the financial reporting of R&D expenditures”, *Journal of Accounting Research*, vol. 18: 38-74

Kafouros, M.I. (2008) *Industrial innovation and firm performance. The impact of scientific knowledge on multinational corporations*, Cheltenham, UK, Northampton, MA, USA: Edward Elgar

Koh, P.S. & Reeb, D.M. (2015) “Missing R&D”, *Journal of Accounting and Economics*, vol. 60, no. 1: 73-94

Koh, P.S., Reeb, D.M., Sojli, E. & Tham, W.W. (2016) *Measuring Innovation Around the World*, available on-line at http://www.law.northwestern.edu/researchfaculty/searlecenter/events/innovation/documents/Sojli_Measuring_Innovation_Around_the_World.pdf (05.05.2016)

Kothari, S.P., Laguerre, T. & Leone, A. (2002) “Capitalization versus expensing: Evidence on the uncertainty of future earnings from current investments in PPE versus R&D”, *Review of Accounting Studies*, vol. 7, no. 4: 355-382

Lev, B. & Zarowin, P. (1999) “The boundaries of financial reporting and how to extend them”, *Journal of Accounting Research*, vol. 37, no. 2: 353-385

Mande, V., File, R.G. & Kwak, W. (2000) “Income smoothing and discretionary R&D expenditures of Japanese firms”, *Contemporary Accounting Research*, vol. 17, no. 2: 263-302

Mariano, M., Lhuillery, S., Parrotta, P. & Sala, D. (2016) “Additionality or crowding-out? An overall evaluation of public R&D subsidy on private R&D expenditure”, *Research Policy*, vol. 45, no. 9: 1715-1730

Monahan, S. (2005) “Conservatism, growth and the role of accounting numbers in the fundamental analysis process”, *Review of Accounting Studies*, vol. 10, no. 2–3: 227-260

Nelson, M., Elliott, J. & Tarpley, R. (2003) “How are earnings managed? Examples from auditors”, *Accounting Horizons*, vol. 17(Supplement): 17-35

OECD, Eurostat (2005) *Oslo Manual: Guidelines for Collecting and Interpreting Innovation Data*, available on-line at http://www.oecd.org/science/inno/2367580.pdf (04.05.2016)

Oswald, D. & Zarowin, P. (2007) “Capitalization of R&D and the Informativeness of Stock Prices”, *European Accounting Review*, vol. 16, no. 4: 703-726

Pandit, S., Wasley, C.E. & Zach, T. (2011) "The effect of research and development (R&D) inputs and outputs on the relation between the uncertainty of future operating performance and R&D expenditures", *Journal of Accounting, Auditing & Finance*, vol. 26, no. 1: 121-144

PwC (2011) *Wkład innowacyjnego przemysłu farmaceutycznego w rozwój polskiej gospodarki*, Warszawa, available on-line at https://www.pwc.pl/pl/publikacje/pwc_wklad_innowacyjnego_przemyslu_farmaceutycznego_w_rozwoj_polskiej_gospodarki.pdf (10.11.2016)

Roper, S. (1999) "Under-reporting of R&D in small firms: the impact of international R&D comparisons", *Small Business Economics*, vol. 12, no. 2: 131-135

Seybert, N. (2010) "R&D Capitalization and Reputation-Driven Real Earnings Management", *The Accounting Review*, vol. 85, no. 2: 671-693

Sougiannis, T. (1994) "The accounting based valuation of corporate R&D", *The Accounting Review*, vol. 69: 44-69

Stoneman, P. & Toivanen, O. (2001) "The impact of revised recommended accounting practices on R&D reporting by UK firms", *International Journal of the Economics of Business*, vol. 8, no. 1: 123-136

Tödtling, F. & Trippl, M. (2005) "One size fits all? Towards a differentiated regional innovation policy approach", *Research Policy*, vol. 34: 1203-1219

PS14 ROMANIAN CAPITAL MARKET

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Justifications for the modified opinions and for other observations in the audit reports of Romanian listed companies

Costel Istrate

Cultural influence on accounting practices in Romania: Empirical test of Gray's hypotheses

Ammar Zahid

Alina Țaran

Can Simga-Mugan

Thematic manipulation in the letters to shareholders of Romanian listed companies

Maria Silvia Săndulescu

Cătălin Nicolae Albu

Justifications for the modified opinions and for other observations in the audit reports of Romanian listed companies

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Abstract: *The purpose of this descriptive paper is to identify the main justifications of qualified audit opinions and the main observations includes in the emphasis of matter paragraphs from the audit reports of Romanian listed companies on the regulated market of Bucharest Stock Exchange. We analyse a sample of 368 observations-year for the 2011-2015 period, after the exclusion of financial companies. We found that 23.17% of these reports contain a modified opinion and the main explanations relate to the revaluations of fixed tangible assets, to some items concerning the closing inventory and, to a lesser extent, to the going concern matter. In 28% of the reports analyzed, we identified emphasis of matter paragraphs; the main observation is by far related to the going concern.*

Keywords: *Listed companies, audit reports, (un)qualified opinion, justifications, emphasis of matter paragraphs*

1. Introduction

The accounting quality depends on several variables and it translates into several dimensions: earnings management, the timely loss recognition, the value relevance (Paglietti, 2009). In order to diminish certain risks connected to companies' intentions to manipulate accounting data, the way in which companies produce and report such data is subject to external control, performed by an independent professional – the financial auditor. Thus, the quality of the financial information is complemented by the quality of auditing, these two terms being intrinsically linked (DeFond and Zhang, 2014). Literature on auditing-connected topics is very rich; it is the result of various methodologies, and it is of an increasing impact (Andrikopoulos ***et al.***, 2016). As far as articles on audit reports are concerned, the research questions often tackle the audit opinion (with many authors who focus on potential explanations of the modified opinions, most often on the going concern matters). We also find other justifications for the modified opinions, and a lot of other matters that the auditor feels the need to mention, without, however, modifying the opinion.

Our study is essentially descriptive and our goal is to supply an overview of the explanations given by the auditors who express modified opinions on the financial statements of Romanian companies listed on the regulated market. At the same time, we noticed that, in a large number of cases, auditors' opinion is not modified, but the audit report contains observations in the emphasis of matter paragraph on how economic entities produced and presented their financial statements.

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To our knowledge, this study is the first which analyses the justifications of modified audit opinions and observations made by auditors of Romanian companies listed on the Bucharest Stock Exchange (BSE).

The main results of our study demonstrate that, under the circumstances where the Big 4 represent 33.15% of the auditors of the Romanian companies listed on the regulated market, modified opinions in all their forms (qualified opinions, adverse opinion, and disclaimer of opinion), represent 23.17%. We found a whole list of explanations, but the main ones concern the revaluation of fixed assets and problems connected to closing of the financial year matters. As far as observations made in an emphasis of matter paragraph are concerned, 28% of the reports contain them and the main observation are about going concern. These observations, to which explanations of modified opinions are added, turn going concern into the most sensitive and most frequently present topics in auditors' reports on Romanian listed companies.

In what follows, our study includes a literature review of the audit opinion and its main forms – modified and unmodified (section 1), the methodology and the sample (section 2), the main research results (section 3) and conclusions (section 4).

2. Literature review

We have chosen to present the literature review by approaching two aspects: on the one hand, audit reports and audit opinion in the context of auditing quality, in relation to the type of auditor and the type of opinion – markedly modified, and research on audit reports of Romanian companies, on the other hand.

2.1. Audit opinion and audit quality

Literature has established that the main factors which determine auditing quality are the independence of the auditor and his competence (DeAngelo, 1981; Gonthier-Besacier[liii] *et al.*, 2012; DeFond and Zhang, 2014). The most frequently used proxy to measure an auditor's independence is the audit opinion (Garcia-Blandon and Argiles, 2015), to which audit fees are added (DeFond and Zhang, 2014). In fact, it is precisely a modified opinion which suggests such independence. Garcia-Blandon and Argiles (2015) find that the long length of service of the same auditor can damage the latter's independence.

As for the results of the auditing mission, DeFond and Zhang (2014) identify four elements in the literature, which can be used when measuring audit quality:

- the highlighting of significant anomalies in the auditor's work;
- elements connected to the audit's communicative power (especially the going concern opinion);
- the quality of the financial presentation and of measurement indicators (discretionary accruals, quality of accruals, prudence);
- the elements connected to how users perceive the quality of financial information, including its confirmation by auditors (capital cost, the evolution of market price).

2.2. Researches on the audit opinions in the Romanian context

Given the relatively short period of operation of the Romanian financial market (since 1995) and the fact that since 1995, accounting regulations and auditing standards have evolved quite significantly – just like the organisation of the financial auditor profession in Romania[liv] –literature on audit quality in Romania, including on the contents of audit reports and the justification of the auditor's opinion, is not very rich. The organisation which manages the financial auditor profession is the Romanian Chamber of Financial Auditors (CAFR), created in 1999, which adopted the international auditing standards as early as its inception. In fact, this institution took over some of the activities of the members of the accounting professionals' organisation (CECCAR), which led to a period of conflicts between the two structures. The evolution of the number of financial auditors has been very fast, from about 400 in 2000 to approximately 4,000 currently (Fülöp, 2014). One first appreciation made by a member of the council of the Romania Chamber of Financial Auditors is that in audit reports published for Romanian listed companies, there are errors connected specially to form, which should not be present at this level (Botez, 2015). In another register, Păunescu (2015) demonstrates that it is likely that a small local auditor would not fully comply with ISA requirements, but this situation does not have a high impact on the quality of financial statements. In their turn, Feleagă *et al*. (2011) notice that auditors' implication in the promotion of corporate governance is debatable.

As far as the choice of the auditor is concerned, after analysing data from 2013, Jaba *et al*. (2015) found that for Romanian listed companies, there is a significant correlation between the field of activity, territorial distribution, financial performance and the choice of an auditor belonging to the Big 4. Robu and Robu (2015) found that the net income of companies that received an unmodified audit opinion has a significant and positive influence on investors' decisions and that the auditor's belonging to the Big 4 does not count in this context (the study is based on the 2012-2013 financial years for the Romanian listed companies). In their turn, Dobre and Brad (2015) notice (for 2010-2014) that the auditor's belonging to the Big 4 has a positive and significant impact on the value relevance of the Romanian listed companies. Dobre (2016) identifies connections between audit fees and certain corporate governance indicators and the directions of correlations is not always the same as those found in literature (separation between the director and the board president, leverage, type of auditors, existence of an auditing committee, existence of a majority shareholder).

The impact of the financial crisis on the activity of Romanian auditors is analysed by Bunget *et al*. (2014) who find that some consequences of the crisis were: an increase in the auditors' efforts during auditing missions, a significant decrease of audit fees, and an increase in the number of modified going concern opinions.

Robu *et al*. (2016) analyse the effects of auditors' rotation on the relevance of the financial information supplied to users; they find that the rotation of auditors, as it was practiced by Romanian listed companies from 2006 to 2014, influenced the global relevance of financial information, but taken individually, this influence on indicators is not significant.

Toma and Robu (2014) measure the auditor's impact on how Romanian listed companies apply the accounting principle of prudence, and find that this influence can be observed at the level of equity and liabilities, and that companies whose auditor belongs to the Big 4 are much more prudent than the others.

Cordoș and Fülöp (2013) conclude that for the 25 most important capitalisations of the Bucharest Stock Exchange, the auditor rotation has rather negative effects, in terms of independence.

As for the role of the Big 4 in an emergent economy, such as the one of Romania, Albu *et al.* (2011) find that the Big 4 are perceived as having a high level of competence in IFRS, so that they can impose appropriate accounting policies to their clients.

3. Methodology and sample

In our analysis, we focused on audit reports that accompany the financial statements of Romanian listed companies on the Bucharest Stock Exchange (BSE), on the regulated market. The period for which we have available reports is 2011 – 2015. Just like in many other studies, we have eliminated firms whose activities are essentially financial (because of the very different regulations of the financial activities). In Table no. 1, we have described the formation of the sample and the category of auditors. In the analysed audit reports, we identified several variables:

- the type of auditors (Big 4 vs non Big 4): it is frequent in literature to make this distinction (Gonthier-Besacier *et al.*, 2012); DeFond and Zhang cite many articles which argue that the Big 4 ensure better audit quality (through the Big 4's size and attraction for candidates, as well as through their possibilities to train auditors and follow-up their work), yet when it comes to opinions, they diverge on this point[lv];
- the type of opinion: unmodified vs modified (qualified, adverse opinion, disclaimer of opinion);
- the presence in the report of an emphasis of matters paragraph.

All the data were manually collected, starting from annual reports published by Romanian listed companies.

Table 11. **Composition of the sample and auditor category**

Year	***Total listed companies***	***Financial companies***	***Non-financial companies***		***Auditor category***			
			Total	***from which with an audit reports***	***Big 4***		***non Big 4***	
2015 IFRS	82	12	70	**70**	24	34,29%	46	65,71%
2014 IFRS	86	12	74	**74**	25	33,78%	49	66,22%
2013 IFRS	88	12	76	**76**	26	34,21%	50	65,79%
2012 IFRS	88	12	76	**73**	24	32,88%	49	67,12%
2011 RAS	89	12	77	**75**	23	30,67%	52	69,33%
Total	**433**	**60**	**373**	**368**	**122**	**33,15%**	**246**	**66,85%**

(*Source*: Author's processing)

In Table 1 we notice, first of all, that the weight of the Big 4 among the auditors of Romanian listed companies is quite poor when compared to situations in developed countries: an average of 33.15% for a minimum of 30.67% (in 2011) and a maximum of 34.29% (in 2015). Simons and Zein (2016) notice that for developed European countries, the Big 4 cover approximately 75% of the market: from 45% up to 95%; for non-European countries, the figures range between 50% and 90%. In Spain, Garcia-Blandon and Argiles (2015) find 92% of the Big 4 among the auditors of listed companies, for the period 2002-2009.

4. Results and discussions

First, we highlighted modified opinions vs. unmodified opinions identified in the audit reports of Romanian listed companies, by separating them according to the category of auditors: Big 4 vs. non-Big 4 (Table 2).

We can compare these figures with the situation in other countries. In Spain, for instance, Garcia-Blandon and Argiles (2015) found an increase in the percentage of unmodified opinions during the period 2002-2006 (from 80% to 90%), followed by a decrease due to the crisis (towards 82% in 2008 and 84% in 2009). The same authors identified, for 2008 and 2009, a justifiable incidence of more modified opinions, accounted for by the risks connected to the going concern matters. Still in connection to the crisis, Chen *et al.* (2016) noticed that for American banks, auditors became much more prudent for the fiscal years 2008-2009, to the extent that they took lower risks at giving an unmodified opinion for banks which were going to go bankrupt, by comparison to the post-crisis period. For an emergent country like Iran, Mohammad Rezaei *et al.* (2016) noticed a radical evolution of the weight of modified opinions: from approximately 96% in 1999 to 64% in 2010, in the context of the liberalisation of the auditing market. In Portugal, for the fiscal years 2006-2012, Heliodoro *et al.* (2016) find 43.57% modified opinions. In Turkey, in between 2010 and 2013, Yaşar *et al.* (2015) found 10.6% modified opinions.

Table 12. **Unmodified opinion for the Romanian listed companies, by auditor category**

Year	*Total available observations*	*Unmodified opinions*		*From which*			
				Big 4		*non Big 4*	
2015 IFRS	70	53	75,71%	18	33,69%	35	66,04%
2014 IFRS	74	55	74,32%	19	34,55%	36	65,45%
2013 IFRS	76	54	71,05%	18	33,33%	36	66,67%
2012 IFRS	73	48	65,75%	14	29,17%	34	70,83%
2011 RAS	75	58	77,33%	15	25,86%	43	74,14%
Total	**368**	**268**	**72,83%**	**84**	**31,34%**	**184**	**68,66%**

(*Source*: Author's processing)

Lennox (2000) analysed the audit reports of companies listed on London Stock Exchange and found 161 reports with a modified opinion in a sample of 5,441 observations (2.96%, out of which 96 were qualified opinions) and 65 with unmodified opinion but with an emphasis of matters paragraph, explained by some accounting issues or on important uncertainties (among these reports, there are 103 with a going concern opinion).

Still in Spain, in between 2001 and 2008, Abad *et al.* (2015) noticed 12.63% modified opinions (for listed companies). In Italy, for the financial year 2009, there were 87% unmodified opinions, to which were added 8% of other unmodified opinions, but emphasis of matter; in 2012, the total amounted to 92% (Provasi and Riva, 2014).

The situation in Romania, with an average percentage of almost 73%, is quite far from the developed countries for which figures are available, but we can suppose that it is close to certain emergent countries. Unfortunately, it has been impossible for us to find figures for the other ex-communist countries in Central and Eastern Europe.

The type of auditor (the auditor's size) and the opinion represent two categories of variables that are much frequently used to measure auditing quality[lvi] (DeFond and Zhang, 2014). In the case of Romanian listed companies, the weight of modified opinions issued by the Big 4 almost corresponds to approximatively the weight of the Big 4 in the total number of auditors who work for these companies.

For Australia, Carson *et al.* (2016) analysed the audit reports of listed companies between 2005 and 2013, and they noticed a decrease of unmodified opinions from 84.8% (in 2005) towards 64.3% (in 2003), but this decrease is accompanied by an equivalent increase of unmodified opinions accompanied by an emphasis of matter paragraph, from 13% in 2005 to 32.3 % in 2013. Thus, the total of the two is relatively constant, at 96% - 97%, and modified opinions range only between 2% and 4%.

4.1. Modified opinions in the audit reports of Romanian listed companies

According to IAS 705 *Modifications to the opinion in the independent auditor's report*[lvii], "the auditor will clearly express a proper modified opinion on financial statements in the following cases:

(a) the auditor concludes that, based on the audit evidence obtained, the financial statements as a whole are not free from material misstatement; or
(b) the auditor is unable to obtain sufficient appropriate audit evidence to conclude that the financial statements as a whole are free from material misstatements."

Among the audit reports that we were interested in, there are 100 which contain modified opinions (Table 3).

Table 13. **Modified opinions in the auditors' reports for the Romanian listed companies**

Year	***Total available observations***	***Modified opinions***		***From which***			
				Big 4		***non Big 4***	
2015 IFRS	70	17	24,29	6	35,30%	11	64,70%
2014 IFRS	74	19	25,68	6	31,58%	13	68,42%
2013 IFRS	76	22	28,95	8	36,36%	14	63,64%
2012 IFRS	73	25	34,25	10	40,00%	15	60,00%
2011 RAS	75	17	22,67	8	47,06%	9	62,94%
Total	**368**	**100**	**27,17%**	**38**	**38,00%**	**62**	**62,00%**

(*Source*: Author's processing)

In order to be more precise, we should complete the figures provided in Table 3 and add that we found all three types of modified opinions: qualified opinions (87), adverse opinions (6, of which 5 for the same company, for all analysed years) and the disclaimer of opinion (7, for 4 companies). In fact, a modified opinion for a financial year is often followed by another modified opinion, during the following fiscal year. This confirms the conclusion reached by Lennox's (2000), who states that a modified opinion is more likely to be expressed for a company which has already received this type of opinion the previous year, especially in the case when the auditor has been maintained.

In the case of modified opinions, the weight of the Big 4 is more important (38%) than in the total of opinions expressed for Romanian listed companies. This concentration of modified opinions for the Big 4 is, probably, justified by the increased independence associated with this type of auditor.

Even though the number of observations from before the application of IFRS is limited to a financial year and even though it would be risky to generalise, we do notice a significant increase of modified opinions in 2012 (the first IFRS year), in comparison with 2011 (the last year when the RAS – Romanian Accounting Standards were in force); there was a passage from 17 to 25 modified opinions, paralleled by a slight decrease in the number of companies (from 75 to 73). This situation can be explained precisely through the transition to the IFRS, for which Romanian companies had very little time to prepare (the obligation to adopt the IFRS was made public in June 2012, for the financial year[lviii] 2012).

4.1.1. Main justifications of the modified audit opinions

Bunget and Dumitrescu (2012), in a study on opinions given by a local audit company for its clients (approximately 50 entities), find that the main observations written by auditors in their reports are concerned with the compliance with the accounting principle of prudence, followed by the principle of permanence of methods, while observations about the going concern are at a quite limited level (approximately 6.5% of the total observations). Bendovski (2014) identifies 10 main errors noticed by auditors in the accounting of 30 Romanian companies (without specifying if the companies are listed or not and without specifying the frequency of the apparition of these errors): the treatment of the revaluation reserve, the spreading of certain charges/revenues over a larger time-span, the deferred recognition of certain acquisitions /sales of stocks, the compensation of advance payments with supplier liabilities, the presentation of some provisions, the non-disclosure of transactions with related parties, the erroneous cancellation of provisions, the bad recognition of discounts, buy-backs, the delayed update of debts/liabilities in foreign currencies, the omission of recognize impairment of some assets (especially receivables).

In a broader perspective, among the other reasons mentioned in the literature and which justify auditors' modified opinions, we find the following:

- going concern, non-compliance with accounting regulation, impairment of receivables, litigations, uncertainties about the fair value of fixed assets or of other assets (Lennox, 2000);

- going concern, evaluation of assets (including receivables), weaknesses in the internal control system, the first year of mandate, contingencies (Vanstraelen, 2002);
- income tax, non-confirmation of liabilities/receivables, measurement of costs, impairment of receivables, recognition of charges/revenues, contingencies, non-preparation of consolidated financial statements, classification of assets/liabilities, provisions, impairment of inventories, of fixed assets, of financial assets, goodwill, going concern, disclosure on related parties, others (Mohammad Rezaei *et al*., 2016);
- clients' financial difficulties, increasing risks for auditors in case of client's bankruptcy (Bunget *et al.*, 2014);
- problems connected to the recognition of equity (35%), of assets (23%), liabilities (20%) and other elements (22%) – Heliodoro *et al.,* (2016);
- the accounting treatment of goodwill, tax matters (especially connected to criteria of charges deductibility), problems connected to the adjustment of the accounting value of assets and liabilities, the bad accounting recognition of certain charges (Abad *et al.,* 2015).

In the following tables, we have identified the audit reports which contain modified opinions and/or emphasis of matters paragraphs. Because our data come from audit reports over a 5-year period, it seemed useful to us to supply information for the entire sample as well as for each year and to mention, as well, the number of companies concerned by these opinions (following the example of Lennox, 2000). Table 4 shows the main explanations given by auditors when they modify their audit opinion. We only included the explanations which are featured 10 times or more often than that.

Table 14. **Main justifications for the modified opinions in the audit reports of Romanian listed companies**

Justification	*2011*	*2012*	*2013*	*2014*	*2015*	*Total*	*No. of different companies*	*Big 4*	*Non Big 4*
Fixed assets revaluation	5	5	6	5	3	**24**	13	12	12
Accounting for provisions	4	5	4	7	4	**24**	10	9	15
Impairment of receivables	4	4	5	6	4	**23**	13	7	16
Closing matters	5	4	5	5	4	**23**	12	8	15
Cost measurement	3	5	5	6	4	**23**	7	5	18
Impairment of fixed assets	2	3	3	4	6	**18**	9	8	10
Going concern matters	2	3	5	3	5	**18**	7	3	15
Inventories impairment	5	1	2	3	2	**13**	9	5	8
Related parties	4	2	2	2	1	**11**	7	3	8
Deferred taxation			2	3	5	**10**	5	3	7
Others[lix]	17	17	15	15	13	**77**	-	21	56
Total	**51**	**49**	**54**	**59**	**51**	**264**	**-**	**84**	**180**

(*Source*: Author's processing)

The first source of justification for a modified opinion expressed by the auditors of Romanian listed companies concerns the revaluation of fixed tangible and intangible assets[lx], which confirms Bendovski's (2014) results. Istrate (2015) found that a majority of Romanian listed companies use the model of revaluation for property, plant and equipment (PPE), especially for buildings and lands, and that the transition to the IFRS changed this situation only little: from approximately 95% before the IFRS (until 2011) to approximately 82% in IFRS (beginning with 2012). Or, revaluation is a technique which should require the intervention of an external evaluator (which is not always the case, for certain companies in our sample); in addition, the rules followed for the recognition of the revaluation according to the IFRS require more attention after 2012 than before, when the Romanian Accounting Standards (RAS) were in force.

The following three explanations (provisions, impairment of receivables and inventory) are connected precisely to estimations that Romanian listed companies should make, mainly, upon closing. It seems that the procedures applied in this sense by Romanian companies and the implementation of these procedures are not fully aligned to requirements of accounting standards. In fact, there are other explanations that we can assign to the closing procedures.

As far as the number of companies to which explanations apply, one can easily notice that it is often twice lower than the frequency of the apparition of explanations, which suggests that the same explanation is valid at least for two, sometimes for three or more consecutive financial years, for the same company. In the case of going concern, this can be easily explained by the length of the reorganisation process which seeks to improve companies' performance. On the contrary, for the other explanations, beyond two financial years, this observation evinces certain inertia in the application of accounting procedures, a certain reluctance, on the companies' part, to correct data according to auditors' observations[lxi].

The annual distribution of explanations of modified opinions is quite constant (for the total number of explanations, as well as for each individual one), reaching, however, a maximum in 2014. One can therefore conclude that the impact of the change of accounting standards (transition to IFRS in 2012) was not really significant in terms of the justification of modified opinions.

4.1.2. Going concerns opinions in the audit reports of Romanian listed companies

In the literature, a significant weight in the analysis of modified opinions is given to the going concern matters[lxii] and it can be a sign of high auditing quality, but DeFond and Zhang warn us that this can be due to an excessively prudent behaviour of the auditors, so as to avoid litigations which, in their turn, can damage auditing quality. Garcia-Blandon and Argilés Bosch (2016) complete the image of the situation in Spain (which we mentioned earlier) by providing a percentage of approximately 10% (13 out of 135) of going concern opinions among all the modified audit opinions received by the Spanish listed companies, between 2002 and 2010.

With reference to the American context, DeFond and Zhang (2014) state that the going concern opinions are relatively rare and they are exclusively connected to clients in a difficult situation. In another study, DeFond and Lennox (2011) find approximately 17% modified opinions justified by going concern matters, for the case of American companies – the majority of these opinions come from small or medium sized audit companies. The explanation that they give consists in the poor financial health (on average) of the clients of small audit companies. On the other hand, Carson *et al.* (2013) notice – for American companies – that going concern opinions are more frequent for small enterprises – from 20.14% to 42.08%, from 2000 until 2010, for stock-exchange capitalisations lower than $ 75 m – and they drop significantly in direct correlation with the size of capitalisations (a very stable percentage of 0.33%, for capitalisation higher than $ 500 m); for the total number of companies included in their sample, Carson e*t al.* (2013) calculated an increase of the weight of this type of opinion from 9.82% in 2000 to 17.01% in 2010.

In what Romanian listed companies are concerned, explanations of modified going concern opinions are present in only 18 out of 264 reports (6.81%) and they concern only 7 companies, against a yearly average of about 73 companies. But these figures must be completed by observations on continuity present in unmodified reports containing an emphasis of matter paragraph (Table 6). In this paragraphs, explanations based on going concern matters, by far, the most frequent (64 out of 220, that is 29.09%). In certain cases, the going concern observations can look like a modified opinion, as well as like a unmodified opinion, in which aspects connected to going concern are highlighted (for instance, Carson *et al.* 2016). If we take into account this methodology, for the case of BVB, we arrive at a total of 18 + 64 = 82 references to going concern matters in audit reports. In fact, in 3 cases, going concern emerges also in the explanations of the qualified opinion, as well as in the emphasis of matter paragraph, so that the real number of apparitions is 82 – 3 = 79 for the five years included in the analysis. This means that there was an average of 15.8 apparitions per year, for an average number of 73 listed companies: more than 20% of the yearly audit reports contain, on average, an observation connected to the going concern.

Carson *et al.* (2013) quote numerous recent studies which find that the likelihood of receiving a going concern opinion is significantly more limited for the clients of B4. This reasoning is partly confirmed in terms of modified opinions (16.67% in Big 4 reports, in comparison to their total weight of more than 30%), but it does not seem to be so for the explanations for the emphasise of matters paragraph: 39.06% in reports by Big 4 auditors.

We deemed it interesting to identify the change of auditors by companies which received a modified opinion, to check the *opinion shopping* hypothesis and to compare figures with those reported by Lennox (2000). After doing this test, we noticed that for the studied period, there are 16 changes of auditors, followed by a change in the type of opinion[lxiii]. Our results diverge with the proposition put forth by Lennox (2000), in the sense that from among these 16 changes, 10 led to the change of an unmodified opinion towards a modified opinion.

4.2. Emphasis on matters in the audit reports

ISA 706 *Emphasis of Matter Paragraphs and Other Matter Paragraphs in the Independent Auditor's Report* stipulates that "if the auditor considers it necessary to draw users' attention of to a matter presented or disclosed in the financial statements that, in the auditor's judgment, is of such importance that it is fundamental to the users' understanding of the financial statements, the auditor shall include an Emphasis of Matter paragraph in the auditor's report provided the auditor has obtained sufficient appropriate audit evidence that the matter is not materially misstated in the financial statements".

Thus, in the audit reports which are the object of our study, we identified 103 which contain such an Emphasis of Matter paragraph. In Table 5, we calculated the weight of these reports and we also presented the type of opinion which they accompany. One can notice that observations are present in numerous reports with an unmodified opinion, as well as in reports with a modified opinion[lxiv]. However, the tendency goes towards a decreasing presence of such a paragraph in reports with an unmodified opinion. In the literature we found a study by Mohammad Rezaei ***et al.*** (2016) who also identify a large number of auditing reports with an unmodified opinion, but which contain an emphasis of matter paragraphs.

Table 15. **Audit report with an emphasis of matter paragraph, for the Romanian listed companies**

Year	***Total available observations***	***Audit reports containing an emphasis matters paragraph***		***Accompanying***			
				Unmodified opinions		***Modified opinions***	
2015 IFRS	70	26	37.14%	12	46.15%	14	53.85%
2014 IFRS	74	27	36.49%	16	59.26%	11	40.74%
2013 IFRS	76	20	26.32%	10	50.00%	10	50.00%
2012 IFRS	73	10	13.70%	6	60.00%	4	40.00%
2011 RAS	75	20	26.67%	13	65.00%	7	35.00%
Total	**368**	**103**	**27.99%**	**57**	**55.34%**	**46**	**44.66%**

(*Source*: Author's processing)

The main types of observations that the auditors of Romanian listed companies consider to be important to present, because they are essential to the comprehension of financial statements, are centralised in Table 6. In this table, we only included observations that appear more than 10 times, regrouping all others in a single line.

Table 16. **Justification in the emphasis of matter paragraphs from audit report of Romanian listed companies**

Type of observation	***2011***	***2012***	***2013***	***2014***	***2015***	***Total***	***Number of different companies***	***Big 4***	***Non Big 4***
Going concern	12	17	14	13	8	**64**	25	25	39
Restructuring	2	3	7	4	4	**20**	13	2	18
Tax items	4	2	4	4	5	**19**	11	0	19
Related parties	5	1	3	3	4	**16**	10	2	14
Provisions	5	1	3	2	4	**15**	10	3	12
Others[lxv]	9	23	17	20	17	**86**	-	28	58
Total	**37**	**47**	**48**	**46**	**42**	**220**	**-**	**60**	**160**

(*Source*: Author's processing)

The main source of observations is, by far, the going-concern. As we could see earlier in this article, references to this topic is present in the explanations of modified opinions and those present in observations are, together, very numerous and the literature notices this presence in a large number of audit reports analysed for different markets and for different periods. Thus, the aspects related to going concern matters represent the majority of observations, just like in the case of Australia (Carson ***et al.***, 2016). In the case of Belgium, for non-listed companies, Hardies ***et al***. (2016) supply data which allow us to reconstruct the percentage of opinions relative to going concern, which is around 10%. In South Korea, Kim *et al.* (2016) calculate 7.6% opinions which are not modified, but which contain going concern for the listed companies.

If we compare the main explanations of modified opinions and the main observations in the emphasis of matter paragraph, we notice that there are two shared elements: going concern and provisions, that are strongly connected to prudence. This confirms the results of Bunget and Dumitrescu (2012) and of Toma and Robu (2014).

The weight of the Big 4 (27%) in the total observations is slightly lower to their weight in the total distribution of reports between the two categories of auditors, except for going concern observations, for which the Big 4 are more present than in comparison to their weight in the total number of reports.

5. Conclusions

The aim of our study has been to describe how auditors of Romanian listed companies justify modified opinions and the emphasis of matter paragraphs that they include in their audit reports. Therefore, the study is essentially descriptive and its main results show how auditors evaluated the work of the preparers of the financial statements of Romanian listed companies.

Modified opinions and auditors' observations are often used as a proxy for auditing quality. We compared the results from our study with the results declared in other articles in order to attempt to situate the case of Romania at an international level.

The evolution of auditing and accounting in Romania has been rapid and strongly influenced by the international and regional context: the 2007 adhesion to the European Union and the orientation towards the IFRS and ISA, in the early 2000s.

One first observation which particularises the situation of Romania consists in the weight of the Big 4 among the auditors who work for the listed companies: on average, the percentage is only 33.15% during the five years that we analysed[lxvi], by comparison to developed countries, where the Big 4 largely dominate the auditing market of listed companies. The tendency is towards the increase of the role of the Big 4.

After having eliminated entities whose activities are essentially financial, we obtained 368 observations with available audit reports. In all these reports, we found 72.83% unmodified opinions, the remaining 23.17% including modified opinions, of all categories: the most numerous are qualified opinions (87%), but there are also adverse opinions and disclaimer of opinion. The Romanian situation seems far from the average situation on developed financial markets.

In their reports, auditors must supply clear explanations for the modified opinion that they expressed. In the case of Romanian listed companies, the main explanations concern:

- the revaluation of fixed assets, in a context in which most companies revaluate their fixed assets, especially buildings and land, for reasons that are often linked to taxation (Istrate, 2012);
- procedures specific to the closing and financial statement preparation (provisions, impairment of receivables, fixed assets and inventory);
- measurement of costs;
- going concern matters;
- recognition and disclosure of transactions with related parties;
- deferred taxation.

The literature on audit reports contains many references to going concern assumption which, often, represent the main explanation for modified opinions. Yet, for Romanian listed companies, going concern is ranked 7th in the list of explanations of such opinions (18 observations in 264, that is 6.81%). However, we then noticed that going concern is, by far, the first among the observations presented in the emphasis of matter paragraph by auditors who express unmodified opinions. Together, the explanations of modified opinions and the observations in the emphasis of matter paragraph made that the going concern cover more than 20% of the explanations/observations.

In the analysis that we conducted in order to test the opinion shopping hypothesis, we noticed that this hypothesis is not really confirmed in the case of Romanian companies; on the contrary – there are more companies that changed the auditor and which received modified opinions, instead of unmodified opinions before the change.

Emphasis of matter paragraphs are present in 28% of the audit reports that we studied, with a certain tendency to be on the increase. Such paragraphs also occur in reports with a modified opinion, as well as in reports with unmodified opinions. We have already stated that the main observation – far before the second (29.09% versus 9.09%) – is related to the going concern matters, just like in other studies. Other explanations highlight elements connected to the restructuring of companies, to the fiscal aspects of their activity, to related parties and to provisions.

The main limitation of our article is its strictly descriptive character; to this we can add the small size of our sample, and the lack of data for other ex-Communist countries from Central and Eastern Europe. Another limitation of the study, which suggests as many venues for future research – consists in the absence, in our research, of a statistic correlation between the different variables specific to audit reports: length of an auditor’s mandate (and, consequently, the rotation of auditors), audit fees, type of activity, size of analysed companies, shareholder structure, financial performances of entities, evolution of prices on the financial market, leverage, earnings management, evolution of the regulation of auditing and accounting, the control of audit companies, the concentration of audit companies, the analysis of the subsequent situation of companies which went bankrupt and which received or did not receive a modified opinion, the quality control of audit companies, the gender of the audit partner who draws the report.

References

Abad, D., Sánchez-Ballesta, J. P. & Yagüe, J. (2015) "Audit opinions and information asymmetry in the stock market" *Accounting and Finance*, available on-line at http://onlinelibrary.wiley.com/doi/10.1111/acfi.12175/pdf (Consulted on 15.12.2016)

Albu, C., Albu, N., Fekete Pali-Pista, S. & Cuzdriorean Vladu, D. (2011) "The power and the glory of Big 4: a research note on independence and competence in the contexte of IFRS implementation" *Journal of Accounting and Management Information Systems*, vol. 10, no. 1: 43-54

Andrikopoulos, A., Bekiaris, M. Vadasi, C. & Zounta, S. (2016) "International Collaboration in Auditing Research: A Note", *International Journal of Auditing*, vol. 20, no. 1: 66-71

Botez, D. (2015) "Aspects regarding the quality of statutory audit reports", *Audit Financiar*, vol. XIII, no. 3: 82-89

Bunget, O. C. & Dumitrescu, A. C. (2012) "A study on the relationship between audit opinion and accounting principles", *Audit Financiar*, vol. X, no. 5: 6-11

Bunget, O. C., Blindișel, R. G., Dumitrescu, A. C. & Demian, R. (2014) "Financial auditor's reaction to the challenges of the economic crisis", *Audit Financiar*, vol. XII, no. 6: 3-11

Carson, E., Fargher, N. L., Geiger, M. A., Lennox, C. S., Raghunandan, K. & Willekens, M. (2013) "Audit Reporting for Going-Concern Uncertainty: A Research Synthesis", *Auditing: A Journal of Practice & Theory*, vol. 32, suppl. 1: 353-384

Carson, E., Fargher, N. & Zhang, Y. (2016) "Trends in auditor reporting in Australia: a synthesis and opportunities for research", *Australian Accounting Review*, vol. 26, no. 3: 226-242

Chen, F., Lam, K., Smieliauskas, W. & Ye, M. (2016) "Auditor Conservatism and Banks' Measurement Uncertainty durind the Financial Crisis", *International Journal of Auditing*, vol. 20, no. 1: 52-65

Comprix, J. & Huang, H. (2015) "Does auditor size matter? Evidence from small audit firms", *Advances in Accounting, incorporating Advances in International Accounting*, vol. 31, no. 1: 11–20

Cordoș, G. S. & Fulop, M. T. (2013) "Auditor-client tenure analysis and its effect on auditor independence", *Audit Financiar*, vol. XI, no. 9: 3-11

DeAngelo, L. E. (1981) "Auditor size and audit quality", *Journal of Accounting and Economics*, vol. 3, no. 3, 183-199

DeFond, M. & Lennox, C. S. (2011) "The effect of SOX on small auditor exits and audit quality", *Journal of Accounting and Economics*, vol. 52, no. 1: 21-40

DeFond, M. & Zhang, J. (2014) "A review of archival auditing research", *Journal of Accounting and Economics*, vol. 58, no. 2-3: 275-326

Dobre, F. & Brad, L. (2015) "A Research Regarding the Influence of Financial Audit and of Corporate Governance on Value Relevance", *Audit Financiar*, vol. XIII, no.11: 116 -126

Dobre, F. (2016) "Interdependencies between corporate governance and financial audit: evidence from Romanian Stock Echange", *Audit Financiar*, vol. XIV, no. 2: 206-216

Feleagă, N., Feleagă, L., Dragomir, V. D. & Bîgioi, A. D. (2011) „Corporate governance in emerging economies. The case of Romania", *Theoretical and Applied Economics*, vol. XVIII, no. 9: 5-16

Fülöp, M. T. (2014) "A comparative study regarding the evolution and perspectives of the financial audit market in Romania and Hungary", *Audit Financiar*, vol. XII, no. 3: 12-20

Garcia-Blandon, J. & M. Argiles, J. (2015) "Audit firm tenure and independence: A comprehensive investigation of audit qualifications in Spain", *Journal of International Accounting, Auditing and Taxation*, vol. 24, no. 1: 82-93

Garcia-Blandon, J., & Argilés-Bosch, J. M. (2016). "Audit partner tenure and independence in a low litigation risk setting", *Accounting in Europe*, vol. 13, no. 3: 405-424

Gonthier-Besacier, N. & Hottegindre, G., Fine-Falcy, S. (2012) “Les facteurs d’influence de la qualité de l’audit: perception des préparateurs”, *Comptabilité - Contrôle – Audit*, vol. 18, no. 2: 33-72

Hardies, K., Breesch, D. & Branson, J. (2016) “Do (fe)male auditor impair audit quality? Evidence from going-concern opinions”, *European Accounting Review*, vol. 25, no. 1: 7-34

Heliodoro, P. A., Carreira, F. A. & Lopes, M. M. (2016) “The change of auditor: The Portuguese case”, *Spanish Accounting Review*, vol. 19, no. 2: 181-186

Istrate, C. (2012) “Impact of IFRS on Romanian accounting and tax rules for fixed tangible assets”, *Journal of Accounting and Management Information Systems*, vol. 11, no. 2: 243-263

Istrate, C. (2015) “The persistence of the accounting policies after the transition to IFRS of the Romanian listed companies”, *Journal of Accounting and Management Information Systems*, vol. 14, no. 4: 599-626

Jaba, E., Robu. I. B. & Balan, C. (2015) “Statistical evidence on the selection decision of financial auditors, in the case of Romanian listed companies”, *Audit Financiar*, vol. XIII, no. 4: 59-71

Lennox, C. (2000) “Do companies successfully engage in opinion shopping? Evidence from the U.K.”, *Journal of Accounting and Economics*, vol. 29, no. 3: 321–337

Mohammad Rezaei, F., Mohd-Saleh, N., Jaffar, R. & Hassan, M. S. (2016) “The Effects of Audit Market Liberalisation and Auditor Type on Audit Opinions: The Iranian Experience”, *International Journal of Auditing*, vol. 20, no. 1: 87-100

Müllerová, L., Paseková, M., Strouhal, J., Deaconu, A., Knapová, B. & Dvoraková, D. (2011) “Auditing of SMEs: issues caused by international harmonization of financial reporting (from Czech perspective)”, *International Journal of Mathematical Models and Methods in Applied Sciences*, vol. 3, no. 5: 517-524

Paglietti, P. (2009) “Earnings management, timely loss recognition and value relevance in Europe following the IFRS mandatory adoption: evidence from Italian listed companies”, *Economia Aziendale*, vol. 4: 97-117

Păunescu, M. (2015) “The quality of independent auditors’ report – is it room for improvement?”, *Audit Financiar*, vol. XIII, no. 10: 61-68

Provasi, R. & Riva, P. (2014) “The assessing of going concern for the Italian listed companies: relevance and implications”, *Global Conference on Business and Finance Proceedings*, vol. 9, no. 1: 435-443

Robu, I. B.& Robu, A. M. (2015) “Statistical Analysis of the Audit Opinion Influence on the Value Relevance of the Financial Information Reported by the Romanian Listed Companies”, *Audit Financiar*, vol. XIII, no. 11: 73-81

Robu, I. B., Grosu, M. & Istrate, C. (2016) “The effect of the auditors’ rotation on the accountig quality, in the case of Romanian listed companie sunder the transition to IFRS”, *Audit Financiar*, vol. XIV, no. 1: 65-77

Simons, D. & Zein, N. (2016) “Audit Market Segmentation – The Impact of Mid-Tier Firms on Competition” *European Accounting Review*, vol. 25, no. 1: 131-154

Toma, C. & Robu, I. B. (2014) “Study on the role of financial auditing to ensure the conservatism in financial reporting”, *Audit Financia*r, vol. XII, no. 9:1-16

Vanstraelen, A. (2002) “Auditor economic incentives and going-concern opinions in a limited litigious Continental European business environment: empirical evidence from Belgium”, *Accounting and Business Research*, vol. 32, no. 3: 171-186

Yao (Troy), D. F., Percy, M. & Hu, F. (2015) “Fair value accounting for non-current assets and audit fees: evidence from Australia”, *Journal of Contemporary Accounting & Economics*, vol. 11, no. 1: 31-45

Yașar, A. Yakut, E. & Gutnu, M. M. (2015) “Predicting qualified audit opinion using financial ratios evidence from the Istanbul Stock Exchange”, *International Journal of Business and Social Science*, vol. 6, no. 8: 57-67

Cultural influence on accounting practices in Romania: Empirical test of Gray's hypotheses

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Abstract: *The efforts of convergence and reform of worldwide accounting diminished diversity of standards and practices, but the influence of environmental factors causing diversity still persists. The aim of this paper is to study the relationship between national culture and current financial reporting practices of Romanian listed companies, by testing Gray's hypotheses (1988), using confirmatory factor analysis and structural equation modelling. Through an originally revised set of proxies for measuring cultural and accounting dimensions, this study reveals that cultural dimensions change over time, and the accounting practices as well. It also proves that only seven out of the thirteen relationships defined by Gray have significant values for Romanian culture of the last twenty years, three of them confirming Gray's theory and four contradicting it. This research helps to a better understanding of current accounting practices in Romania and provides support for drafting expectations regarding the influence of culture on accounting practices and changes in Romanian accounting system in the future.*

Keywords: *Accounting values, accounting practices, cultural dimensions, Gray's theory, structural equations modelling*

1. Introduction

Research has shown that accounting follows different patterns in different parts of the world. There are many explanations for these differences in accounting systems and values, ranging from behavioural aspects of accounting professionals, social and economic systems, political and legal systems, environmental effects, and other factors (Nobes and Parker, 2010; Choi and Meek, 2011). As long as they persist, diversity in accounting practices persists and affects relevance of financial information. Culture is one of the core environmental factors which define national system and shapes the accounting framework within a country, its influence being considered significant even in current financial reporting practices (Nobes and Parker, 2010; Akman, 2011; Choi and Meek, 2011). Gray (1988) linked these two aspects and developed a set of hypotheses regarding accounting values of a country derived from its cultural dimensions. Numerous studies reviewed and tested Gray's theory, especially for developed countries, with contradictory results and intensively debated critics. Due to its important role in developing and understanding accounting practices, cultural influence needs to be further explored (Doupnik and Tsakumis, 2004). To the best of our knowledge, this is the first empirical test of Gray's hypotheses for Romanian accounting system, by measuring both the cultural

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dimensions and accounting values based on an originally revised set of proxies, and the first attempt to clarify the reliability of this theory on Romanian setting. A previous study (Olimid and Calu, 2006) tested Gray's hypotheses for the case of individual practices of Romanian accountants with the focus on determining the values that characterize accounting in Romania. Olimid and Calu (2006) measured the professional preferences of accountants via a questionnaire at two moments in time, 1999 and 2005, but they did not estimate and take into account the cultural changes over time. By using a special designed set of proxies to measure the cultural dimensions and accounting values, the present study explores the evolution of Romanian culture in the post-communism period until nowadays and its effect on accounting practices of listed companies, during 1995-2015 period. This approach adds several contributions to the accounting and behavioural literature, and to business environment as well. First of all, it applies Gray's theory to a unique context, an old communist developing country which faced a time of reforms on its transition to capitalism and democracy, a period with intensive political, economic and technological changes. Mixed with globalisation effect, these events strongly impacted personal and professional lives of people, their liberties, social values, well-being, lifestyle, work conditions and business practices. Second, this study can be illustrative for whole Central and Eastern European region, these countries sharing similarities in their history and development pattern. Third, the accounting regime from Romania faced numerous changes over the 1990-2015 period, from monist to dualist system, convergence to European Directives and partial IFRS adoption. Thus, it is expected that Romanian accounting values might change as well. Forth, this study estimates and describes actual accounting values that guide financial reporting practices of Romanian listed companies, and provides evidences for a better understanding of these practices. Furthermore, the entire methodological approach, ranging from dataset selection to analysed period and advanced statistical methods, made this paper novel and inspiring for further research.

Considering the well-known scores of Hofstede's cultural dimensions and Gray's theory, Romanian accounting system is supposed to be characterized by statutory-control, uniformity, conservatism, and secrecy. These features are presented also in the literature, with evidences of changes over time (Olimid and Calu, 2006). Due to increased informational exposure, internationalization, technological development, IFRS adoption and other influences, it is expected that corporate reporting practices evolved and currently tend to reflect more professionalism, transparency, and a diminished level of uniformity or conservatism. However, results of this study show inconclusive results regarding the complete validity of Gray's theory for Romania, but indicates that the level of accounting conservatism and secrecy are directly related to cultural dimensions. A detailed presentation of Hofstede's cultural dimensions, Gray's hypotheses and literature review is covered in section 2. Methodological approach and data selection are explained in section 3, whereas the empirical findings are summarised in section 4. The paper ends with conclusions and recommendations for future research.

2. Theoretical background and hypotheses development

With the development of multinational corporations and emerging global financial markets, interest in studies analysing the differences in accounting systems across the world have been increased. Nowadays, worldwide accounting practices face a significant reform by extended international adoption of International Financial Reporting Standards (IFRS) elaborated by International Accounting Standards Board (IASB) (Zimmermann and Werner, 2013). However, influence of environmental factors on shaping of accounting patterns cannot be denied even after application of same standards (IFRS). It is recognized that countries distinguish themselves by specific preferences for certain measurement methods or disclosure, and thus they differently valuate the applicable reporting standards (Braun and Rodriguez, 2014).

2.1. Hofstede's cultural dimensions

There are many studies, from different fields of research, which try to explore the influence of culture on behaviour and social systems. One of the most famous studies with respect to the cultural dimensions was conducted by Hofstede, who mapped out four dimensions of a national culture: individualism, power distance, uncertainty avoidance and masculinity (Hofstede, 1980). Later on, he defined two more dimensions, long term orientation and indulgence (Choi and Meek, 2011). Other attempts of replicating Hofstede's approach lead to a varying number of cultural dimensions with diverse interpretations. For the purpose of our study, and an accurate understanding of Gray's hypotheses, we test only the influence of the original four cultural dimensions proposed by Hofstede (1980) on the accounting values. Also, it was assumed that all the other dimensions are derived from the originals and interconnected with them. Individualism reflects the preference of society for stand-alone activities, involvement and weak relationships, whereas collectivism reflects close contacts and common involvement on the benefit of the group. Power Distance refers to the degree of equivalence in a society, high-power distance reflecting low equivalence and vice versa. Uncertainty Avoidance expresses the attitude towards unfamiliar events. Masculinity reflects the dominance of power, competition, and difference between gender roles, in opposition with feminine society, which is more focused on quality of life and relationships (Hofstede, 1980). In addition to these, long term orientation reflects the attitude towards future and the way it shapes current activities. It may be considered an extension of uncertainty avoidance dimension, expressing the attitude towards risks. Indulgence expresses the willingness to gratitude of society and the individual desire to leisure and fun. In this study, it was assumed that indulgence dimension can be considered a sub-component of masculinity dimension, connected with the quality of life characteristics of society.

2.2. Cultural influence on accounting: Gray's hypotheses

Besides its multiple implications, culture influences development of accounting systems and financial reporting practices of companies. This idea was firstly launched in 1960s, initially without clear methodological frameworks to identify and link accounting practices to cultural characteristics of a society (Doupnik and Tsakumis, 2004). Gray (1988) proposed a set of hypotheses to explain international differences in accounting based on Hofstede's cultural dimensions. He considered accounting system as a subculture which has its own values derived from social values and its institutional consequences, as following:

- *Professionalism versus Statutory Control* which contrasts the liberty of professional judgment and the involvement of professionals in standard-setting to prevalence of legal requirements, issued and enforced by governmental authorities;

- *Uniformity versus Flexibility* which expresses the attitude towards prescriptive and uniform requirements among companies, and the preference for applying the same methods in time, contrary to the option of adjustments based on the specific circumstances of the firms;
- *Conservatism versus Optimism* which defines the attitude towards risk, future events and valuation of financial position and performance of the firm;
- *Secrecy versus Transparency* which characterises the preference for confidentiality versus openness to disclosure financial information about the firm.

On the basis of the aforementioned accounting values and previous research, Gray (1988) defined the following hypotheses:

H1: *The higher a country ranks in terms of individualism and the lower it ranks in terms of uncertainty avoidance and power distance then the more likely it is to rank highly in terms of professionalism.*

H2: *The higher a country ranks in terms of uncertainty avoidance and power distance and the lower it ranks in terms of individualism then the more likely it is to rank highly in terms of uniformity.*

H3: *The higher a country ranks in terms of uncertainty avoidance and the lower it ranks in terms of individualism and masculinity then the more likely it is to rank highly in terms of conservatism.*

H4: *The higher a country ranks in terms of uncertainty avoidance and power distance and the lower it ranks in terms of individualism and masculinity then the more likely it is to rank highly in terms of secrecy.*

All the expected relationships between cultural dimensions and accounting values, as derived from Gray's hypotheses, are summarised in **Table 1**.

Table 1. **Cultural dimensions – accounting values theoretical relationships**

Hofstede's Cultural Dimensions	Gray's Accounting Values			
	Professionalism	Uniformity	Conservatism	Secrecy
Power distance	Negative	Positive	----	Positive
Individualism	Positive	Negative	Negative	Negative
Masculinity	----	----	Negative	Negative
Uncertainty Avoidance	Negative	Positive	Positive	Positive

(*Source:* Authors' projections)

2.3. Cultural influence on accounting: literature insights

During the time, Gray's hypotheses were empirically tested for different countries or regions, using various methods, and with mixed results. There are studies which found a positive link between all cultural dimensions and accounting values (Eddie, 1990). Others found significant positive association in some purposed hypotheses and negative for rest of the hypotheses (Gray and Vint, 1995; Salter and Niswander, 1995;

Sudarwan and Fogarty, 1996; Zarzeski, 1996). Contrarily, some researchers found no significant relationship in the Gray's theoretical framework (Wingate, 1997; Jaggi and Low, 2000; Hope, 2003; Noravesh *et al.*, 2007). With respect to methodology, early researchers used simple correlation tests while later, regression models and structural equation modeling were applied. Review studies regarding researches related to Gray's theory and cultural influence on accounting were conducted by Chanchani and MacGregor (1999), followed by Doupnik and Tsakumis (2004), and more recently, by Khlif (2016). As they indicated, the stream of literature did not refer only to accounting systems, but covered and inspired various aspects of accounting related domains, such as financial reporting, auditing, individual accountants' behaviour, taxation and others. Numerous critics of Hofstede's and Gray's theory (Heidhues and Patel, 2011), and the previous contradictory results warn about the environmental and institutional constraints which should be considered on future research (Heidhues and Patel, 2011). Thus, single-country analysis may illustrative for capturing contextual aspects. Sudarwan and Fogarty (1996) analysed Gray's hypotheses with the help of proxy variables data from Indonesia, and found a significant relationship between cultural and accounting values. Noravesh *et al.* (2007) applied the same methodology for Iranian culture and their results do not support Gray's theoretical framework. These contradictory evidences are surprising, taking into account the similarities between their research, but reflect the considerable contextual differences between the two countries. The present study intends to explore the same methodological approach and to refine it, in order to test Gray's hypotheses in a different jurisdiction, Romania.

2.4. Romanian culture

Romanian societal values are inevitable linked to its history. The most representative events that marked the destiny of the country in the recent period are the switch from communism to democracy, after 1989, and the membership to European Union, since 2007. Hofstede's scores for cultural dimensions (Hofstede et al., 2010) characterize Romania as a country with high power distance (score 90), high uncertainty avoidance (score 90) and intermediate long-term orientation (score 52), low individualism (score 30), low masculinity (score 42) and low indulgence (score 20). These values can be mainly explained by the communist influence which imposed a strict hierarchy among people and authoritarian relationships in society. Economical activities were centralized and planned, and family was the only source of trust (Brancu *et al.*, 2015). However, times have changed and Romanian population was exposed to cultural values of European and other countries as well (Van den Berg, 2015), having granted democratic values. Thus, it is expected that Romanians became more independent and individualistic, oriented to success and facing market and individual competition (Van den Berg, 2015). They might still prefer authority and formalization of rules and procedures, being averse to risks, but taking into account the mix of generations, raised in the two different political systems, the actual societal values might have changed (Brancu *et al.*, 2015; Van den Berg, 2015).

2.5. Romanian accounting system: overview

Romanian accounting system was exposed to the same influences as its culture. After 1990, accounting legislation in Romania was firstly inspired by France model, and from 1999, by EU Directives, for small companies, and by IAS/IFRS model, for large companies (Olimid and Calu, 2006; Ionașcu *et al.*, 2014; Istrate, 2016). Strongly connected to taxation regulation, accounting information was initially prepared mainly for public authorities, and not publicly available (Olimid and Calu, 2006). In 2005, new regulations clarified which entities can apply IFRS voluntarily and which are the public entities that have to apply IFRS for consolidation since 2007, or earlier (Olimid and Calu, 2006; Istrate, 2016). From 2012, IFRS were imposed also for individual financial statements of financial and listed companies (Ionașcu *et al.*, 2014; Istrate, 2016). As a member of European Union, Romania adopted IFRS for the financial reporting of public companies and its national accounting regulations are in accordance with EU Directives. Studies reveal that Romanian economic environment is open to international standards and optimistic about their potential, although there are compliance issues and institutional factors that can diminish their benefits (Albu and Albu, 2012; Ionașcu *et al.*, 2014). Some empirical results have documented already an increase in transparency and in value relevance of financial information and a decrease in the cost of capital of public companies which apply IFRS for their financial reporting (Ionașcu *et al.*, 2014; Mironiuc *et al.*, 2015; Mironiuc and Huian, 2016).

3. Data and methodology

Cultural dimensions and accounting values are theoretical concepts without direct measures. Following existing literature, we proposed a set of proxy variables to define cultural and accounting values, specific to Romanian context. Their selection is based on theoretical support and logical judgement, and mainly refines the previous studies of Sudarwan and Fogarty (1996) and Noravesh *et al.* (2007). The set of proxies for cultural dimensions is summarised in **Tables 2** and **3**, with data retrieved from World Bank website and Romanian National Institute of Statistics Tempo-online database.

Table 2. **Selected proxies for Power Distance and Uncertainty Avoidance**

Cultural aspects	Proxies	Explanations
Power distance (PD)		
Use of modern technology*	**P1** Internet users (per 100 people)	high values = low Power Distance
Degree of urbanization**	**P2** Urban population (% of total)	high values = low Power Distance
Attention to education**	**P3** Adult literacy rate of population over 15 years old (%)	high values = low Power Distance
Uncertainty Avoidance (UA)		
Investment policy*	**U1** Gross fixed capital formation (% of GDP)	high values = low Uncertainty Avoidance
Orientation to future finances*	**U2** Gross savings (% of GDP)	high values = high Uncertainty Avoidance
Economic stability of the country*	**U3** GDP growth (annual %)	inconsistent values = low Uncertainty Avoidance

** Refined from Sudarwan and Fogarty (1996) and/or Noravesh et al. (2007)*
*** As proposed by Sudarwan and Fogarty (1996) and Noravesh et al. (2007)*
(*Source:* Authors' projections)

Low hierarchy or equalities among individuals are favoured by easiness of communication and access to information, which facilities the contact within people;

their living conditions, which may discriminate or bring people on a decent societal standard; and level of education, which reflect people's intellectual abilities and potential. Regarding the attitude towards uncertainty, the expectations and attitude towards future reflect the level of risk taken by society. It was assumed that level of investments and savings vs expenditures shows the behaviour of population towards future uncertainty. A high level of investments is understood as risk taking attitude, whereas high savings were considered a sign of fear and conservatism. Moreover, economic stability of the country may be interpreted as a reflection of risk reactions of population.

Table 3. **Selected proxies for Individualism and Masculinity**

Cultural aspects	Proxies	Explanations
Individualism (IND)		
Family institution*	***I1** Rate of divorce (per 1000 persons)*	high values = high Individualism
	***I2** Marriage Rate (per 1000 persons)*	high values = low Individualism
Attention to education*	***I3** Total student enrolment, Bachelor degree (% of total population)*	high values = high Individualism
Masculinity (MvF)		
Social protection and healthcare*	***M1** Health expenditure (% of GDP)*	high values = low Masculinity
Gender roles*	***M2** Difference between employment ratio of male vs female population*	high values = high Masculinity
Society welfare*	***M3** GNI per capita, PPP (current international $)*	high values = low Masculinity

** Refined from Sudarwan and Fogarty (1996) and/or Noravesh et al. (2007)*

(*Source:* Authors' projections)

Tendency of autonomy, or on contrary, dependence to a group, can be observed by the attitude towards family and education. Preference for marriage and a low divorce rate express desire of inclusion and collectivism. However, as it was believed nowadays, education may increase independence of people, providing more liberties and enhancing individualism. Attitude towards other people, towards competition and welfare are considered signs of masculinity or feminism dominance in society. High level of healthcare was assumed characteristic to a feminist society, which priorities are life conditions, protection and social relationships. Significant differences between gender roles and pressure for financial gains were considered most likely specific to a society dominated by masculinity values.

For validity of our selection and grouping of cultural dimension proxies, an exploratory factor analysis was conducted. It mainly confirmed the distribution of proxies per each cultural dimensions, as proposed. Although, the meaning of estimates prevailed in designing our model.

Accounting values were estimated based on firm-level practices according to applicable regulations and standards. The selected proxies are presented in **Table 4**.

Table 4. **Selected proxies for accounting values**

Variables	Explanations
Professionalism (Prof)	
AV1** Type of Auditors	Ratio of Big4 audited financial statements in total audited financial statements of listed companies (%)
AV2** Audit Opinion	Ratio of companies with unqualified audit opinion in total listed companies (%)
***AV3** Accounting Regulation applied**	Ratio of companies applying IFRS in total listed companies (%)
Conservatism (Conv)	
***AV4** Market to Book Ratio**	Accounting policy on asset measurement
***AV5** Earnings per Share to Market Returns Ratio**	Accounting policy on income measurement refined from Basu's asymmetric timeliness measure of conservatism (Khan and Watts, 2009)
Secrecy (Secr)	
***AV6** Disclosure of Balance Sheet related items**	Percent of supplemental items disclosed in total supplemental items disclosed
***AV7** Disclosure of Income Statement related items**	
Uniformity (Uni)	
***AV8** Changes in consolidation method**	Percent of changes of consolidation method from one financial period to another
***AV9** Changes in cash-flow reporting method**	Percent of changes of cash-flow reporting method from one financial period to another
***AV10** Ratio of companies applying indirect cash-flow reporting method**	Cross-firm uniformity in cash-flow reporting

** Refined from Sudarwan and Fogarty (1996) and/or Noravesh et al. (2007)*
*** As proposed by Sudarwan and Fogarty (1996) and Noravesh et al. (2007)*
(*Source:* Authors' projections)

It was considered that auditors' notoriety and opinion can measure the professional judgement involved by financial reporting requirements. As Chen *et al.* (2016) stated, Big Four auditors are viewed as being more objective and experienced, and less influenced by cultural factors. Besides that, IFRS effect was separately considered, due to its novelty and implications for each reporting entity. Following Sudarwan and Fogarty (1996), Noravesh *et al.* (2007), and Khan and Watts (2009), conservatism was defined by firm's policies on assets and income measurement, by taking into account their fair value representation and timeliness recognition. Tendency of voluntary disclosure of detailed items in financial statements of a company was assessed in order to express the secrecy or transparency practices in financial reporting. In addition, the applied methods and the consistency of reporting certain aspects based on the same method or policy reflect the uniformity of accounting practices between and within reporting entities.

Even the cultural and accounting dimensions are theoretically defined separately, the interactions between their estimated proxies need to be also considered (Sudarwan and Fogarty, 1996). In estimating the accounting values, IFRS adoption has a key role which influences all the four dimensions identified by Gray (1988). Except its significance in expressing accounting professionalism as opposite to statutory-control, IFRS adoption is expected to led to less conservatism and more transparency (Braun and Rodriguez, 2014), and maybe less uniformity.

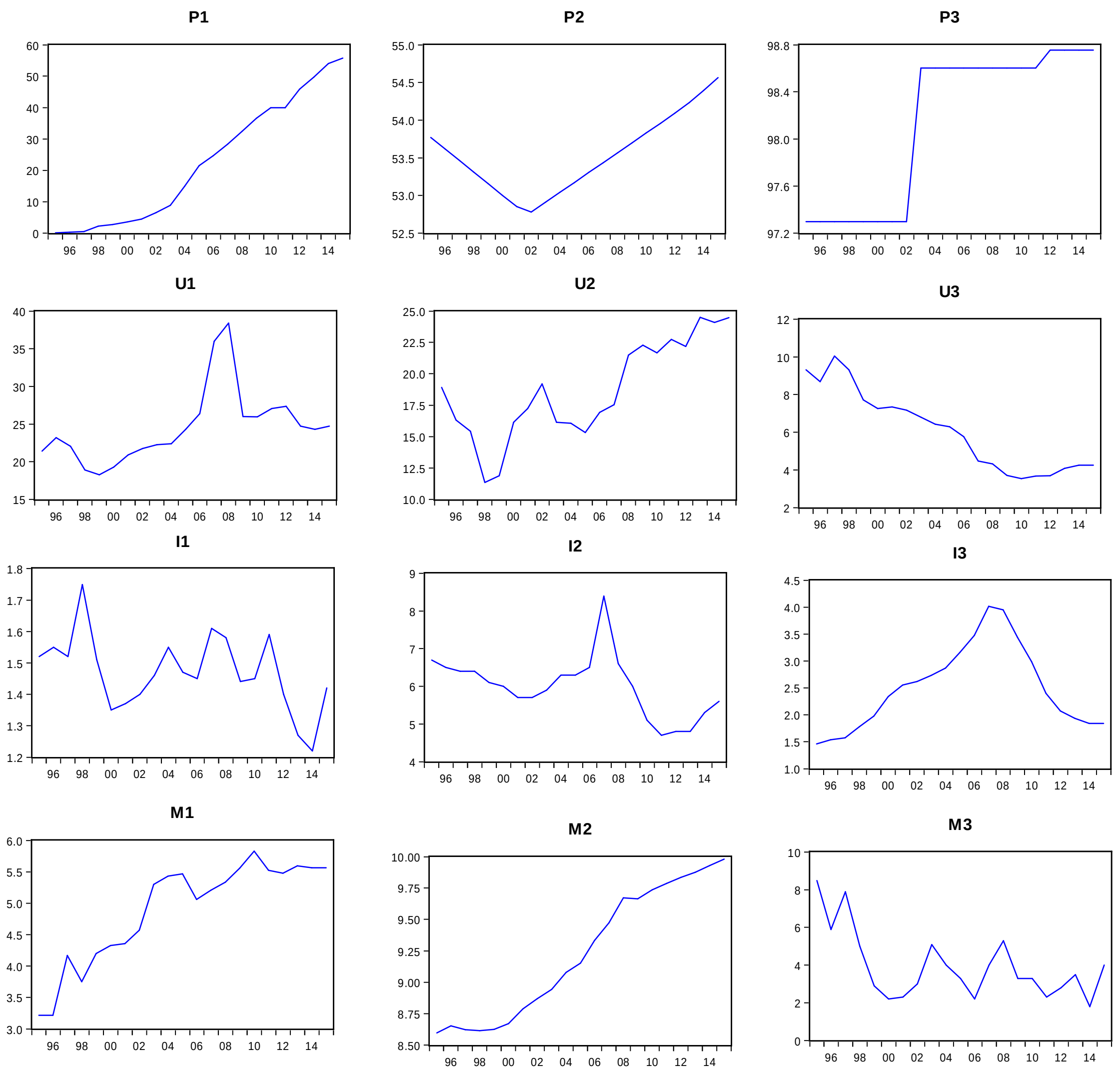
Data for proxies of accounting values was mainly extracted from Thomson Reuters Eikon database. It refers to companies listed on the regulated segment of Bucharest Stock Exchange (BSE) during the 1995-2015 period. This time framework covers the overall functioning period of BSE after its re-opening in 1995 due to Romanian transition to market economy. However, for some proxies, data was missing for initial years. The missing values were estimated according to the expectation-maximization (EM) algorithm (Muthen and Muthen, 1998).

This study used confirmatory factory analysis (CFA) and structural equation modelling (SEM) techniques as recommended for analysing phenomenon that cannot be directly measured, such as cultural dimensions and accounting values, and testing the theoretical relationships between them (Schreiber ***et al.***, 2016). Besides CFA, which is mainly a confirmatory technique and tests the reliability of observed variables, SEM can have also exploratory applicability and permits the extension of tested relationships. By examining the covariation among the proxy variables that can be observed, the estimates of the unobserved or latent variables are determined (Schreiber ***et al.***, 2016). A short description of CFA and SEM methodology can be found in Schreiber et al. (2016). The estimates were conducted in IBM SPSS and AMOS statistical software, version 24. The SEM analysis considered cultural dimensions as independent variables and accounting as dependent variables, according to Gray's hypotheses. Moreover, interactions between proxy variables were considered.

4. Results

Descriptive and graphical analyses of data reveal that values of selected proxied changed over time, following a specific trend, as illustrated in Figure 1. This indicates that both, cultural dimensions and accounting values are changing on the long-run, in line with findings of Sudarwan and Fogarty (1996) or Olimid and Calu (2006). Thus, a visible increase in the usage of modern technology, urbanization rate and literacy rate indicate that Romanian society is characterized nowadays by a lower power distance then 20 years ago. On contrast, it seems that risk acceptancy maintained low, but Romanian economy is more stable, oriented to investments and savings. Although divorce rate decreased considerably, population seem divided between those who tend to be individualistic and those who seek for benefits of collectivism. Level of healthcare services, gender employment gap and individual income indicate that Romania is a more feminine society.

Figure 1. **Evolution of selected proxies for cultural values in Romania, during 1995-2015**

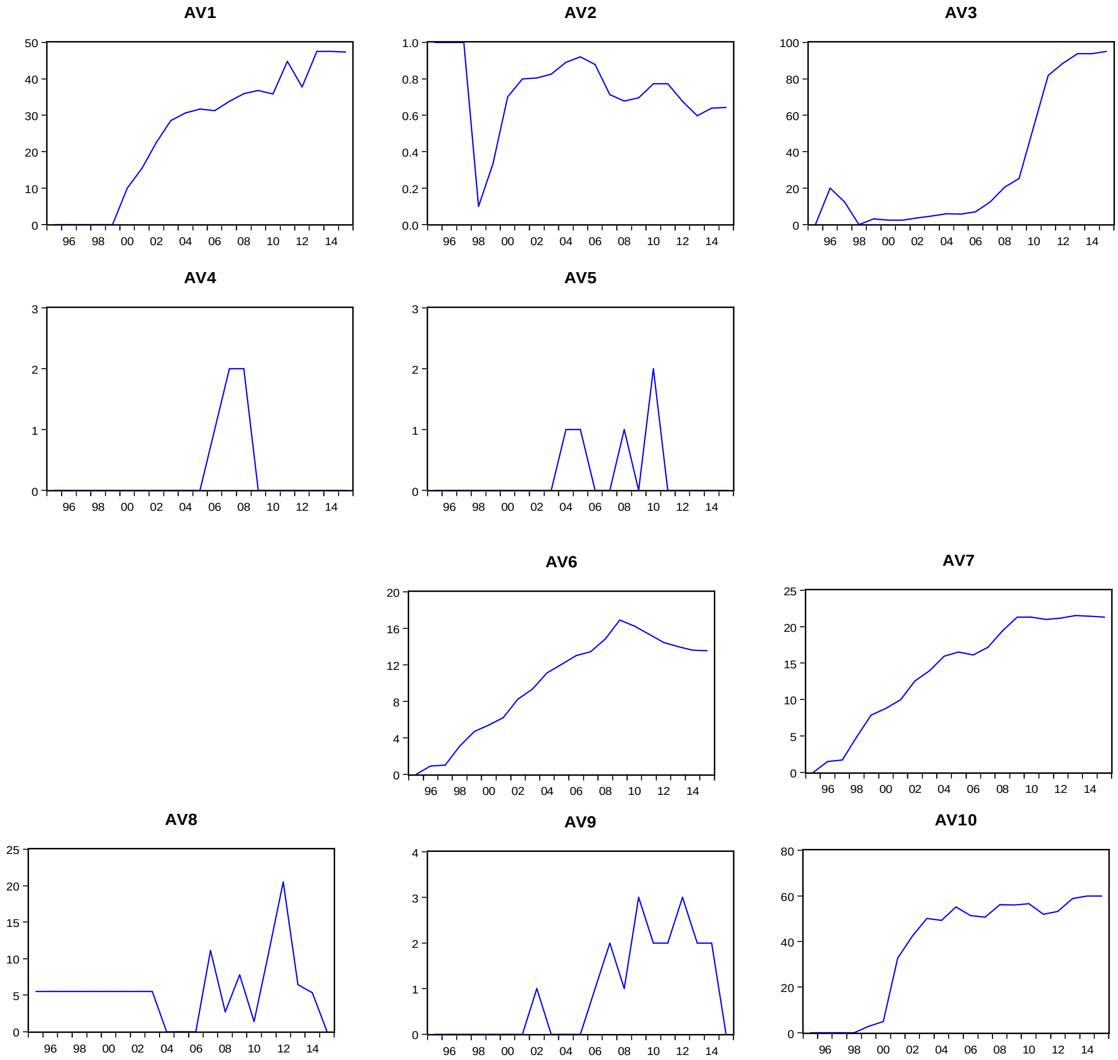


Note: *P1 represents the Ratio of Internet usage, P2 Urbanization rate, P3 Literacy rate, U1 Gross fixed investment rate, U2 Savings, U3 Changing rate in GDP, U4 Ratio of national defensive budget, I1 represents Divorce rate, I2 Marriage rate, I3 Higher education rate, M1 Ratio of healthcare budget, M2 Gender employment, M3 Individual revenue.*

(*Source:* Authors' projections)

As shown by Figure 2, the analyses of accounting practices over time reveal that Romanian accounting tend to be characterized by a higher professionalism, as estimated based on the increased ratio of Big Four audit among listed companies and IFRS adoption. However, we need to be limited in our supposition due to the slight diminish of the ratio of unqualified audit opinion. The level of conservatism varied as well, but its fluctuations are inconclusive. Moreover, the preference for disclosure visible increased, which means that Romanian accounting became more transparent, confirming the findings of Olimid and Calu (2006). The number of changes in applied methods reflect and the increasing number of companies which present their cash-flow according to indirect method show that an intermediate level of uniformity describes Romanian accounting practices. However, the accounting values need to be understood as linked with changes in legislation, which can limit the options for applicable methods or can increase the risk of errors, due to the lack of guidance or learning time needed for compliance with new regulations.

Figure 2. **Evolution of Romanian selected proxies for accounting values, during 1995-2015**



Note: *AV1 represents Type of Auditors, AV2 Audit Opinion, AV3 Accounting Regulation applied, AV4 Market to Book Ratio, AV5 Earnings per Share to Market Returns Ratio, AV6 Disclosure of Balance Sheet related items, AV7 Disclosure of Income Statement related items, AV8 Changes in consolidation method, AV9 Changes in cash-flow reporting method, and AV10 Ratio of companies applying indirect cash-flow reporting method.*

(*Source:* Authors' projections)

As data is collected from various sources and includes binary data, ratios and also scale variables, it is important to check the normality assumptions before applying CFA and SEM. Shapiro-Wilk normality test was applied and results, not reported here, shows that our variables have mixed distribution. Only few variables have normal distribution. Therefore, the selected estimation approach for CFA and SEM analyses was SFLS (scale free least squares). The results of the measurement model determined through confirmatory factor analysis conclude that proxies used for power distance, individualism and masculinity influence accounting values. Similarly, proxies which represent financial accounting practices have positive regression weights for the values of conservatism, secrecy, and uniformity. The value of the model fit tests are indicated in **Table 5**. Goodness of fit index (GFI) for CFA and adjusted GFI show that our model is fitted well. However, Root means squares

(RMR) and Standardized RMR values are not up to benchmark standards and limit the interpretation of our findings.

Table 5. **Goodness-of-fit statistic indicators**

Statistic	Scores(CFA)	Scores(SEM)
GFI	0.176	0.207
Adjusted GFI	0.065	0.067
RMR	72.310	67.03
NFI	0.042	0.078
Standardized RMR	0.506	0.4965

(*Source:* Authors' calculations)

Estimations of regression coefficients of SEM are presented also in **Table 6,** in comparison to estimates for CFA. For instance, a positive loading of 1.756 of uncertainty avoidance on conservatism indicates a positive relationship between uncertainty avoidance and conservatism in Romania. This result is in accordance with the Gray's hypothesis which mentions that greater uncertainty avoidance leads to a greater conservatism.

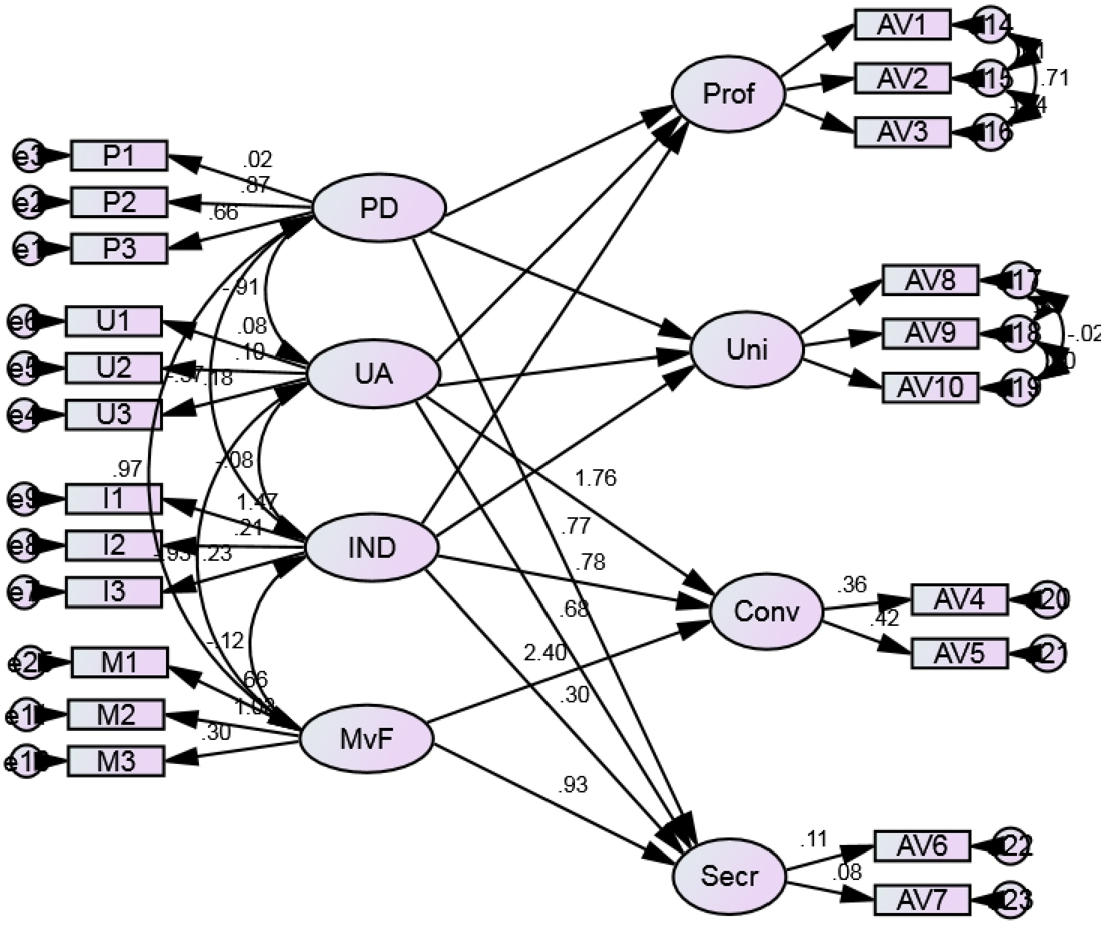
Table 6. **Estimations of SEM and CFA coefficients**

			SEM(β)				CFA(β)
Conv	<---	UA	1.756	P3	<---	PD	0.647
Conv	<---	IND	0.783	P2	<---	PD	0.85
Conv	<---	MvF	2.403	P1	<---	PD	0.022
Secr	<---	PD	0.767	I3	<---	IND	0.238
Secr	<---	UA	0.677	I2	<---	IND	0.224
Secr	<---	IND	0.302	I1	<---	IND	1.558
Secr	<---	MvF	0.926	M3	<---	MvF	0.224
P3	<---	PD	0.662	M2	<---	MvF	0.774
P2	<---	PD	0.87	AV8	<---	Uni	0.394
P1	<---	PD	0.023	AV9	<---	Uni	1.683
U3	<---	UA	0.185	AV10	<---	Uni	0.075
U2	<---	UA	0.1	AV4	<---	Conv	0.322
U1	<---	UA	0.08	AV5	<---	Conv	0.373
I3	<---	IND	0.225	AV6	<---	Secr	1.151
I2	<---	IND	0.212	AV7	<---	Secr	0.855
I1	<---	IND	1.474	M1	<---	MvF	0.497
M3	<---	MvF	0.299				
M2	<---	MvF	1.034				
AV4	<---	Conv	0.36				
AV5	<---	Conv	0.417				
AV6	<---	Secr	0.106				
AV7	<---	Secr	0.079				
M1	<---	MvF	0.664				

(*Source:* Authors' calculations)

The Structural Equation Model applied for testing Gray's hypotheses for Romania is presented in Figure 3.

Figure 3. **Structural Equation Model for the test of Gray's Hypotheses in Romania**



Note: P1 *Ratio of Internet usage*, P2 *Urbanization rate*, P3 *Literacy rate*, U1 *Gross fixed investment rate*, U2 *Savings*, U3 *Changing rate in GDP*, I1 represents *Divorce rate*, I2 *Marriage rate*, I3 *Higher education rate*, M1 *Ratio of healthcare budget*, M2 *Gender employment*, M3 *Individual revenue*, AV1 *Type of Auditors*, AV2 *Audit Opinion*, AV3 *Accounting Regulation applied*, AV4 *Market to Book Ratio*, AV5 *Earnings per Share to Market Returns Ratio*, AV6 *Disclosure of Balance Sheet related items*, AV7 *Disclosure of Income Statement related items*, AV8 *Changes in consolidation method*, AV9 *Changes in cash-flow reporting method*, and AV10 *Ratio of companies applying indirect cash-flow reporting method.*

(*Source:* Authors' projections)

The summary of the SEM results compared with Gray's hypotheses are presented in **Table 7.** Partially in line with Gray's hypotheses, SEM results show that in Romania, power distance and uncertainty avoidance are positively related with accounting secrecy, and uncertainty avoidance also have a positive relation with accounting conservatism. However, individualism and masculinity have also a positive relationship with secrecy and conservatism, this being contradictory to Gray's hypotheses. Thus, out of the thirteen hypotheses proposed by Gray (1988), the current study found consistent evidence only for three hypotheses and contradictory evidence for four. For the rest of hypotheses, there were found no evidences for Romanian setting, this revealing the power of contextual factors.

Table 7. **Results of tests of Gray's hypotheses**

Hofstede's cultural dimensions	Gray's Accounting Values							
	Professionalism		**Uniformity**		**Conservatism**		**Secrecy**	
	H1	SEM	*H2*	SEM	*H3*	SEM	*H4*	SEM
Power distance	Negative	-	Positive	-	----	-	Positive	0.767
Individualism	Positive	-	Negative	-	Negative	0.78	Negative	0.302
Masculinity	----	-	----	-	Negative	2.4	Negative	0.926
Uncertainty Avoidance	Negative	-	Positive	-	Positive	1.76	Positive	0.677

(*Source:* Authors' projections based on Gray (1998) and Hofstede (1980))

Our results partially support some of the previous studies as well. Salter and Niswander (1995) analysed data of twenty-nine countries and confirmed only six hypotheses, such as significant positive associations between uncertainty avoidance and conservatism, uniformity, and secrecy, and negative associations between uncertainty avoidance and professionalism, masculinity and uniformity, individualism and secrecy. Sudarwan and Fogarty (1996) investigated Indonesian data and similar to our study, they found significant positive associations between uncertainty avoidance and conservatism, respective secrecy. Moreover, they reveal other significant relationships as well. Jaggi and Low (2000) analysed three common law and three code law countries, and tested the secrecy hypothesis finding positive evidence for the code law countries. For Romania, as a code law country secrecy hypothesis apply under the influence of social equality and attitude towards risk. Noravesh *et al.* (2005) analysed Iranian market and found positive evidence only for eight of Gray's hypotheses, among which only one confirmed also by our study, the positive association between power distance and accounting secrecy. The case of Romania, with all the cultural and accounting changes over time, indicates that there may be other factors which mediates or partially overcome the influence of culture on accounting practices.

5. Conclusions

This study aimed to test the influence of culture on accounting practices from Romania, according to Gray's theory (1988), within an original approach. The cultural and accounting values were estimated by proxy variables which reflect national and firm-level characteristics. Distinguishing by the applied methodology and the covered horizon of time, this research led to surprising results. Our findings reveal that cultural and accounting values change over time and this may determine the inconsistency of theoretical frameworks regarding the linkage between the two dimensions. Confirmatory factor analysis and estimated structural equation model show that seven out of thirteen hypotheses have significant results, three confirming Gray's theory and four contradicting it. Financial reporting practices in Romania seem to be strongly related to conservatism and secrecy dimensions, as explained by the society's attitude towards uncertainty and authorities. These findings suggest to national and international standard-setters, auditors, investors and other stakeholders that Romanian companies tend to report with prudence their figures, and are not oriented to extended disclosures. Furthermore, our results highlight the key role of contextual setting in analysing national and international accounting dimensions, and the proposal of proxies for Hofstede's cultural dimensions and Gray's accounting values can be useful in future behavioural research in accounting field. However, the main limitations of this research are the small sample size and data availability constraints. Further studies may overcome these limitations and extend the analysis to a longer period of time or different countries.

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References

Akman, N.H. (2011) "The Effect of IFRS Adoption on Financial Disclosure: Does Culture Still Play a Role?", *American International Journal of Contemporary Research*, vol. 1, no. 1: 6-17

Albu, N. & Albu, C.N. (2012) "International Financial Reporting Standards in an Emerging Economy: Lessons from Romania", *Australian Accounting Review*, vol. 22, no. 4: 341-352

Brancu, L., Svala, G., Gligor, D. & Munteanu, V. (2015) "Is Culture a Moderator of Entrepreneurship Motivation? A Comparative Study of Romania and Iceland", *Amfiteatru Economic*, vol. 17, no. 38: 133-147

Braun, G.P. & Rodriguez, R.P. (2014) "Using Gray's (1988) Accounting Values to Explain Differing Levels of Implementation of IFRS", International Journal of Accounting and Financial Reporting, vol. 4, no. 2: 104-136

Chanchani, S. & MacGregor, A. (1999), "A synthesis of cultural studies in accounting", *Journal of Accounting Literature*, vol. 18: 1-30

Chen, T.T.Y., Zhang, F.F. & Zhou, G.S. (2016) "Secrecy Culture and Audit Opinion: Some International Evidence", *Journal of International Financial Management & Accounting*, DOI: 10.1111/jifm.12057 (20.02.2017)

Choi, F.D.S. & Meek, G.K. (2011), *International Accounting*, *Seventh Edition*, Upper Saddle River: Prentice Hall

Doupnik, T. S. & Tsakumis, G. T. (2004) "A Critical Review of Tests of Gray's Theory of Cultural Relevance and Suggestions for Future Research", *Journal of Accounting Literature*, vol. 23: 1-48

Eddie, I.A. (1990) "Asia Pacific cultural values and accounting systems", *Asia Pacific International Management Forum*, vol. 16: 22-30

Gray, S. J. (1988) "Towards a Theory of Cultural Influence on the Development of Accounting of Accounting Systems Internationally", *Abacus*, vol. 24: 1-15

Gray, S.J. & Vint, H.M (1995) "The impact of culture on accounting disclosures: some international evidence", *Asia-Pacific Journal of Accounting*, vol. 21: 33-43

Heidhues, E. & Patel, C. (2011) "A critique of Gray's framework on accounting values using Germany as a case study", *Critical Perspectives on Accounting*, vol. 22: 273-287

Hofstede, G.H. (1980), *Culture's Consequences: International Differences in work related values*. London: Beverly Hills

Hofstede, G., Hofstede, G.J. & Minkov, M. (2010), *Cultures and Organizations: Software of the Mind. Revised and Expanded 3rd Edition*, New York: McGraw-Hill USA

Hope, O.K. (2003) "Firm-level disclosures and the relative roles of culture and legal origin", *Journal of International Financial Management & Accounting*, vol. 14: 218-248

Ionașcu, M., Ionașcu, I., Săcărin, M. & Minu, M. (2014) "IFRS adoption in developing countries: the case of Romania", *Accounting and Management Information Systems*, vol. 13, no. 2: 311–350

Istrate, C. (2016), *Contabilitate și raportări financiare individuale și consolidate*, Iași: Polirom

Jaggi, B. & Low, P.Y. (2000) “Impact of culture, market forces, and legal system on financial disclosures”, *The International Journal of Accounting*, vol. 35: 495-519

Khlif, H. (2016) “Hofstede’s cultural dimensions in accounting research: a review”, *Meditari Accountancy Research*, vol. 24, no: 4: 545-573

Mironiuc, M., Carp, M. & Chersan, I.C. (2015) “The relevance of financial reporting on the performance of quoted Romanian companies in the context of adopting the IFRS”, *Procedia Economics and Finance*, vol. 20: 404-413

Mironiuc, M. & Huian, M.C. (2016) “Study of the congruence between accounting numbers and stock market variables through comprehensive income: Empirical evidence for Romania companies quoted on the regulated market”, *Accounting and Management Information Systems*, vol. 15, no. 3: 498-521

Muthen, L.K. & Muthen, B.O. (1998), *Mplus user’s guide*, Los Angeles, CA: Muthen & Muthen

Nobes, C. & Parker, R. (2010), *Comparative International Accounting*, *11th Edition*, Essex: Financial Times Prentice Hall

Noravesh, I., Dilami, Z.D. & Bazaz, M.S. (2007) “The impact of culture on accounting: does Gray’s model apply to Iran?”, *Review of Accounting and Finance*, vol. 6, no. 3: 254-272

Olimid, L. & Calu, D.A. (2006) “An empirical study of the accounting values shared by Romanian accountants aiming to become private practitioners”, available on-line at SSRN: http://dx.doi.org/10.2139/ssrn.948953 (20.02.2017)

Salter, S.B. & Niswander, F. (1995) “Cultural influence on the development of accounting systems internationally: a test of Gray’s (1988) theory”, *Journal of International Business Studies*, vol. 26: 379-397

Schreiber, J.B., Nora, A., Stage, F.K., Barlow, E.A. & King, J. (2006) “Reporting Structural Equation Modeling and Confirmatory Factor Analysis Results: A Review”, *The Journal of Educational Research*, vol. 99, no. 6: 323-338

Sudarwan, M. & Fogarty, T.J. (1996) “Culture and accounting in Indonesia: an empirical examination”, *The International Journal of Accounting, v*ol. 31: 463-481

Van den Berg, P.T. (2015) “Comparing the Cultures of Romania and The Netherlands: When East Meets West”, *Psihologia Resurselor Umane*, vol. 8, no. 2: 30-41

Wingate, M. L. (1997) “An examination of cultural influence on audit environments”, *Research in Accounting Regulation*, pp. 129-148

Zarzeski, M.T. (1996) “Spontaneous harmonization effects of culture and market forces on accounting disclosure practices”, *Accounting Horizons*, vol. 10: 18-37

Zimmermann, J. & Werner, J.R. (2013), *Regulating Capitalism? The Evolution of Transnational Accounting Governance*, Hampshire: Palgrave Macmillan

Thematic manipulation in the letters to shareholders of Romanian listed companies

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Abstract:

Idea: *To investigate any impression management techniques in the letters to shareholders issued by a Romanian entity listed on the Bucharest Stock Exchange (namely OMV Petrom). Because an ongoing debate has been taking place regarding the purpose of corporate narratives, we are seeking to identify whether an informational or a promotional role is targeted by managers.*

Data: *Country: Romania; Why: emerging economy; Unit of analysis: individual firm; Type: firm specific; Sample period: 2012-2015; Why: 2013-highest profit ever recorded by a Romanian company, 2015-the first loss recorded by OMV Petrom; Data source: publicly available; Positive and negative keywords identified in context.*

Tools: *Wordlists developed by Henry (2008) and Loughran and McDonald (2011) for analysing financial text. Following previous research, a tone measure is computed in order to assess potential thematic manipulation.*

What's new? *Extrapolating the results provided in previous research, mainly conducted in developed economies is not appropriate in the case of emerging economies characterized by poor corporate governance mechanisms, lack of transparency and ownership concentration.*

So what? *While OMV Petrom is perceived by Romanian researchers as a benchmark for transparency in reporting, the results provide evidence of promotional aspects used in corporate narratives. Local users of accounting information such as individual and institutional investors can better assess the real value of the accounting information disclosed by discounting the reporting biases.*

Contribution: *Evaluating how and if impression management differs in the context of emerging countries, through analysing the context of one company both in profit and loss periods.*

Keywords: *Impression management, financial performance, users of accounting information, corporate narratives*

1. Introduction

In this paper we analyse the letters to shareholders issued by a Romanian entity listed on the Bucharest Stock Exchange (namely OMV Petrom), to detect and investigate any impression management (IM) techniques. OMV Petrom is the largest Romanian company and the largest oil and gas producer in Southeast Europe. The company is part of the OMV Group, and its main shareholders (as of 31 December 2016) are OMV Aktiengesellschaft (owning 51 % of the shares), the Romanian State through the Ministry of Energy (20.6% of the shares), Fondul Proprietatea (12.6% of the

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shares), and the rest being held by other shareholders (www.depozitarulcentral.ro). In 2004 the company was subject to a contested privatization (Lupu and Sandu, 2017), 2015 being the first year when the company recorded a loss. However, a contrast can be identified in this respect because in 2013 OMV Petrom reached the highest profit ever recorded in Romania (*Gândul*, February 19, 2014). Consequently, we are looking at the letters to shareholders issued by OMV Petrom between 2012 and 2015, which gives us an opportunity to reflect potential IM practices and identify any differences that may arise between profit and loss periods.

The increasing interest in understanding the communication process between companies and its stakeholders has heightened the need for analysing the IM strategies used by managers to favourably portray the investment image (Brennan and Merkl-Davies, 2013). From an economic perspective, rooted in the agency theory, IM may arise when managers (as rational decision makers) take advantage of the information asymmetry that exists between them and the shareholders (who are subject to bounded rationality) (Schrand and Walther, 2000; Krische, 2005; Merkl-Davies and Brennan, 2011). The managers' inherent motivation is the maximization of their own wealth (Merkl-Davies and Brennan, 2011; Yekini *et al*., 2015). Therefore, as negative organizational outcomes may generate conflicts of interest between the principal and the agent, "management has economic incentives to disclose messages that convey good performance more clearly than those conveying bad performance" (Rutherford, 2003: 189). This reporting bias concerning the financial performance of the company will further result in short-term capital misallocations (Merkl-Davies and Brennan, 2007). Also, IM strategies may be as subtle as to be imperceptible (Henry, 2008), hence one must be careful as they may contradict the faithful representation of information (Clatworthy and Jones, 2003, 2006; Guillamón-Saorín and Martínez-López, 2013; Beattie and Jones, 2000).

An ongoing debate has been taking place regarding the purpose of corporate narratives. Some research supports the incremental value of the information disseminated by companies (Baginski *et al*., 2000; Yekini *et al*., 2015; Yuthas *et al*., 2002; Dainelli *et al*., 2013). Although narratives may be partially used to build brands and manage impressions, these studies also underline their contribution to the reduction of informational asymmetries (Yekini *et al*., 2015: 425). Moreover, the companies' reputation (Yekini *et al*., 2015), share price and the cost of capital (Merkl-Davies and Brennan, 2011) can be negatively impacted as a result of a possible identification of biased narratives by users (Yuthas *et al*., 2002; Rutherford, 2005; Yekini *et al*., 2015).

Although considerable research has been devoted to the study of IM in the context of developed economies such as the US (Henry, 2008; Yuthas *et al*., 2002; Price *et al*., 2012; Baginski *et al*., 2000) and the UK (Brennan *et al*., 2009; Clatworthy and Jones, 2003, 2006; Yekini *et al*., 2015; Rutherford, 2005), less attention has been paid to emerging economies. Understanding weather and how these strategies are used in the case of the countries in Central and East Europe (CEE) remains a major challenge since they are in the pursuit of economic development, facing higher growth rates and profitability (Albu and Albu, 2012: 341). It is thus a contribution of this paper that we are attempting to evaluate how and if IM differs in the context of emerging countries. While transparency is highly neglected by companies (Gîrbină *et al*., 2012), OMV Petrom is perceived as being "a model of good practices" (Albu *et al*., 2014b: 337).

However, Cho *et al*. (2012) highlights the fact that in these conditions, users of accounting information may “fail to realize the inherent biases in the reporting, and continue to laud the practice as evidence of increased corporate transparency and accountability” (p.35).

In this paper we evaluate the tone used by managers in corporate narratives in order to identify potential reporting biases. In this respect, we analyse the choice of positive and negative words and their frequency in the letters to shareholders issued by OMV Petrom S.A. from 2012 to 2015. Because 2015 was the first year when the company recorded a loss, it is probable that opportunistic practices may be identified.

The results provide evidence consistent with the Pollyanna effect (Rutherford, 2005; Henry, 2008). Particularly, we identify a tendency to present the company’s outcomes in a positive light, both in profit and loss periods. A lack of objectivity is therefore reflected in the use of positive relative to the use of negative keywords.

A review of the literature is presented in section 1. Section 2 sets out the methodology applied in this study. Results are illustrated and interpreted in section 3. Finally, the paper concludes with a discussion of the contributions, implications and future research directions.

2. Literature review

IM has become a favourite research topic, as literature shows that the purpose of corporate narratives is not always to increase the transparency by reducing the information asymmetry between the managers and actual and potential investors (Clatworthy and Jones, 2006; Merkl-Davies and Brennan, 2007; Rutherford, 2005). From an economic perspective this opportunistic behaviour may be the result of the managers’ intentions to maximize their remuneration (Merkl-Davies and Brennan, 2011; Yekini *et al*., 2015) by taking advantage on the limited rationality of the shareholders (Schrand and Walther, 2000; Krische, 2005; Merkl-Davies and Brennan, 2011). Consequently, the narrative segments of the annual reports may be used to favourably portray the financial performance of the company (Clatworthy and Jones, 2001, 2006). This reporting bias entitles the tendency to conceal negative information and enhance positive results (Merkl-Davies and Brennan, 2007, 2011; Brennan, *et al*., 2009; Beattie and Jones, 2000). As Clatworthy and Jones (2001) argued, “management may well seek to manage their narratives just as they manage other features of the annual report such as earnings (p. 311).

Adverse effects, such as short term capital misallocations (Garcia Osma and Guillamón-Saorín, 2011; Merkl-Davies and Brennan, 2007; Brennan and Merkl-Davies, 2013; Leung *et al*., 2015) may arise especially because the annual reports are widely used in the decision making process (Breton and Taffler, 2001 cited by Davison, 2008; Clatworthy and Jones, 2003). In other words, “both lay and expert readers are open to persuasive devices and unconscious signals” (Davison, 2008: 794). As a result, knowing the IM strategies is the first step that has to be taken on the way toward understanding and interpreting the inherent purposes of the information disclosed by companies (Rutherford, 2005). Although the efficiency of these practices cannot be generalized (Rutherford, 2005), “any investor can neglect relevant aspects of information, without fully realizing that their attention is imperfect" (Hirshleifer and Teoh, 2003 cited by Krische 2005: 265).

Previous studies (Rutherford, 2005; Henry, 2008) have argued that the tone used by companies in their disclosures may influence the users of accounting information. This IM strategy is generally referred to in the literature as thematic manipulation (Merkl-Davies and Brennan, 2007; Garcia Osma and Guillamón-Saorín, 2011; Guillamón-Saorín and Martínez-López, 2013; Brennan *et al*. 2009). As Yekini *et al*. (2015) notes, "influence is conceptualized as a cumulative series of signals in the text that, when read by the actor, gradually brings about cognitive structure change and a change in attitude (...) the more often positive tone expressions are mentioned in the text, the more likely it is that they will be influential" (p. 418). Moreover, a lack of objectivity has been noticed in the use and abuse of positive words (Rutherford, 2005; Clatworthy and Jones, 2003, 2006; Guillamón-Saorín and Martínez-López 2013) known as the "Pollyanna principle" (Matlin and Stang, 1978 cited by Rutherford, 2005). However, according to Rutherford (2005), IM may reach its efficiency by using "a level of positive charging that users might not be expecting and thus might not allow for appropriately" (p. 375).

So far, research was mainly conducted in developed economies and it is currently still unclear whether differences may appear in emerging countries. A research background such as CEE offers several opportunities for in depth analysis since this area is characterized by poor corporate governance mechanisms (Berglöf and Pajuste, 2005), lack of transparency, ownership concentration and less demanding users of information (Albu and Gîrbină, 2015).

In this study we will address this gap in the literature by providing evidence from Romania, a country in the pursuit of economic development, after a prolonged exposure to the negative effects of a communist ideology (Albu *et al.*, 2014a). Although the economy is under the influence of European Union (EU) Directives and International Financial Reporting Standards (Albu and Albu, 2012) due to the EU membership, the deficiencies are still prevailing. The stock market is characterized by a low level of liquidity (Ionașcu *et al.*, 2011; Albu *et al.*, 2014a) while corporate governance principles are not properly enforced (Albu and Gîrbină, 2015).

Accordingly, we are seeking to answer in this paper the following research question: Do corporate narratives play an informational or a promotional role? While a promotional role will be reflected in a tendency to maintain a positive tone both in periods of profit and loss, an informational purpose will involve an objective perspective (Henry, 2008; Rutherford, 2005).

3. Research methodology

This study was designed to evaluate the tone used by managers in their letters to shareholders. For this purpose, we considered the annual reports issued by OMV Petrom S.A. Investigating the case of one company represents "an opportunity to study the changes in disclosure by one company without possible contamination through the integration of different corporate values, strategies and personnel" (Tilling and Tilt, 2010: 66).

OMV Petrom holds a leading position in the oil and gas industry in Romania and the CEE region. In the case of this company, transparency is a debatable keyword. In 2004 the company was privatized in highly contested conditions (Lupu and Sandu, 2017) that are still questioned by media and scrutinized in the 2014 report of the Romanian Court of Accounts. According to this report, the buyer, OMV, failed to respect the Decision issued in 2009 to increase the share capital by considering the revalued amount of the lands at the moment when the privatization contract was signed.

On the other hand, regarding the reporting process, the company is perceived by Romanian researchers as a benchmark for transparency (Albu *et al*., 2014b; Albu *et al*., 2011). However, Cho *et al*. (2012) argues that in these conditions users of accounting information may "fail to realize the inherent biases in the reporting, and continue to laud the practice as evidence of increased corporate transparency and accountability" (p.35).

We gathered the corporate annual reports issued by OMV Petrom between 2012 and 2015 (4 reports) from the company's website (www.omvpetrom.com). We considered the English version of the letters to shareholders in order to ensure reproducibility (Krippendorff, 2004) and facilitate comparison with prior literature.

Manual content analysis was performed in order to evaluate the disclosure tone by analysing the language used in reporting. A classification of positive and negative keywords was done by using Loughran and McDonald (2011) dictionary available on the authors' web site. It includes 354 positive words and 2329 negative words that were identified by examining language in a large sample of 10-K fillings (50,115 observations consisting of 8,341 unique firms) submitted to the Securities and Exchange Commission. Examples of positive words are "efficiency", "favourable", "great", "successfully", "enhance"; examples of negative words are "decline", "failed", "losses". This dictionary was used in accounting and finance literature for measuring the tone of the business communication (Davis *et al.,* 2015, Allee and DeAngelis, 2015, Feldman *et al.,* 2010)

Moreover, we used the positive and negative wordlists developed by Henry (2008) for analyzing financial text. The wordlists include 105 positive and 85 negative keywords, being the first one developed in the literature for financial text analysis (Loughran and McDonald, 2016). Although the number of words is smaller relative to the first dictionary used, it includes 46 positive and 35 negative words that are not classified as positive or negative by Loughran and McDonald (2011). Examples of positive unique words are: "certain", "increase", "rise", "more", "record"; examples of negative unique words are: "risk", "down", "decrease", "drop". Its specificity and utility was demonstrated in previous studies that measured tone in earnings conference calls (Price *et al*., 2012; Davis *et al.,* 2015).

In order to overcome the limitations of a computer-aided analysis we have identified the keywords in context (Krippendorff, 2004). We have further computed a tone measure by using the Henry (2008) formula: positive words less negative words over the sum of positive and negative words. Therefore, the tone measure is a continuous variable that takes values between -1 and 1; the closer this measure is to 1, the more positive is the tone used in the document analysed.

Finally, we investigated directional keywords such as “decreased”, “increased”, “higher”, “lower”, because, as Henry highlights in one of her studies (2008), they can be affected by ambiguity. Therefore, analysing these words in context offered the possibility to determine whether they were used in a positive or negative sense. Following Clatworthy and Jones (2003), the assessment was done from a shareholder perspective and as a result, 13 negative and 4 positive keywords were eliminated in the process of disambiguation.

4. Results and discussions

A total of 77 positive and 45 negative keywords were identified in the sample period, using the wordlists developed by Loughran and McDonald (2011) and Henry (2008). Table 1 presents the total number of words identified using each wordlist. 48% of the positive words from Henry (2008) lists were found in the texts. Although Henry’s (2008) wordlist comprises 105 words, compared to Loughran and McDonald’s (2011) dictionary of 354 positive words, this highlights the increased specificity and applicability of the source. However, the length of the Loughran and McDonald dictionary proved its usefulness in the analysis of negative keywords. In this respect, 27 unique keywords were identified and this offered the opportunity to analyse in depth the frequency of their occurrences.

Table 1. **Number of positive and negative keywords identified**

	Total	Loughran and McDonald	Henry	Both sources
Positive	77	27	25	25
Negative	45	27	12	6

(*Source*: Authors’ processing)

Table 2 presents the frequency of positive and negative keywords identified in the sample period, as well as the length (in number of words). The total number of words in the letters to shareholders has decreased significantly from 2050 words in 2012 to 1241 in 2013 (40% decrease) and maintained a declining trend until 2015. However, the table highlights the fact that the tone was maintained positive across the entire period of analysis, with almost constant and high values comparable with previous findings in the literature (Henry, 2008).

Table 2. **Frequency of positive and negative keywords and tone measurement**

	2012	2013	2014	2015
Positive	97	73	66	59
Negative	33	19	22	18
Tone	0.4923	0.587	0.5	0.53
Length	2050	1241	1235	1054

Notes: Tone is measured as a continuous variable taking values between -1 and 1, calculated as positive words less negative words over the sum of positive and negative words. Length is expressed as number of words of the letter to shareholders.

(*Source*: Authors’ processing)

Table 3 outlines the tone and the company’s financial performance indicators. The company’s EBIT and profits have increased in 2013 by 5% and 22% respectively compared to 2012. The same ascending trend was observed for the tone measure. However, in 2014, when these two performance indicators lowered their values by almost 50%, the tone measure was kept at an almost constant level. These findings highlight the fact that positivity was prevalent even when the economic performance decreased dramatically. These results are further emphasized in 2015 when although the company recorded a loss, the tone measure actually increased reflecting Pollyannish tendencies.

Table 3. **Analysis of tone and key performance indicators**

	2012	2013	2014	2015
Tone	0.4923	0.587	0.5	0.53
EBIT	5,662.00	5,957.86	3,338.30	-529.75
Profit	3,946.10	4,824.04	2,099.67	-689.65

Notes: Tone is measured as a continuous variable taking values between -1 and 1, calculated as positive words less negative words over the sum of positive and negative words. EBIT and Profit figures are expressed in million RON.

(*Source*: Authors' processing)

Table 4 illustrates the first 30 keywords according to their frequency. These positive and negative words were identified in context, which allowed us to also assess a relationship between their occurrences.

Table 4. **Frequency of positive and negative words**

Positive	Frequency	Rang	Negative	Frequency	Rang
growth	22	1	weak	13	3
strong	15	2	challenging	8	7
achieved	12	4	decreased	7	8
efficiency	12	4	challenges	6	9
higher	12	4	decline	5	10
high	10	5	lower	5	10
delivered	9	6	negative	5	10
improved	9	6			
increased	9	6			
more	9	6			
positive	9	6			
stable	9	6			
good	8	7			
excellence	7	8			
achieve	6	9			
favorable	6	9			
largest	6	9			
most	6	9			
progress	6	9			
deliver	5	10			
increase	5	10			
solid	5	10			
up	5	10			

(*Source*: Authors' processing)

For example, negative words like "challenging" and "challenges" were used to describe the negative conditions in spite of which the company achieved its positive results defined by words such as “growth”, “strong”, “high”, “higher” and “efficiency”. The following extracts provide evidence of their use in context:

“In 2013, Petrom performed very well and ***delivered strong*** financial and operating results, in spite of ***persistent*** macroeconomic ***challenges*** in our area of operations” (Annual report 2013) (emphasis added)

“…we have ***strengthened*** our sales and ensured the operations of Brazi power plant within a ***challenging*** market environment” (Annual report 2013) (emphasis added)

“R&M segment ***delivered*** a ***solid*** operating result, with ***positive*** contribution from both businesses, in spite of a ***continuing challenging*** market environment” (Annual report 2014) (emphasis added)

“In Downstream Gas, the Romanian market environment has ***remained challenging*** mainly due to gas demand, which has continued the ***declining*** trend started a few years ago. ***Despite*** this fact, an ***improved*** performance of our gas business was recorded ***against*** the previous year, with ***higher*** sales and lower stored volumes” (Annual report 2015) (emphasis added)

In addition, these two negative keywords, namely “challenges” and “challenging”, were further reinforced in several occasions. Table 5 presents the reinforcing words associated with these keywords. We confirm findings of prior literature (Merkl-Davies and Brennan, 2007; Brennan *et al.*, 2009) arguing that they were used to emphasize the unfavourable conditions that the company underwent on its way to reaching positive outcomes.

Table 5. **Reinforcing words of negative keywords**

Reinforcing word	Keyword
Continuing	Challenges
Not short of	Challenges
Persistent	Challenges
Continuing	Challenging
Remained	Challenging

(*Source*: Authors’ processing)

5. Conclusions

In this paper we explored the tone used by the managers of OMV Petrom (the largest Romanian company and the largest oil and gas producer in Southeast Europe) in their letters to shareholders in order to identify potential reporting biases. Although 2015 was the first year when the company incurred a loss, the results highlight the opportunistic tendency to present the company’s outcomes in a positive light, both in profit and loss periods. This behaviour is consistent with the Pollyanna effect, identified in prior literature (Rutherford, 2005; Henry, 2008)

We performed the analysis in a research setting that offers a new perspective from an emerging economy, namely Romania. The paper also contributes to the literature by focusing on the case of one company, “without possible contamination through the integration of different corporate values, strategies and personnel" (Tilling and Tilt, 2010: 66).

On the one hand, local users of accounting information such as individual and institutional investors may benefit from the results of this study because they "need to adopt a healthy scepticism" (Clatworthy and Jones, 2006: 506) in reading corporate narratives and not "to laud the practice as evidence of increased corporate transparency and accountability" (Cho *et al*., 2012: 35). On the other hand, this paper may be useful for researchers, since it provides insights from an insufficiently explored research background-the case of emerging economies from CEE. Finally, accounting policy-makers and professional bodies should try to prevent and detect this opportunistic behaviour because its manifestation contradicts the faithful representation of information (Clatworthy and Jones, 2003, 2006; Guillamón-Saorín and Martínez-López, 2013; Beattie and Jones, 2000), possibly leading to capital misallocations (Merkl-Davies and Brennan, 2007).

This study is subject to inherent limitations of the methods employed. Researchers' subjectivity was mitigated when identifying positive and negative words, due to the use of wordlists previously developed in the international literature. However, the number of positive and negative keywords was limited to those provided by the two dictionaries used namely Loughran and McDonald (2011) and Henry (2008). Also, this paper is a one-company study, which prevents generalization of results at the country or regional level.

Future research may further investigate other IM strategies, such as causal attributions of performance outcomes. Comparisons could be envisaged between companies situated in more CEE countries, preferably within the same industry, to assess any country variation in IM practices. Also, an investigation of more listed companies from various industries within the same country may allow inference of conclusions at the country level. Moreover, the potential impact of managers' opportunistic behaviour on the users of the accounting information can be explored in an experimental setting.

References

Albu, N. & Albu, C.N. (2012) "International Financial Reporting Standards in an emerging economy: Lessons from Romania", *Australian Accounting Review,* vol. 22, no. 63: 341-352

Albu, C. N., Albu, N. & Alexander, D. (2014a) "When global accounting standards meet the local context- Insights from an emerging economy", *Critical Perspectives on Accounting*, vol. 25, no. 6: 489–510

Albu, N., Albu, C. N., Bunea, Ş., Calu, A. D. & Gîrbină, M.M. (2011) "A story about IAS/IFRS implementation in Romania", *Journal of Accounting in Emerging Economies*, vol. 1, no.1: 76-100.

Albu, C. N. & Gîrbină, M. M. (2015) "Compliance with corporate governance codes in emerging economies. How do Romanian listed companies "comply-or-explain"?", *Corporate Governance International Journal of Business in Society*, vol. 15, no.1: 85-107

Albu, N., Lupu, I. & Sandu, R. (2014b) *Multinationals as vectors of corporate governance improvement in emerging economies in Eastern Europe: a case study*". In: Corporate Governance in Emerging Markets). Springer Berlin Heidelberg, 331-349

Allee, K.D. & DeAngelis, M.D. (2015) “The structure of voluntary disclosure narratives: Evidence from tone dispersion”, *Journal of Accounting Research*, vol. 53, no. 2: 241-274.

Baginski, S. P., Hassell, J. M. & Hillison, W. A. (2000) “Voluntary causal disclosures: Tendencies and capital market reaction”, *Review of Quantitative Finance and Accounting*, vol. 15, no. 4: 371-389

Beattie, V. & Jones, M. J. (2000) “Impression Management: The Case of Inter-Country Financial Graphs”, *Journal of International Accounting, Auditing & Taxation*, vol. 9, no. 2: 159-183

Berglöf, E. & Pajuste, A. (2005) “What do firms disclose and why? Enforcing Corporate Governance and Transparency in Central and Eastern Europe”, *Oxford Review of Economic Policy*, vol. 21, no. 2: 178-197

Brennan, N.M., Guillamon-Saorin, E. & Pierce, A. (2009) “Impression management: Developing and illustrating a scheme of analysis for narrative disclosures - A methodological note”, *Accounting, Auditing and Accountability Journal*, vol. 22, nr. 5: 789-832

Brennan, N.M. & Merkl-Davies, D.M. (2013) *Accounting narratives and impression management*, In: Jack, L., Davison, J., Craig, R., editors. The Routledge companion to accounting communication, Routledge, 109-132

Cho, C. H. Michelon, G. & Patten, D. M. (2012) “Impression management in sustainability reports: An empirical investigation of the use of graphs”, *Accounting and the Public Interest*, vol. 12: 16–37

Clatworthy, M.A. & Jones, M.J. (2001) “The effect of thematic structure on the variability of annual report readability”, *Accounting, Auditing and Accountability Journal*, vol. 14, no. 3: 311 – 326

Clatworthy, M.A. & Jones, M.J. (2003) “Financial reporting of good news and bad news: evidence from accounting narratives”, *Accounting and Business Research*, vol. 33, no. 3: 171-185

Clatworthy, M.A. & Jones, M.J. (2006) “Differential patterns of textual characteristics and company performance in the chairman's statement”, *Accounting, Auditing and Accountability Journal*, vol. 19, no. 4: 493-511

Dainelli, F., Bini, L. & Giunta, F. (2013) “Signaling strategies in annual reports: Evidence from the disclosure of performance indicators”, *Advances in Accounting, incorporating Advances in International Accounting*, vol. 29, no. 2: 267–277

Davison, J. (2008) “Rhetoric, repetition, reporting and the “dot.com” era: words, pictures, intangibles”, *Accounting, Auditing and Accountability Journal*, vol. 21, no. 6: 791-826

Feldman, R., Govindaraj, S., Livnat, J., & Segal, B. (2010) “Management’s tone change, post earnings announcement drift and accruals”, *Review of Accounting Studies*, vol. 15, no. 4: 915-953

Garcia Osma, B. & Guillamón-Saorín, E. (2011) “Corporate governance and impression management in annual results press releases”, *Accounting, Organizations and Society*, vol. 36, no. 4: 187-208

Gîrbină, M. M., Albu, N. & Albu, C. N. (2012) *Corporate governance disclosures in Romania*, In: Boubaker, S., Nguyen, D., editors. Board Directors and Corporate Social Responsibility, UK: Palgrave Macmillan, 122-141

Guillamón-Saorín, E. & Martínez-López, F. J. (2013) “Corporate financial communication and the internet: manipulating investor audiences?”, *Online Information Review*, vol. 37, no. 4: 518-537

Henry, E. (2008) “Are investors influenced by how earnings press releases are written?”, *Journal of Business Communication*, vol. 45, no.4: 363-407

Ionașcu, I., Ionașcu, M. & Munteanu, L. (2011) “Determinants and consequences of IFRS adoption: Perspectives on the Romanian institutional factors”, *Audit Financiar*, no. 12: 33-41

Krippendorff, K. (2004) *Content analysis. An introduction to its methodology*. Sage

Krische, S. D. (2005) “Investors’ Evaluations of Strategic Prior-Period Benchmark Disclosures in Earnings Announcements”, *The Accounting Review*, vol. 80, no. 1: 243-268

Leung, S., Parker, L. & Courtis, J. (2015) “Impression management through minimal narrative disclosure in annual reports”, *The British Accounting Review*, vol. 47: 275-289

Loughran, T. & McDonald, B. (2011) “When is a liability not a liability? Textual analysis, dictionaries, and 10-Ks”, *Journal of Finance*, vol. 66, no. 1: 35-65

Loughran, T. & McDonald, B. (2016) “Textual analysis in accounting and finance: A survey”, *Journal of Accounting Research*, vol. 54, no. 4: 1187-1230

Lupu, I. & Sandu, R. (2017) “Intertextuality in corporate narratives: a discursive analysis of a contested privatization”, *Accounting Auditing & Accountability Journal*, vol. 30, no. 3: 534-564

Merkl-Davies, D.M. & Brennan, N.M. (2007) “Discretionary disclosure strategies in corporate narratives: Incremental information or impression management?”, *Journal of Accounting Literature*, vol.26, no.1: 116-194

Merkl-Davies, D.M. & Brennan, N.M. (2011) “A conceptual framework of impression management: new insights from psychology, sociology and critical perspectives”, *Accounting and Business Research*, vol. 41, no. 5: 415-437

Price, S. M., Doran, J. S., Peterson, D. R. & Bliss, B. A. (2012) “Earnings conference calls and stock returns: The incremental informativeness of textual tone”, *Journal of Banking & Finance*, vol. 36: 992–1011

Rutherford, B. A. (2003) “Obfuscation, textual complexity and the role of regulated narrative accounting disclosure in corporate governance”, *Journal of Management & Governance*; vol. 7, no. 2: 187-210

Rutherford, B. A. (2005) “Genre analysis of corporate annual report narratives: A corpus linguistics-based approach”, *Journal of Business Communication*, vol. 42, no. 4: 349-378

Schrand, C. M. & Walther, B. R. (2000) “Strategic benchmarks in earnings announcements: The selective disclosure of prior-period earnings component”, *The Accounting Review*, vol. 75, no. 2: 151-177

Tilling, M. V. & Tilt, C. A. (2010) “The edge of legitimacy. Voluntary social and environmental reporting in Rothmans’ 1956-1999 annual reports”, *Accounting, Auditing & Accountability Journal*, vol. 23, no. 1: 55-81

Yekini, L. S., Wisniewski, T. P. & Millo, Y. (2015) “Market reaction to the positiveness of annual report narratives”, *International Business Review*, vol. 48, no.3: 415-430

Yuthas, K., Rogers, R. & Dillard, J. F. (2002) “Communicative action and corporate annual reports”, *Journal of Business Ethics*, vol.41, no. 1: 141–157

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Re-examining the nexus between culture and life insurance demand in times of crisis: A panel data investigation of the OECD countries

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Re-examining the nexus between culture and life insurance demand in times of crisis: A panel data investigation of the OECD countries

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Abstract: *We investigate the influence of financial crisis started in the year 2008 and the impact of the six Hofstede's cultural dimensions over the life insurance demand for 32 OECD countries for the period 2003-2011, considering a wide range of demographic, financial and economic determinants. We extend the previous work of Park and Lamaire (2011) by analysing the influence of the sixth Hofstede's cultural dimension: Indulgence vs. Restraint Index, using a different database as in the previous studies. Using a panel data approach, we find that the life insurance demand is influenced differently by three cultural dimensions: The Power Distance Index, the Uncertainty Avoidance Index, both with negative impact on the size of the life insurance industry, and by the Individualism versus Collectivism dimension, which positively influence the size of this market. Both dummies for financial crisis are statistically significant for life insurance density, but not for life insurance penetration. The institutional determinant political stability and the absence of violence are proved as the main driver for this industry. GDP per capita, tertiary education, and the level of stock market capitalization positively influence the demand for life insurance. We also identify two new determinants for the size of this industry: the level of imports, used as a proxy for the degree of financial openness and the level of liquid liabilities in the economy, for the degree of development of a country's financial system.*

Keywords: *Crisis, culture, OECD countries, life insurance demand, panel data analysis*

1. Introduction

The life insurance industry has developed worldwide considerably since the early 1990s but this trend of growth can be considered continuous until the year 2000. After this moment, the conclusions regarding the development of life insurance industry are somehow different, depending on the indicator we are looking for. According to the data provided by Swiss Re, after the year 2000, the life insurance penetration has recorded a relative continuous decreasing trend in an international context and also for the advanced markets. This industry has a reversal trend only for the period 2004-2007. The life insurance density recorded a continuous growth until 2007 even if we make the analysis worldwide, only for the advanced markets, or only for Europe. Despite the certain ups and downs, the real premium growth has an obvious growth

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trend for the period 1990-2000, with two significant drops in the years 2001 and 2008. Both moments were followed by recoveries, but the level from the year 2000 has never been reached. It is an obvious consensus, regardless of the indicators taken into consideration in the analysis, that the two global financial crises from the last ten years have affected this industry. The downturns of the life insurance industry are related to the losses in stock markets and the overall downturn of the national economies. The decline was diminished by the higher number of contracts sold with guaranteed returns and private pensions (Dionne, 2013). But how big is the impact of the current global crisis? We prove that the dummies for crisis are statistically significant determinants for the life insurance demand during the analysed period.

Despite the increasing number of studies regarding the determinants of life insurance consumption, for both developed and developing countries, the impact of the 2008 economic and financial crisis has not been analysed on a cross-country basis. We choose to conduct our study exclusively for the OECD countries, to have a more homogenous database regarding the degree of development. Using the World Bank classification of the world's economies based on estimates of gross national income (GNI) per capita, in our database, for the period 2003-2011, only two economies are upper middle income ones (Mexico and Turkey), the rest of the countries have high income economies. However, the data show disparities in both the life insurance penetration and density that cannot be overlooked[lxvii]. This heterogeneity is the starting point for our research. For the countries in our sample, for the period 2003-2011, the average value of the life insurance density in UK was 4700 USD per capita, in Netherlands was 1900 USD per capita and in Finland was 816 USD per capita. What explains the differences in the size of this industry between these high-income countries? Previous works on this issue have focused specifically on financial, socio-economic determinants (e.g. Browne and Kim, 1993; Outreville, 1996; Beck and Webb, 2003; Hwang and Gao, 2003), and more recently on some political, institutional and cultural factors (Chui and Kwok, 2008, 2009; Park and Lemaire, 2011). The present study follows after the empirical studies of Beenstock *et al.* (1986) and Li *et al.* (2007), who find the determinants for the demand for life insurance for OECD countries, but we extend the number of countries from 10, respectively from 25, to 32 OECD countries. Moreover, it is the first empirical study for the OECD countries made after the global financial crisis started in the year 2008. This paper draws on a more comprehensive set of variables that potentially impact the development of the life insurance industry, with the second main goal to evaluate the impact of the sixth cultural measure developed by Hofstede (2010). We also introduce and validate two variables, which were not previously considered as potential determinants in the existing literature for the size of the life insurance industry, respectively the ratio of liquid liabilities in the economy to GDP, as a proxy for the level of development of the national financial systems and the ratio of imports of goods and services to GDP, as a measure for the degree of financial openness.

We apply a panel data analysis to find the determinants of the life insurance demand using two variables which are typically used in similar studies: density and penetration, for the period 2003-2011. Our paper contributes to the literature by taking into account all cultural dimensions of Hofstede, filling the gap by analysing the relation between the sixth cultural dimension of Hofstede (the newest one), *Indulgence versus Restraint Index* and the demand for life insurance in the OECD countries. These variables induce specific consumption, saving, and investment behaviours, in a general context in which the economists have already accepted cultural values as possible determinants of economic phenomena (Guiso ***et al.,*** 2006).

It was already proved the impact of culture on different business areas, such as corporate performance, capital structure decisions, the study of managerial attitudes, the investors' decisions on capital markets and also in the consumer research literature (see Chui and Kwok, 2008 for a development of the subject in this field). If national culture affects the consumption of physical goods and also different service industries, the impact is more significant when it must be decided for a complex investment under uncertainty, such is the case of the life insurance products (Crosby and Stephens, 1987; Chui and Kwok, 2008; 2009; Park and Lemaire, 2011). Previous studies investigated the relation between three or five cultural dimensions of Hofstede (Chui and Kwok, 2008; Park and Lemaire, 2011) and they proved that these sets of national-culture dimensions affect the insurance industry.

The positive relation with the variable *Individualism versus Collectivism* validates our hypothesis and shows that, in OECD countries, people use the life insurance policies as instruments to obtain the appropriate financial protection for them and their family members, which are not possible to be offered by a loosely-knit social framework.

For our sample, we also find that the *Power Distance Index* and also the *Uncertainty Avoidance Index* are negatively related with the size of the life insurance industry. In countries where people exhibit a low degree of Power Distance, the demand for life insurance is higher than in societies were people accept a hierarchical order in which everybody has a place, with no further justification. Linking the *Uncertainty Avoidance Index* with the configuration of a financial system (bank-oriented vs. market oriented systems) we explain our result with two arguments. First, based on the characteristics of the data, we can not dissociate between different life insurance products and our result can be explainable by the prevalence of those life insurance policies with a significant investment component in the indicator gross written premiums, so closer to capital market investments. Second, it is possible that people from the OECD countries to perceive such financial products as being too risky and too stressful to take individual decision regarding these policies, and they will avoid them. We find no relation between the *Indulgence vs. Restraint Index*, for the *Masculinity vs. Feminity* cultural dimension, and also for the *Long term orientation vs. Short term orientation* cultural dimension and the life insurance demand in the OECD countries.

Political stability and the absence of violence, as institutional determinant in our regression models, is the main driver for life insurance density from all the explanatory variables used in our regression models. GDP per capita as the measure of economic development, is the second main driver for the life insurance consumption. We also validate the hypothesis regarding the education variable, finding that a greater percentage of people enrolled in the tertiary system leads to a higher life insurance density. As regards the proxies used for the financial development, we emphasize that a developed life insurance industry is associated with greater stock market capitalization, with higher volumes of liquid liabilities in the economy, and with higher values for the imports to GDP ratios.

National authorities, practitioners, and academics may be interested in measuring the impact of cultural values on life insurance demand in different countries. For instance, if we know in detail which cultural values can boost this industry and the sense of their influence, they can be useful tools for local and international authorities to determine the most appropriate instruments for the industry's development. Both managers of life insurers and investors may be interested in the influence of cultural variables in order to determine the most appropriate management and investment strategies.

The remainder of the paper is organized as follows. Section 2 is a survey of the previous research on different determinants of the demand for life insurance. Section 3 describes the database and the methodology. Section 4 presents the empirical results, and Section 5 concludes.

2. Culture, financial crisis and the demand for life insurance: related studies and hypotheses development

The analysed time span includes a period of growth of the life insurance sector (2003–2008), one of economic recession (2009–2010) and also one of slow economic recovery (2010-2011). In this context, we define two dummies for financial crisis. The first dummy variable, *Crisis 1*, is equal to 1 for the year 2009 and 0 otherwise. The second dummy variable, *Crisis 2*, is equal to 1 for the years 2009 and 2010 and 0 otherwise. We expect a negative relation between each of these variables and life insurance consumption for our sample of 32 OECD countries. The first tested hypothesis is:

H1: Financial crisis decreases the demand for life insurance products.

The impact of socio-cultural variables on the variability of financial practices across the world is discussed at length in the financial literature. Different studies, such as those of Breuer and Quinten (2009) and Reuter (2011), emphasize that cultural variables of Geert Hofstede (1980) were used in management studies before in financial ones. Some cross-disciplinary studies have already analysed how national culture practices shape the life insurance consumption in various countries, using different proxies for culture, such as Hofstede's cultural dimensions (Chui and Kwok, 2008; Chui and Kwok, 2009; Park and Lemaire, 2011).

The period 1967-1973 was marked by psychologist Geert Hofstede's cultural studies. He developed a study on 40 countries and 116.000 questionnaires were used. The target of the project was to define some independent cultural dimensions, by observing and studying people's attitudes and their perception of work and all the other activities in which they are involved.

The cultural dimension *Individualism versus Collectivism*, was developed in his first report and it represents how family is perceived. It divides societies in two main categories. In the Individualist societies, people are described as being cold, serious and not very attached emotionally to their peers, the focus being on their freedom. On the other side, in Colectivist societies people are attached of their family members and they have care for their peers. Park and Lemaire (2011) proved that the life insurance demand is higher in the developed countries, where the score for Individualism is higher than for Collectivism. For example, in the first category we can include the United States of America and the United Kingdom, while in the second category, the collectivists, China and Pakistan, where the main idea of living is the union of the family and the importance of relationships, even if the system of the government is more rigid and the independence of the population is much lower than in countries where the Individualism is present. In the Individualist countries it is expected that insurance policies will be used more than in the Collectivist ones, because a life insurance contract provides a higher degree of certainty than an informal agreement within their families and close persons. Following this line of reasoning, our second hypothesis is:

H2: The demand for life insurance in a country is positively related to its level of individualism.

The *Power Distance Index*, the second Hofstede's cultural dimension, measures the perception of the population regarding the inequalities among people in the society. Therefore, a higher level of *Power Distance Index* means that people accept the existent of a clear hierarchy between individuals, based on social classes. For example, in China and India the values of this Index are high, and in Germany or Norway the index of this cultural dimension has low values. Lower values mean that people from this society are more tolerant with their peers and the accent is on the equality of people. Chui and Kwok (2008) emphasize that, in countries with a high level of the *Power Distance Index*, the submission of population is on a higher level, and people has no courage to ask any question to higher social classes. In these societies, the classes who hold the power should be more responsible than those from societies with low values inf this index, and they are almost morally obliged to protect and provide successful solutions in the case of a disaster. We expect that in societies with a high level of the *Power Distance Index*, the life insurance demand will be lower than in those where population is educated to understand the term of protection and not to judge the people for the other social or financial classes. Therefore, we hypothesize that:

H3: The demand for life insurance in a country is negatively related to the level of its power distance index.

The *Uncertainly Avoidance Index* measures the degree to which people feel uncomfortable with uncertainty and ambiguity in a society. Rigid codes of belief and behaviour in a society with clear rules and strict governing order (e.g. Japan and South Korea) are opposed to a more relaxed attitude (e.g. Singapore and Sweden), in societies where practice counts more than principles, and where the free speech and the absence of rules are more important (Hofstede, 2001). Following the clarifications from Hofstede (2001) and the empirical investigations from Park and Lemaire (2011) we expect a relation between this cultural dimension and the demand for life insurance policies, but the sign is unclear. Due to the fact that the *Uncertainty Avoidance Index* has something in common with the concept of risk aversion, but is not the same thing, in a general context of societies/countries registering values on a wide range, and with an indicator of gross written premiums for life insurance with no details regarding the type of policies included (are dominant policies with protection as the main component or those with investment component?), we have arguments to expect a positive but also a negative correlation between these variables.

H4: The demand for life insurance in a country is related to its level of uncertainty avoidance.

Through the cultural dimension *Masculinity versus Femininity*, Hofstede divides societies into two main groups: masculine societies, such as Germany and Japan, where men have the power of decision, and the feminine ones, such as the Netherlands, which gender equality is promoted, and where we have higher levels of the care for the others. According to the empirical research of Park and Lemaire (2011), the demand for life insurance could be preferred in both types of societies. Thus, in countries governed by men, life insurance policies could be chosen for their affirmation in society and they want to maintain the control. This can be done very easily by transferring the daily risk to an insurance company. In feminine societies, the demand for life insurance is motivated by the female desire to protect the people they love. Maternal spirit is highlighted here. Chui and Kwok (2008) shows that in the societies governed by femininity it can be found a higher demand for life insurance, compared with the Masculine countries. On the other hand, people from the societies governed by masculinity want to be in control in any situation, and problems such as a refusal to recognize the need for insurance and the discomfort caused by the dependence on the income offered through such a financial product, can determine a low demand for life insurance policies. Thus, we expect a negative relation between this cultural dimension and the size of life insurance industry. Consequently, the fifth tested hypothesis is:

H5: The demand for life insurance is higher in feminine societies than in masculine ones.

Another cultural dimension is the *Long Term vs. Short Term Orientation*. Hofstede (2001) proposed this indicator because he discovered that are some human characteristics, mostly in Asia, that cannot be explained through other cultural dimension. This indicator analyzes the family life and carrying forward traditions. In long-term oriented societies, especially in Asian countries, we can find applicable the principles of Confucianism, where perseverance and thrift are important, having respect for the family values and traditions, and providing to the families the financial support that they need from the part of their children. By the contrary, in countries with a lower level of long-term orientation, people focus on the stability and the desire to record a quick return. In this category we have countries as Austria, Germany and most of the African countries. Regarding the connection between the demand for life insurance and long-term orientation, as in Park and Lemaire (2011), we expect a direct relation between these two variables:

H6: The demand for life insurance is higher in countries where the long term orientation is prevalent.

The newest Hofstede's cultural dimension is *Indulgence vs. Restraint Index*, describing the degree to which people try to control their desires and impulses, to enjoy life and having fun. Societies with a Restrained culture have a higher degree of seriousness to which people treats the problems of life. Countries where this cultural dimension record a higher score are Sweden and Mexico, while countries like Israel and Estonia are in the opposite situation, with a tendency to cynicism and pessimism, with a little emphasis on leisure time. We could expect a demand for life insurance policies in Restraint countries only if this type of financial product would be compulsory. In Indulgent societies, we expect a higher demand for life insurance for the protection component of these policies, for the benefit of their dependants and close family members.

H7: The demand for life insurance in a country is positively related to its level of indulgence.

In the existing literature, it has been already proved that the life insurance consumption is related to a wide range of demographic, economic, socio-cultural and institutional determinants. A key economic determinant is the level of income, with a positive influence on life insurance consumption (see Browne and Kim, 1993; Outreville, 1996; Ward and Zurbruegg, 2002; Beck and Webb, 2003; Elango and Jones, 2011; Chang and Lee, 2012). The decision to purchase a life insurance policy is closely related to the level of GDP per capita and to the excess of liquidity in the economy. The excess of liquidity can be diminished by investing in different financial products, such as life insurance policies (Browne and Kim, 1993).

Another economic determinant for life insurance demand, next to GDP per capita, can beis the inflation rate (Kjosevski, 2012). In the empirical studies, the results are mixed regarding the impact of inflation on life insurance demand. The negative correlation between these two variables is proved by Beck and Webb (2003), Chui and Kwok (2009), Chang and Lee (2012), Lee and Chang (2015). This result can be explained starting from the investment component of a life insurance policy, which brings monetary benefits in a more distant future, ruled by monetary uncertainty. According to Fortune (1973), inflation decreases the value of life insurance, due to the depreciation of the financial assets. Thus, in the context of monetary uncertainty, people are not tempted to make long-term investments. On the other hand, Elango and Jones (2011) and Hwang and Gao (2003) do not find a relation between these two variables, and Lee and Chang (2015) find a puzzling result of a positive correlation between them.

As demographic determinants for the life insurance demand, we take into account the level of education and the crude birth rate. People with a higher level of education is considered as having a higher level of risk aversion, due to the fact that they can better understand the risks and benefits of life insurance products and they could decide easier to buy a life insurance policy for themselves or for their dependents. Consequently, we expect a positive relation between the level of education and the demand for life insurance (as in Truett and Truett, 1990; Hwang and Gao, 2003; Elango and Jones, 2011). However, the results in the financial literature are mixed: Outreville (1996) and Beck and Webb (2003) cannot confirm the relation between these two variables, while Sen (2008) finds a significant negative correlation between them.

A positive relation between crude birth rate and life insurance is expected (as in Chee, 2013) due to the fact that an increasing rate of fertility could determine wage earner individuals to expect higher level of risk regarding the future of their families and through a life insurance policy they can offer protection and savings for them.

Securities market development can have ambivalent effects on the size of the life insurance market. On the one hand, securities markets act as competitors for life insurance ones in the case of direct investments. On the other hand, liquid and developed security markets create premises for liquid and well-diversified portfolios for managers of funds of the life insurance companies. We used as proxy for securities market development the ratio of stock market capitalization to gross domestic product (GDP). We expect a positive relation between these variables due to the fact that, especially in developed countries, different types of financial products are more developed and appreciated by individuals and companies, including life insurance policies.

Another control variable used in our study is the ratio of liquid liabilities in the economy to GDP, as a proxy for the development of the overall financial system. In any economy, insurance companies could have several financial institutions as competitors, such as banks, mutual funds, investments funds, private pension funds etc. All of them are competing for disposable liquidities of individuals and institutions, and people can decide to invest these liquidities or to use for consumption. For the OECD countries, we expect a positive relation with the life insurance density and with the life insurance penetration, due to the fact that almost all of them are upper-income countries and the preference for consumption is not so significant in developed economies.

As proxies for the degree of financial openness we use successively three variables, respectively the ratio of the net inflows (new investment inflows less disinvestment) of foreign direct investments to GDP, the ratio of exports of goods and services to GDP and the ratio of imports of goods and services to GDP. The last two variables mentioned above represent the value of all goods and other market services provided to/by the rest of the world. We expect a positive correlation between each indicator and the life insurance density, and respectively with the life insurance penetration, due to the fact that higher is the degree of financial openness of an economy, higher will be the possibility to invest in financial products such as life insurance policies.

The characteristics of the legal system and the soundness of this environment are more important for this industry more than for others because life insurance policies are based on contractual obligations with long term engagements, and a grater confidence in the fairness of the insurance companies will raise the number of subscribed policies (Mare ***et al.***, 2016). We use two dummy variables to characterise the type of legal origin from La Porta ***et al.*** (1998), respectively one dummy variable for the German legal origin and another one for the Scandinavian legal origin.

In the existing literature, it is already proved that the political stability and the institutional framework affect the functioning of different economic sectors in any economy around the world, including the life insurance industry. The soundness of the legal environment depends on the political context and, for example, the control of corruption can significantly affect the trust in the insurance system in general, and particularly in the life insurance products, due to their particular long term engagements. Hence, using an average of six indicators measuring voice and accountability, political stability, government effectiveness, regulatory quality, rule of law, and control of corruption, Beck and Webb (2003) prove that institutional differences can explain some of the variation in life insurance consumption across countries. Also, Chang and Lee (2012) find that these types of institutional determinants have a positive impact on life insurance development, but especially in low-income countries. In high-income countries, this effect is marginal. In a very recent study, Lee and Chang (2015) use the worldwide governance indicator (WGI) constructed by Kaufmann *et al.* (2010) to evaluate the influence of national governance environments on the development of life insurance sector. They use four indicators: government effectiveness, regulatory quality, rule of law, and control of corruption. A higher score represents a better institutional quality. They prove that country-specific characteristics such as governance environment influence the effect of financial reform in the life insurance industry.

To avoid the multicolinearity problems, in our study we can use only one indicator from the Worldwide Governance Indicators (WGI), constructed by Kaufmann *et al.* (2010), regarding the political stability and the absence of violence (PSAV). This variable measures the perceptions about the possibility that government will be overthrown or changed, on a scale from -2.5 to 2.5, higher value meaning better outcome. We expect a positive impact of the governance environment on the size of the life insurance industry.

3. Data and methodology

This paper studies the impact of cultural background and of the financial crisis started in 2008 on the size of the life insurance industry in 32 OECD countries, for the period 2003-2011. We use two dependent variables: life insurance density and life insurance penetration. The first dependent variable is defined as the gross written premiums in life insurance sector scaled by the country's population. The second one is defined as the ratio gross written premiums in life insurance sector to GDP. The dependent variables and also all the explanatory variables used in our study are presented in Table 1, together with the data sources.

Table 1. **The dependent and the explanatory variables used in the regression models and the sources of data**

Variables	**Source**
A. Dependent variables	
Life insurance density	OECD statistics
Life insurance penetration	OECD statistics
B. Independent (explanatory) variables	
B1. Culture	
Hofstede cultural dimension: Power distance index	Hofstede (2001)
Hofstede cultural dimension: Individualism versus Collectivism	Hofstede (2001)
Hofstede cultural dimension: Masculinity versus Femininity	Hofstede (2001)
Hofstede cultural dimension: Uncertainty Avoidance Index	Hofstede (2001)
Hofstede cultural dimension: Long Term Orientation versus Short Term Orientation	Hofstede (2001)
Hofstede cultural dimension: Indulgence versus Restraint Index	Hofstede (2001)

B2. Crisis	
Crisis 1 (dummy)	Our own calculation
Crisis 2 (dummy)	Our own calculation
B3. Control variables	
Income (GDP per capita)	World Bank
Inflation Rate	OECD statistics
Crude Birth Rate	OECD statistics
Education	OECD statistics
Stock Market Capitalization to GDP	Beck, Demirgüç-Kunt and Levine (2000), "A New Database on Financial Development and Structure", updated in April 2013
Liquid Liabilities in the Economy to GDP	Beck, Demirgüç-Kunt and Levine (2000), "A New Database on Financial Development and Structure", updated in April 2013
Net Inflows of Foreign Direct Investments to GDP	Beck, Demirgüç-Kunt and Levine (2000), "A New Database on Financial Development and Structure", updated in April 2013
Exports of Goods and Services to GDP	Beck, Demirgüç-Kunt and Levine (2000), "A New Database on Financial Development and Structure", updated in April 2013
Imports of Goods and Services to GDP	Beck, Demirgüç-Kunt and Levine (2000), "A New Database on Financial Development and Structure", updated in April 2013
B4. Political and legal determinants	
Political Stability and Absence of Violence	Worldwide Governance Indicators (WGI)
German Legal Origin (dummy)	La Porta *et al.*, "Law and Finance", 1998
Scandinavian Legal Origin (dummy)	La Porta *et al.*, "Law and Finance", 1998

(*Source*: Authors' processing)

Table 2 displays the summary statistics for our sample of 32 OECD countries. Our sample is homogenous as regards to the level of financial and economic development, to the score of political stability and the absence of violence, to the inflation rates, and the crude birth rates. We can observe a significant difference of homogeneity between our dependent variables, with life insurance density exhibiting a large dispersion across OECD countries. This is the reason why we use logarithmic values for this variable. We have similar values for each Hofstede's cultural dimensions across the countries from our sample and, as a consequence, they registered a relatively low dispersion.

Table 2. **Summary statistics for all dependent and explanatory variables used in the regression models**

Variable	Mean	Standard Deviation	Minimum	Maximum
Life Insurance Density	1608.24	1732.66	9.78	11842.25

Life Insurance Density (Log)	6.74	1.36	2.28	9.37
Life Insurance Penetration	6.82	4.14	0.78	24.46
Individualism vs. Collectivism	60.18	20.38	18.00	91.00
Power Distance Index	47.28	20.20	11.00	100.00
Uncertainty Avoidance Index	67.81	21.55	23.00	100.00
Masculinity vs. Feminity	50.90	24.22	5.00	100.00
Indulgence vs. Restraint	51.28	20.61	0.00	97.00
Long Term Orientation vs. Short Term Orientation	52.00	21.27	21.00	100.00
Crisis (1)	0.11	0.31	0.00	1.00
Crisis (2)	0.22	0.41	0.00	1.00
Education	34.27	11.76	11.39	65.02
Inflation Rate	2.70	2.24	-4.48	21.60
GDP per capita	26.82	1.43	23.00	30.37
Stock Market Capitalization (% of GDP)	67.82	46.32	4.78	281.38
Political Stability and the Absence of Violence	0.64	0.63	-1.62	1.66
Crude Birth Rate	12.07	3.24	8.10	22.61
Ratio of Exports (% of GDP)	42.61	20.14	8.10	103.39
Ratio of Imports (% of GDP)	41.33	18.12	9.03	86.71
Net inflows (% of GDP)	5.29	9.08	-16.07	87.44
Liquid Liabilities (% of GDP)	86.56	39.83	23.13	215.75
Scandinavian Legal Origin	0.13	0.34	0.00	1.00
German Legal Origin	0.30	0.45	0.00	1.00

(*Source*: Authors' computations in STATA 14)

To test our hypotheses, we applied a panel data analysis. To avoid some misleading results, we conduct different statistical tests, which allow us to validate the results. Firstly, we checked for the existence of outliers. We excluded Luxembourg given its abnormal values for the life insurance density and for the life insurance penetration. Latvia was also excluded because this country was included in OECD countries in July 2016, out of our period of analysis. Islanda was excluded too, due to the unavailability of data for some financial indicators from our database.

Secondly, we applied transformations using natural logarithm, where it is required. All variables were analysed for serial correlation and stationarity. Due to the fact that both dependent variables have autoregressive processes, we estimated the linear panel regression with an AR component. Models were first run only with the crisis and cultural variables (see models 1-24 from Table 3 for the life insurance density and from Table 4 for the life insurance penetration). Due to the strong interdependence between some of the Hofstede's cultural dimensions, we test them in separate regressions.

Additionally, we applied the appropriate tests to identify the type of effects to be included in the regression models. We used the Lagrange Multiplier and the Hausman tests, and both indicated random effects in our sample of data. Thus, in the first step, we applied the regression model described below (see Eq. 1):

$$Y_{it} = \alpha + \beta_{jit}X_{jit} + \gamma_t + \rho_i + \varepsilon_{it} \qquad (1)$$

Where Y_{it} represents the size of the life insurance industry, using as proxies the life insurance density and the life insurance penetration for country *i* in the period *t*, X_{jit} is a vector including cultural and crisis variables, γ_t and ρi are the random effects (whenever necessary), with residuals ε_{it} following an AR (1) process. All the models were estimated using the Durbin-Watson, used to detect the presence of autocorrelation, with random effects.

In the second step, all variables which have been proved to be significant after we applied the first regression models using Eq. 1 were analyzed for robustness by introducing several control variables (Z_{kit}) (see models 25-37 from Table 5 for the life insurance density)[lxviii]. Thus, in the second step, we applied the regression model described below (see Eq. 2):

$$Y_{it} = \alpha + \beta_{jit}X_{jit} + \lambda k_{it}Zk_{it} + \gamma_t + \rho_i + \varepsilon_{it} \qquad (2)$$

with the same properties as the original models.

A series of quality parameters were computed, and some of them are presented in Tables 3 and 4, such as the Baltagi-Wu LBI test and the modified Bhargava *et al.* D-W statistic.

The simplest robustness check for our results consists in introducing control variables in our regression models. We took into consideration a wide range of control variables (see their description in the Section 2). All the models estimated (see Table 5) were run with a series of combinations of control variables, computed in such a manner to avoid the multicollinearity problems. We did not include in the same regression variables which have a correlation coefficient equal to or greater than 0.3.

4. The determinants of the demand for life insurance: crisis and culture

Tables 3 and 4 present the results of the impact of the Hofstede's cultural dimensions and of the two dummy variables for the recent financial crisis on the life insurance density and, respectively on the life insurance penetration. In accord with our first hypothesis, both dummy variables for crisis exert a negative impact on the life insurance density and there are significant throughout all tested models (see models 1-12 from Table 3). Table 4 (models 13-24) shows the relation between the life insurance penetration and the two dummies for crisis. In all specifications, the coefficients for crisis dummies were not statistically significant. Therefore, we partially accept our first hypothesis.

As regards the Hofstede's cultural dimensions, only three from six cultural dimensions proved to be statistically significant, and this result is similar for both dependent variables. Thus, Table 3.1, models 3 and 4, presents the results of the impact of *Individualism versus Collectivism* cultural dimension on life insurance density and Table 4.1, model 15 and 16 those for the life insurance penetration. The positive correlation between these variables is in accordance with our second hypothesis and show that, in the OECD countries, we have societies in which individuals are expected to take care of themselves and their immediate families. In these societies, life insurance products help a person to obtain this type of financial protection for them and their family members which is not possible to be offered by a loosely-knit social framework.

In accord with our third hypothesis, the *Power Distance Index* is indirectly related to the size of the life insurance industry and is significant throughout all tested models (see models 1-2 from Table 3.1 and models 13-14 from Table 4.1). In countries where people exhibit a low degree of Power Distance the demand for life insurance products is higher than in societies were people accept a hierarchical order in which everybody has a place, with no further justification. Life insurance products are perceived by the individuals as those financial products which would help them to equalise the distribution of power, and "smoothes the roughness" regarding the inequalities of power.

Our results from Table 3.2, models 7 and 8, and from Table 4.2, models 19 and 20 show a negative relation between the *Uncertainty Avoidance Index* and life insurance density/penetration. Apparently, a positive correlation is expected due to the fact that life insurance products could be seen by the people from high uncertainty-avoidance countries as instruments to reduce the ambiguity and anxiety from their lives. Instead of relying on their relatives or friends to support their dependants after their death for example, a life insurance contract is more reliable and seems to be more appropriate to control the uncertainties from their lives. Chui and Kwok (2008) obtained also some puzzling results for this cultural dimension and one possible explanation is that given by Hofstede (2001): uncertainty avoidance is not an identical concept with the risk avoidance. The risk is associated with a particular event which could happen, while anxiety and uncertainty are defuse feelings. If we are looking at the methodology applied by Hofstede for each country to construct this cultural dimension, we can find three questions regarding the perception of respondents to stress, employment stability and rule orientation. Stress is a subjective experience and the perception of each person is essential to qualify a situation as stressful. The other two questions can be interpreted as solution to avoid stressful situations (Kwok and Tadesse, 2006). People from societies with a high level of the *Uncertainty Avoidance Index* will prefer a more predictable economic and financial environment and the question is which types of financial products are more suitable to reduce the uncertainty and the ambiguity, seen as a continuous threat?

Kwok and Tadesse (2006) linked this cultural dimension with the configuration of financial systems and analyse bank-based systems vs. market-based systems and they proved that people from societies with strong uncertainty avoidance prefer to put their financial surplus in bank deposits because bank deposits respond best to their need for security: they avoid competition and to be responsible for the investment financial decision regarding their funds, the payoff is, at least in part, fixed and in many countries these deposits are insured, at least to a certain level, which offers them the financial security that they need most.

On the other hand, people form societies with a low index of uncertainty avoidance are more tolerant with the ambiguity of the future and are they are more willing to accept the opinions and behaviours different from their own (Kwok and Tadesse, 2006). Consequently, investments on capital markets will be preferred because they prefer competition and they are willing to accept risks for the expected higher returns, and even the responsibility for possible wrong financial decisions.

In this context, it is important to place correctly a life insurance contract between a bank contract and an investment on/through the capital market. It is well known that on life insurance market, especially in the developed economies, such as those of the majority of OECD countries, we can find a wide variety of policies, some of them with a prevailing protection component (more secure), and others with a prevailing investment component (closer to capital market investments). The available data for our study do not allow us to dissociate between different types of life insurance products and our negative relation with both dependent variables could be explainable, on the one hand, by the prevalence of the life insurance financial products with a significant investment component in the indicator gross written premiums. On the other hand, it is possible that people from the OECD countries to perceive these financial products as being too risky and too stressful to take individual decision regarding them, for their affordability level of uncertainty.

Table 3 reports the results of panel regressions (the models from eq.1) for the relation between the Hofstede's cultural dimensions, the crisis dummies and the life insurance density across the OECD countries for the period 2003–2011.

Table 3. **Culture, crisis and the life insurance density: regression results**

Table 3.1 (models 1-6)						
Independent Variables	(1)	(2)	(3)	(4)	(5)	(6)
Crisis	-0.101*** (0.035)	-	-0.1*** (0.035)	-	-0.101*** (0.035)	-
Crisis2	-	-0.097*** (0.033)	-	-0.097*** (0.033)	-	-0.097*** (0.033)
Power Distance Index	-0.028** (0.011)	-0.028** (0.011)	-	-	-	-
Individualism vs. Collectivism	-	-	0.028*** (0.011)	0.028*** (0.011)	-	-
Masculinity vs. Feminity	-	-	-	-	-0.005 (0.01)	-0.005 (0.01)
Uncertainty Avoidance Index	-	-	-	-	-	-
Long Term Orientation vs.Short term Orientation	-	-	-	-	-	-
Indulgence vs. Restraint	-	-	-		-	-
Constant	7.845*** (0.564)	7.849*** (0.565)	4.818*** (0.694)	4.826*** (0.694)	6.79*** (0.577)	6.797*** (0.577)
Wald chi^2	14.59	15.06	14.97	15.44	8.51	9.00
Prob.	0.002	0.002	0.002	0.001	0.037	0.03
R^2	0.253	0.252	0.219	0.218	0.01	0.01
AR coef.	0.734	0.747	0.734	0.747	0.734	0.747

Mod. Bhargava *et al.* DW	0.619	0.674	0.619	0.674	0.619	0.674
Baltagi – Wu LBI	1.067	1.117	1.067	1.116	1.067	1.116

Coefficient (Standard errors).
*** significant at 1%, ** significant at 5%, * significant at 10%.

Table 3.2 (models 7-12)

Independent Variables	(7)	(8)	(9)	(10)	(11)	(12)
Crisis	-0.101*** (0.035)	-	-0.1*** (0.035)	-	-0.101*** (0.035)	-
Crisis2	-	-0.097*** (0.033)	-	-0.098*** (0.033)	-	-0.098*** (0.033)
Power Distance Index	-	-	-	-	-	-
Individualism vs. Collectivism	-	-	-	-	-	-
Masculinity vs. Feminity	-	-	-	-	-	-
Uncertainty Avoidance Index	-0.024** (0.01)	-0.024** (0.01)	-	-	-	-
Long Term Orientation vs.Short term Orientation	-	-	0.008 (0.012)	0.008 (0.012)	-	-
Indulgence vs. Restraint	-	-	-	-	0.01 (0.012)	0.01 (0.012)
Constant	8.164*** (0.75)	8.166*** (0.75)	6.11*** (0.654)	6.115*** (0.654)	6.016*** (0.656)	6.024*** (0.657)
Wald chi^2	13.43	13.91	8.74	9.23	8.95	9.43
Prob.	0.004	0.003	0.033	0.026	0.03	0.024
R^2	0.199	0.198	0.009	0.009	0.035	0.036
AR coef.	0.734	0.747	0.734	0.747	0.734	0.747
Mod. Bhargava *et al.* DW	0.619	0.674	0.619	0.674	0.619	0.674
Baltagi – Wu LBI	1.067	1.116	1.067	1.116	1.067	1.116

Coefficient (Standard errors).
*** significant at 1%, ** significant at 5%, * significant at 10%.
(*Source*: Authors' computations in STATA 14)

Table 4 reports the results of panel regressions (the models from eq.1) for the relation between the Hofstede's cultural dimensions, the crisis dummies and the life insurance penetration across the OECD countries for the period 2003–2011.

Table 4. **Culture, crisis and the life insurance penetration: regression results**

Table 4.1 (models 13-18)

Independent Variables	(13)	(14)	(15)	(16)	(17)	(18)
Crisis	*0.065 (0.136)*	-	*0.065 (0.136)*	-	*0.065 (0.136)*	-

Crisis2	-	*0.152 (0.126)*	-	*0.152 (0.125)*	-	*0.152 (0.126)*
Power Distance Index	*-0.056* (0.034)*	*-0.056* (0.034)*	-	-	-	-
Individualism vs. Collectivism	-	-	*0.064** (0.033)*	*0.065** (0.033)*	-	-
Masculinity vs. Feminity	-	-	-	-	*0.009 (0.029)*	*0.009 (0.029)*
Uncertainty Avoidance Index	-	-	-	-	-	-
Long Term Orientation vs.Short term Orientation	-	-	-	-	-	-
Indulgence vs. Restraint	-	-	-		-	-
Constant	*9.149*** (1.73)*	*9.128*** (1.73)*	*2.628 (2.094)*	*2.6 (2.092)*	*6.044*** (1.652)*	*6.02*** (1.65)*
Wald chi2	2.97	4.22	4.06	5.31	0.32	1.56
Prob.	0.396	0.239	0.255	0.15	0.956	0.669
R2	0.073	0.072	0.089	0.089	0.001	0.0007
AR coef.	0.53	0.54	0.53	0.54	0.53	0.54
Mod. Bhargava et al. DW	0.957	0.962	0.957	0.962	0.957	0.962
Baltagi – Wu LBI	1.300	1.307	1.300	1.307	1.300	1.307

Coefficient (Standard errors).
*** - significant at 1%, ** - significant at 5%, * - significant at 10%.

Table 4.2 (models 19-24)

Indep. Variables	(19)	(20)	(21)	(22)	(23)	(24)
Crisis	0.065 (0.136)	-	0.065 (0.136)	-	0.065 (0.136)	-
Crisis2	-	0.152 (0.126)	-	0.152 (0.126)	-	0.152 (0.126)
Power Distance Index	-	-	-	-	-	-
Individualism vs. Collectivism	-	-	-	-	-	-
Masculinity vs. Feminity	-	-	-	-	-	-
Uncertainty Avoidance Index	-0.068** (0.03)	-0.068** (0.03)	-	-	-	-
Long Term Orientation vs.Short term Orientation	-	-	0.009 (0.033)	0.009 (0.033)	-	-
Indulgence vs. Restraint	-	-	-	-	0.039 (0.034)	0.039 (0.034)
Constant	11.146*** (2.17)	11.127*** (2.17)	6.064*** (1.873)	6.037*** (1.87)	4.523** (1.87)	4.507** (1.87)
Wald chi^2	5.24	6.49	0.29	1.53	1.52	2.77

Prob.	0.155	0.09	0.962	0.676	0.677	0.429
R^2	0.134	0.132	0.004	0.003	0.028	0.027
AR coef.	0.53	0.54	0.53	0.54	0.53	0.54
Mod. Bhargava et al. DW	0.957	0.962	0.957	0.962	0.957	0.962
Baltagi – Wu LBI	1.300	1.307	1.300	1.307	1.300	1.307

Coefficient (Standard errors).
*** - significant at 1%, ** - significant at 5%, * - significant at 10%.
(*Source*: Authors' computations in STATA 14)

We found no robust correlation between *Masculinity* vs. *Feminity* cultural dimension and the life insurance density/penetration. Thus, we cannot confirm the hypothesis H5. An ambiguous result was expected also by Chui and Kwok (2008), partially shared by Park and Lemaire (2011). The explanation could be, on the one hand, that for both types of societies arguments can be found to buy life insurance policies: in masculine societies, these financial products can be used as instruments to control the future and in feminine ones the higher level of care for the others can determine families to buy them. On the other hand, for the countries in our sample there is a large dispersion between values for this cultural dimension, varying between 5 and 100 and that could lead to an insignificant result.

An unexpected insignificant result was obtained for *Long-Term Orientation* cultural dimension (see Table 3.1, models 5 and 6 and models 21 and 22 from Table 4.2). Also, we found no robust influence of the *Indulgence vs. Restraint* cultural dimension on the size of mutual fund industry (see Table 3.2, models 11 and 12 and Table 4.2, models 23 and 24). Therefore, we reject the hypotheses H6 and H7.

Table 5 shows the relations between life insurance density and the crisis dummis, along with the Hofstede' cultural dimensions, which were already proved as statistically significant in models from Tables 3 and 4, taking into consideration a wide range of controlling variables.

Among the economic determinants, only the GDP per capita is statistically significant in all models. In all three models which include this explanatory variable, the positive coefficients show a direct relation between the level of economic development and the life insurance density. These results are in line with previous findings of Truett and Truett (1990), Browne and Kim (1993), Ward and Zurbruegg (2002), Beck and Webb (2003), Sen (2008), Chang and Lee (2012), among others. This industry is larger in countries with a high level of GDP per capita.

As financial determinants for the life insurance density we found as robust determinants the level of imports of goods and services to GDP, the stock market capitalization (% of GDP) and the liquid liabilities (% of GDP). We validated the untested hypothesis in the existing literature that the development of life insurance industry is boosted in countries with higher degree of financial openness, using as proxy the level of imports of goods and services to GDP. This is the only proxy for the degree of financial openness which is statistically significant from all three variables which were empirically tested in the regression models.

The proxy used for capital market development is proved to be statistically significant in model 31 from Table 5, in accordance with the results of Chui and Kwok (2008) and Lee and Chang (2015). Thus, we validated the hypothesis that the size of the life insurance market is higher in economies with market-based financial systems, whith stronger and more liquid capital markets.

In all the equations reported in Tables 5, models 28-30, the statistically significant results for the ratio of liquid liabilities to GDP highlight a positive impact on the size of the life insurance industry. We validate the untested hypothesis in the existing literature that in developed countries the prevalence of more elaborate monetary and financial instruments within the money mass will positively influence the size of the life insurance industry.

In models 32-34 from Table 5, we find a positive influence of the share of citizens enrolled in tertiary education on life insurance density. These results are in line with previous findings of Truett and Truett (1990), Browne and Kim (1993), and Elango and Jones (2011). This industry is larger in countries with a higher percentage of people with tertiary education.

To avoid the multicollinearity problems, we can use only one of the six WGI indicators from Kaufmann *et al.* (2010), respectively the measure for political stability and the absence of violence. A higher score means a better institutional quality. We validate the hypothesis that the life insurance development is boosted in countries with governments which formulate and implements sound policies and with respect for state and its citizens. The results are similar to Chang and Lee (2012) and Lee and Chang (2015). We find no robust influence of inflation, crude birth rate and legal origin on the size of life insurance industry. The irrelevance of dummies for legal origin could be explained through the fact that, in almost all OECD countries, people have a higher degree of confidence in the legal system, which helps to settle disputes and to enforce contracts.

5. Conclusions

Using a sample of 32 OECD countries for the period 2003-2011, this article examines the impact of financial crisis and the Hofstede's cultural dimensions on life insurance development, using a wide range of controlling variables. None of the empirical research published until now does not taking into consideration the impact of the recent financial crisis. We prove that both crisis dummies negatively affect the size of the life insurance industry, using as the proxy of life insurance density. The results are not similar if we used as proxy the life insurance penetration. Three of the six Hofstede's cultural dimensions were validated in all regression models, for both proxies used for the size of life insurance industry, with and without the control variables.

Recent papers of Chui and Kwok (2008) and Park and Lamaire (2011) have already proved that three, respectively five, cultural dimensions influence the demand for life insurance, but these studies were not made of the OECD countries. Moreover, the most recent cultural dimension introduced by Hofstede in the year 2010, respectively the *Indulgence vs. Restraint Index*, is not taken into consideration in the existing literature in this field. Unfortunately, we cannot validate the influence of this cultural dimension on the size of the life insurance industry, but further research is needed in order to find the appropriate explanations or to find other controlling variables to develop the existing regression models.

We prove that the *Power Distance Index* is negatively correlated with the size of the life insurance industry due to the fact that the life insurance policies are perceived as financial products which help them to equalise the distribution of power. The positive correlation with the variable *Individualism versus Collectivism* validates our hypothesis and shows that, in the OECD countries, life insurance policies are used as instruments to obtain the appropriate financial protection for them and their family members, which are not possible to be offered by a loosely-knit social framework.

An intricate result of our empirical research was the negative relation between the *Uncertainty Avoidance Index* and the life insurance density. We provide a detailed explanation for this correlation, starting from Hofstede (2001), who emphasized that uncertainty is not the same concept with the risk concept. Another explanation is based on the evidence from Kwok and Tadesse (2006) that linked this cultural dimension with the configuration of the financial systems. People from societies with strong uncertainty avoidance prefer to put their financial surplus in bank deposits and those from societies with a low index of uncertainty avoidance could prefer the investments on capital markets. If people from the analysed OECD countries perceive life insurance products as being too risky and too stressful to take individual decision regarding them, there could be associated with investments on capital market and will avoid them.

The soundness of the institutional environment was considered through one dimension from the Worldwide Governance Indicators (WGI), as the political stability and the absence of violence index. This is the main driver for life insurance density from all the explanatory variables used in our regression models. We validate the hypothesis that the life insurance development is boosted in countries with governments which formulate and implements sound policies and with respect for state and its citizens, while the two dummies for the legal origin do not influence the life insurance demand in the OECD countries.

Using the GDP per capita as the measure of economic development, we validate this variable as the second main driver of the life insurance consumption, after the WGI indicator from Kaufmann *et al.* (2010). We also validate the hypothesis regarding the education, finding that a greater percentage of people enrolled in the tertiary system leads to a higher life insurance density.

To test for the robustness of these results, control variables reflecting the financial development are also included in our analysis. A developed life insurance industry is associated with greater values for stock market capitalization, with higher volumes of liquid liabilities in the economy, and with higher values for imports to GDP ratios.

Our most general conclusion is that cultural values matter and significant economic and financial crisis seriously affect the development of this important financial sector. Among instruments and measures to stimulate the growth of the life insurance industry, cultural factors are proved to be significant drivers for economic activity. If a country's policymakers intend to develop this industry, we highlight that it is becoming increasingly important to understand and consider a large range of cultural and institutional variables. However, our results must be carefully interpreted. Some questions remain, especially regarding the unexpected relations or the absence of the significant correlations between the size of the life insurance industry and some of the Hofstede's cultural dimensions. These are suitable topics for further research. Subsequent studies could test the robustness of our results by employing alternatively sources of data for the cultural variables, using, for example, data from experimental surveys employed in the behavioural finance literature.

[liii] Gonthier-Besacier *et al.* (2012) analyze the perceptions of preparing staff on audit quality.

[liv] In fact, the auditing profession is recent in all ex-communist countries (Müllerová, 2011; Fülöp, 2014).

[lv] Although for a long time, an auditor's belonging to the Big N category was considered a variable that ensured the auditing quality, more recent research has reached the conclusion that current differences in terms of quality between the Big N and the others are not necessarily very visible (Comprix and Huang, 2015)

[lvi] Other variables quoted by DeFond and Zhang (2014) in order to measure auditing quality are auditors' specialization and audit fees.

[lvii] Given the interval considered in our study (2011-2015), we have used the IAS 705 version that was in force beginning with December 2009 and available at http://www.ifac.org/system/files/downloads/a038-2010-iaasb-handbook-isa-706.pdf (consulted on 15.12.2016).

[lviii] We must specify that all listed companies which transitioned to the IFRS in 2012 had the 31st of December as their closing date.

[lix] These other elements are: accounting for some specific transactions, impairment of financial investments, IFRS 5 application, difficulties in the use of an ERP, legal problems, classification of assets and liabilities, difficult relation between the auditor and the board of the companies, depreciation of tangible and intangible fixed assets, non-confirmation of balances of receivables and payables accounts, insufficient internal audit procedures, application of IFRS, insufficient accounting procedures, recognition of revenues, current tax matters, prepaid expenses, presentation of liabilities, insufficient disclosure in notes, exposure to a single client/supplier or to a single activity, failure to comply with the companies law provision concerning the legal reserves or to other provisions, environmental matters, recognition of some assets, some parts of the financial statements are not audited.

[lx] This item also features in an article on Australian companies, but in a different context: the re-evaluation of such fixed assets leads to an increase of audit fees (Yao *et al*., 2015).

[lxi] It would be very useful, in this context, to measure the impact of modified opinions on investors' behavior.

[lxii] The only source for modified opinions in the system managed by the American SEC.

[lxiii] There are many more changes of auditor, but we did not focus here on changes that lead to the same type of opinion.

[lxiv] In one case that we can label opinion shopping, after a few years of audit reports with a modified opinion, the change of the auditor led to a non-modified opinion, but with an observation which contains precisely the explanation of reserves in previous years: the new auditor played on the materiality.

[lxv] In decreasing order of occurrence, these other observations concern: impairment of investments, revaluation of fixed assets, exposure on a single client/supplier or on a single activity, impairment of receivables, some parts of the financial statements are not audited, change of auditor, classification of assets/liabilities, inflation accounting, insufficient internal procedures, impairment of fixed assets, impairment of inventories, environmental matters, cost measurement, insufficient closing operations, failure in the presentation of the consolidated financial statements, tax justification in the preparation of the financial statements, some activities are not efficient, evolution of the equity, changes in the presentation methods, classification of expenses/revenues, errors, exchanges of assets, comparability.

[lxvi] For another component of the Romanian financial market– AeRo – which groups together small-size companies, for the same period (2011 - 2015) we calculated a percentage of 9.82% (76 Big 4 auditors against a total of 774 available observations).

[lxvii] The average values of life insurance density ranged from 15 USD per capita for Turkey to over 7744 USD per capita for Ireland. For life insurance penetration, a similar analysis shows also large disparities between countries, from 0,16% for New Zeeland to 15% in Ireland.

[lxviii] These results were omitted due to space limitations and are available upon request.

Table 5. **Culture, crisis and the life insurance density: regression results with control variables for demographic, institutional, financial and economic development**

	Dependent variable: Life insurance density												
Independent variables	(25)	(26)	(27)	(28)	(29)	(30)	(31)	(32)	(33)	(34)	(35)	(36)	(37)
Crisis	-0.089** (0.037)	-0.089** (0.036)	-0.089** (0.037)	-0.105** (0.04)	-0.113*** (0.039)	-0.108*** (0.041)	-0.057 (0.041)	-0.107*** (0.04)	-0.097** (0.04)	-0.113*** (0.039)	-0.04 (0.046)	-0.053 (0.046)	-0.049 (0.046)
Power Distance Index	-0.027*** (0.009)	-	-	-0.02** (0.008)	-	-	-	-0.025*** (0.009)	-	-	-0.03*** (0.009)	-	-
Individualism vs. Collectivism	-	0.026*** (0.009)	-	-	0.023*** (0.008)	-	-	-	0.029*** (0.008)	-	-	0.03*** (0.008)	-
Uncertainty Avoidance Index	-	-	-0.024*** (0.008)	-		-0.019** (0.008)	-0.019** (0.008)	-	-	-0.021*** (0.008)	-	-	-0.023*** (0.008)
Crude Birth Rate	-0.278 (0.035)	-0.01 (0.036)	-0.027 (0.035)	-	-	-	-	-	-	-	-	-	-
Net Inflows (% of GDP)	0.002 (0.002)	0.002 (0.002)	0.002 (0.002)	0.002 (0.002)	0.003 (0.002)	0.002 (0.002)	0.001 (0.002)	-	-	-	-	-	-
GDP per capita	0.126*** (0.03)	0.12*** (0.03)	0.125*** (0.03)	-	-	-	-	-	-	-	-	-	-
Exports (% of GDP)	-	-	-	-	-	-	-	0.003 (0.004)	0.003 (0.004)	0.002 (0.004)	-	-	-
Imports (% of GDP)	-	-	-	-	-	-	-	-	-	-	0.017*** (0.004)	0.015*** (0.004)	0.016*** (0.004)
Education	-	-	-	-	-	-	-	0.046*	0.04**	0.048**	-	-	-

SM Capitalization (% of GDP)	-	-	-	-	-	-	0.002* (0.001)	-	-	-	-	-	-
Liquid Liabilities (% of GDP)	-	-	-	0.009*** (0.002)	0.01*** (0.002)	0.01*** (0.002)	-	-	-	-	-	-	-
Political Stability	-	-	-	0.214* (0.114)	0.206* (0.107)	0.196* (0.115)	0.13 (0.117)	-	-	-	-	-	-
German Legal Origin	-	-	-	-0.24 (0.372)	-	-0.24 (0.366)	-0.034 (0.393)	-	-	-	-	-	-
Scandinavian Legal Origin	-	-	-	-	-	-	-	-	0.189 (0.486)	-	-	0.608 (0.495)	-
Constant	4.79*** (1.022)	1.9* (1.078)	5.104*** (1.105)	6.652*** (0.478)	4.08*** (0.542)	6.964*** (0.579)	7.667*** (0.607)	6.15*** (0.535)	3.46*** (0.531)	6.383*** (0.651)	7.256*** (0.476)	4.162*** (0.542)	7.487*** (0.601)
Wald chi^2	37.87	34.82	35.81	42.32	50.31	43.24	17.22	83.11	71.11	81.15	33.26	35.94	29.01
Prob.	0.000	0.000	0.000	0.000	0.000	0.000	0.016	0.000	0.000	0.000	0.000	0.000	0.000
R^2	0.373	0.271	0.319	0.519	0.511	0.519	0.263	0.5	0.539	0.477	0.219	0.305	0.151
AR coef.	0.696	0.696	0.696	0.647	0.689	0.647	0.696	0.616	0.599	0.616	0.678	0.645	0.678
Mod. Bhargava *et al.* DW	0.832	0.832	0.832	0.753	0.689	0.753	0.709	0.801	0.838	0.801	0.767	0.814	0.767
Baltagi – Wu LBI	1.248	1.248	1.248	1.154	1.089	1.154	1.173	1.082	1.141	1.082	1.088	1.136	1.088

(*Source*: Authors' computations in STATA 14)

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References

Beck, T. & Webb, I. (2003) "Economic, Demographic and Institutional Determinants of Life Insurance Consumption", *The World Bank Economic Review,* No. 17(1): 51-88

Beenstock, M., Dickinson, G. & Khajuria, S. (1986) "The Determination of Life Premiums: An International Cross-Section Analysis - 1970-1981", *Insurance: Mathematics and Economics*, No. 5: 261-270

Breuer, W. & Quinten, B. (2009) "Cultural Finance", SSRN Working Paper, accessed at: http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1282068

Browne, M.J. & Kim, K. (1993) "An international analysis of life insurance demand", *Journal of Risk and Insurance*, No. 60: 616–634

Chang, C.H. & Lee, C.C. (2012) "Non-linearity between life insurance and economic development: A revisited approach", *The Geneva Risk and Insurance Review*, No. 37(2): 223–257

Chee, L.C. (2013) „Examining the New Purchase of Whole Life, Endowment and Temporary Insurance through Macro-Level Demographic Factors: The Case of Malaysia", Procedia - Social and Behavioral Sciences, 91: pp. 306 – 315

Chui, A.C. & Kwok, C. C. (2008) "National culture and life insurance consumption", *Journal of International Business Studies*, No. 39(1): 88-101

Chui, A. & Kwok, C.(2009) "Cultural practices and life insurance consumption: An international analysis using GLOBE scores", *Journal of Multinational Financial Management:* 273–290

Crosby, L. A. & Stephens, N. (1987) "Effects of relationship marketing on satisfaction, retention, and prices in the life insurance industry", *Journal of Marketing Research*, No. 24(4): 404–411

Dionne, G. (2013) "Risk Management: History, Definition, and Critique", *Wiley Online Library*, Vol. 16, No. 2: 147–166

Elango, B. & Jones, J. (2011) "Drivers of Insurance Demand in Emerging Markets", *Journal of Service Science Research*, No. 3(2): 185-204

Fortune, P. (1973) "A Theory of Optimal Life Insurance: Development and Test", *The Journal of Finance*, Vol. 28, No. 3: 587-600

Guiso, L., Sapienza, P & Zingales, L. (2006) "Does Culture Affect Economic Outcomes?" *Journal of Economic Perspectives*, No. 20(2): 23-48

Hofstede, G. (1980) *Culture's Consequences: International Differences in Work Related Values*. Beverly Hills: CA, Sage.

Hofstede, G. (2001) "*Culture's Consequences: Comparing Values, Behaviors, Institutions, and Organizations Across Nations", 2nd edition,* Thousand Oaks CA: Sage Publications

Hofstede, G. (2010) „Cultures And Organizations - Software of the Mind": 1-29

Hwang, T., & Gao, S. (2003) "The Determinants of Demand for Life Insurance in an Emerging Economy- the Case of China", *Managerial Finance*, No. 29(5/6): 82-96

Kaufmann, D., Kraay, A., & Mastruzzi, M. (2010) "The world governance indicators: Methodology and analytical issues", *World Bank policy research working paper*, no. 5430 *(Washington, D.C.: The World Bank, Development Research Group, Macroeconomics and Growth Team)*

Kjosevski, J. (2012) "The determinants of life insurance demand in Central and South-Eastern Europe", *Int. J. Econ. Finance*, No. 4 (3): 237–247

Kwok, C.C.Y. & Tadesse, S. (2006) "National culture and financial systems", *Journal of International Business Studies*, No. 37(2): 227–247

La Porta, R., Lopez-de-Silanes, F., Shleifer, A. & Vishny, R. W. (1998) "Law and Finance", *The Journal of Political Economy*, vol. 106, No. 6: 1113-1155

Lee, C.C. & Chang, C.H. (2015) "Financial policy and insurance development: Do financial reforms matter and how?", *International Review of Economics & Finance*, No. 38(C): 258-278

Li, D., Moshirian, F., Nguyen, P. & Wee, T. (2007) "The Demand for Life Insurance in OECD Countries", *Journal of Risk and Insurance,* No. 74(3): 637–652

Mare, C., Dragoș, S.L., Dragotă, I.M., Mureșan, G.M. & Urean, C.A. (2016) "Spatial Convergence Processes On The European Union's Life Insurance Market", *Economic Computation and Economic Cybernetics Studies and Research*, No. 4 (50): 93-107

Outreville, J.F. (1996) "Life Insurance Markets in Developing Countries", *Journal of Risk and Insurance*, No. 63(2): 263–278

Park, S. & Lemaire, J. (2011) "Culture matters: Long-Term Orientation and the Demand for Life Insurance", *Asia-Pacific Journal of Risk and Insurance*, No. 5(2)

Reuter, C.H.J. (2011) "A Survey of 'Culture and Finance'", *Finance (Revue de l'Association Française de Finance)*, No. 32(1): 75-152

Sen, S. (2008) „An Analysis Of Life Insurance Demand Determinants for Selected Asian Economies and India", *MSE Working Papers*, No. 36, Madras School of Economics

Truett, D.B. & Truett, L.J. (1990) „The Demand for Life Insurance in Mexico and the United States: A Comparative Study", *Journal of Risk and Insurance*, No. 57: 321–328

Ward, D. & Zurbruegg, R. (2002) "Law, Politics and Life Insurance Consumption in Asia", *The Geneva Papers on Risk and Insurance—Issues and Practice*, No. 27: 395–412

Geert Hofstede Database. Accessed on 14.04.2014, at http://geert-hofstede.com/

OECD Database. Accessed on 02.02.2016, at http://stats.oecd.org/Index.aspx?DataSetCode=INSIND#

Sigma World Insurance Database 2017, Swiss Re Economic Research & Consulting. Accessed at 02.02.2016, at http://www.sigma-explorer.com/

World Bank. Accessed on 14.04.2014, at http://data.worldbank.org

The analysis of structural similarities and business cycle synchronization between Romania and the Eurozone. Comparisons with the CEE countries

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Abstract: *Countries are becoming more and more interconnected through trade linkages and financial integration, which is constantly increasing. This is one reason why the financial crisis has spread so fast and was able to affect a significant number of countries. Our paper proposes an analysis to assess the degree of similarity in the structure of GDP between Romania and each member of the Eurozone, while also comparing the results for Romania with 6 Central Eastern European countries. Furthermore, the synchronization of their business cycles is estimated through correlation coefficients and the convergence is tested using a rolling window approach. The main goal is to understand to what extent is Romania ready to adopt the euro and what are the aspects that require close and active monitoring in order to achieve this. The results show that Romania has not reached yet a sustainable degree of synchronization and a structural similarity with the Eurozone, recording high correlations mainly in the financial crisis period. Before considering the adoption of euro, the benefits and costs have to be analysed to avoid being exposed to asymmetric shocks.*

Keywords: *Eurozone, structural similarity (Krugman indicator), business cycle synchronization, real convergence criteria, rolling window correlation*

1. Introduction

Currently Romania meets the nominal convergence criteria laid down in the Maastricht Treaty: price stability, exchange rate stability and also the criteria referring to interest rates and public finances. However, the constraints that are made in order for them to be fulfilled could negatively affect the country's performance, making it harder for the fulfilment of the real criteria. After the financial crisis of 2008, it was concluded that just the nominal criteria are not enough, since the current environment is more vulnerable, with high risk aversion and without an abundance of capital flows. These changes in the economy require a change in policy. Therefore, it is necessary to have an overview of the entire economy, which is critical in order to achieve stability and sustainable economic growth. For a country to reduce the costs implied by the criteria needed to join the Eurozone, it is necessary to obtain a high degree of synchronization with it and, thus, with each of the member countries of the Eurozone.

This study focuses on real convergence, analysing the convergence of production to the level of the countries in the Eurozone. The theme is of great interest to economists, researchers in the field and for the political sector. The work is divided

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into the following sections: the literature review presents analysis and studies on this topic and the authors' conclusions; the methodology, in which we mention, in detail, the methods and models used, and then followed by the case study with the analysis results and finally, the conclusions of the analysis.

2. Literature review

It is of utmost importance to analyse the extent to which a country has a similar macroeconomic evolution to that of the Eurozone, before joining. The impact is not limited to that specific country for which the costs of giving up the national currency should be lower than the benefits (the theory of optimum currency areas), it can also affect the Eurozone, as a whole.

There are several articles tackling the subject of business cycle synchronization, the adoption of one currency for all countries and the implications that this has on their economy in particular, and, of course, for the entire Eurozone. However, very few of them focus on Romania and this section presents, predominantly, the main results obtained by different authors who have included the Romanian market in their analysis.

Alexe and Tatomir (2012) study the synchronization of the GDP components between Romania and Germany (which is used as a benchmark for the Eurozone) resulting in trade and investment with the highest correlation and private consumption with the lowest. They consider a possible reason as being the fact that the Romanian economy is based on consumption, whereas the German one is based on production. Their results support the ones of the studies that they have cited, such as: Bojeșteanu and Bobeică (2008) and Dumitru (2009) who determine that Romania has a high risk of asymmetric shocks and that, at that time, it was too early for adopting the euro. To estimate how vulnerable, the Romanian economy is to these asymmetric shocks, the degree of business cycle synchronization is calculated and according to Dardac and Bojeșteanu (2009) the resulted correlation is high. Although there are benefits to adopting the euro, such as the elimination of exchange rate risk, there are still costs that should be taken into consideration: The National Bank of Romania will no longer be able to use the exchange rate policy to reduce the effects of shocks on the economy. However, it should be considered that during recessions, correlations are higher. Marinas, Socol and Socol (2011) consider that not being part of a monetary union makes it difficult for Romania's economy to adjust being exposed to negative external shocks. The main finding of Tatomir and Popovici (2013) is that there are countries such as Greece and Malta that have a lower correlation with the business cycle of the Eurozone than countries that are not members yet (such as: Romania, Hungary, Bulgaria, Czech Republic) with the exception of Poland which has the lowest correlation and being „significantly detached from the European Area". On the other hand, Finland and France resulted to have significantly high correlations and can be considered identified with the Eurozone. Savva and Osborn (2006) use a bivariate VAR - GARCH model to examine the business cycle synchronization of the Euro Zone with the members of the European Union that joined in 2004 and 2007. The analysed period is between 1980 and 2006. The purpose of these types of models is to better capture the periods of the structural changes, the regime switches, and also account for the duration of the transition phases. Their results reflect that, out of the recently acceded countries, only Romania showed a negative conditional correlation with the Euro Zone (in the old regime), while in the new regime the correlation for Romania became slightly positive, whereas for the other countries it increased significantly.

A key role in creating business cycle convergence is played by international trade, by how similar the monetary and fiscal policies are for the analysed countries and by the degree of financial integration. Dées and Zorell (2011) in an ECB working paper conclude that having high levels of bilateral trading between the countries is important, but what creates a higher degree of synchronization is having similar production structures. Misztal (2013) focuses on how the intensity of trade impacts the business cycle in Poland, the European Union and The Euro Zone. What the author demonstrates is that the reason for the increase in synchronization is mainly due to the structure of trade and not the intensity. This happens because there is a higher risk of asymmetric shocks if the countries' trade turnovers are more concentrated on inter-industry trade, as compared to intra-industry trade.

3. Methodology

The purpose of this article is to test the real convergence towards European integration, reducing disparities between Member States so that the policies that are implemented are more effective for all Member States. In order for the disadvantages of an open economy to be fewer and to benefit from the opportunities offered by the EU and the EZ it is necessary to obtain, in advance, a high degree of synchronization with the EZ. This section presents the calculation of Krugman indicator, of correlations that are established for GDP components and the estimation of the degree of correlation of business cycles with the EZ.

The data is obtained from the Eurostat website for the period 2000Q1-2016Q4, quarterly, accumulating a total of 68 observations. The countries in Central and Eastern Europe (CEE) and the Eurozone (EZ) for which this analysis is performed are presented in Table 1:

Table 1. **Countries considered in the analysis**

EZ(19)				**CEE**	
Country	**Not.**	**Country**	**Not.**	**Country**	**Not.**
Austria	AT	Latvia	LV	Bulgaria	BG
Belgium	BE	Lithuania	LT	Czech Rep.	CZ
Cyprus	CY	Luxembourg	LU	Croatia	HR
Finland	FI	Malta	MT	Hungary	HU
Estonia	EE	Netherlands	NL	Poland	PL
France	FR	Portugal	PT	Romania	RO
Germany	DE	Slovakia	SK		
Greece	GR	Slovenia	SI		
Ireland	IE	Spain	ES		
Italy	IT				

(*Source:* Authors' projection)

It is important to note that it is not enough to use in the analysis the variables for the EZ, as a total (as a unit); it is much more accurate to treat each member country separately and compare the results with each one.

The first analysis is done to establish the structural similarity through the Krugman indicator, calculated as follows:

$$S_{i,EZ} = \sum_{k=1}^{n} \left| \frac{GVA_{kcountryi}}{GVA_{totalcountryi}} - \frac{GVA_{kEZ}}{GVA_{totalEZ}} \right| \quad (1)$$

where i represents the analyzed country, GVA = gross value added and $k = \overline{1,n}$number of sectors; in this case, 10 sectors are considered:

- Agriculture, $\xrightarrow{not}$ Agr.
- Industry, $\xrightarrow{not}$ Ind.
- Construction$\xrightarrow{not}$ Constr.
- Commerce (Trade), $\xrightarrow{not}$ Com.
- IT&C, $\xrightarrow{not}$IT&C
- Financial and insurance activities, $\xrightarrow{not}$ Fin.
- Real estate, $\xrightarrow{not}$RE (real estate)
- Professional, scientific and technical activities, $\xrightarrow{not}$PST
- Public administration, $\xrightarrow{not}$ Adm.
- Arts and recreational activities, $\xrightarrow{not}$ Art.

This indicator measures the specialization (the degree of concentration) by comparing a sector of the economy with the economy as a whole. For this article the Krugman indicator was calculated by comparing each CEE country considered with the EZ as a unit and comparing Romania with each member country to determine to which economy Romania is nearest or farthest. The index takes values between 0 and 2: the closer it is to 0 the more similar that country is to a country or group of countries with which it is compared to in terms of production of goods and the proportion in which they are produced. An index value tending or equal to 2 shows very different industry structures between the countries included in the analysis, meaning that the country is more specialized.

A number of 10 sectors was chosen that were treated individually (without some industries to be combined) in order to avoid possible errors that could have distorted the results. For example, if we expect the analysed country to be more specialized in certain subsectors and less specialized in others, combining a sector which is more specialized with one that is less specialized would make the overall effect of the 2 subsectors to cancel each other and, thus, would decrease the level of specialization.

The analysis is performed both for the entire period, and for the following 4 subperiods:

- 2000Q1 - 2004Q4
- 2005Q1 - 2008Q3 (2005 symbolizes the signing of the Treaty of Accession to the EU, followed by a period of economic boom)
- 2008Q4- 2011Q4 (marks the crisis and is the period in which it was the most aggressive). The end of 2011 was chosen as the end of the significant turbulences on the market because after this moment the markets started to

have a growing trend again and investors were regaining their trust in stocks because in that volatile period gold was a more preferred option. Also, the S&P Homebuilders ETF bottomed for the last time in 2011Q3, after which it shifted and started rising.

- 2012Q1 - 2016Q4 (the post-crisis period)

Nevertheless, this division into subperiods facilitates the interpretation of results, the subperiods being comparable, relatively homogeneous, containing a rather similar number of quarters.

For additional information on the disparities between economies, correlations were calculated for the components of GDP (private consumption, investment, exports, imports). The same period is used, the data is seasonally adjusted and the first difference of logarithms was applied, working with growth rates and achieving stationary series.

The next method for checking the degree of economic integration is the analysis of the synchronization of business cycles, this being achieved using the GDP (quarterly data). GDP is considered a key indicator for business cycle synchronization studies as it is comprehensive in capturing the evolution of economy and also widely used and accepted in the literature (Grigoraș and Stanciu, 2016). To capture the business cycle, the Hodrick - Prescott filter is used, applied on time series of logarithms to obtain the deviation from trend, which is the most frequently used method in literature. According to Hodrick and Prescott (1997), the role of this filter is to decompose the time series in 2 parts, which, in reality, would be unobservable: the cycle (c_t) and the trend (g_t), $t = \overline{1,T}$.

$$y_t = g_t + c_t \tag{2}$$

g_t *being the growth component (the trend) and* c_t *representing deviations of la* g_t

The version proposed by Hodrick and Prescott to isolate the cyclical component consists of solving the following minimum problem:

$$\min_{(g_t)_{t=1}^{T}} \left\{ \sum_{t=1}^{T} c_t^2 + \lambda \cdot \sum_{t=1}^{T} [(g_t - g_{t-1}) - (g_{t-1} - g_{t-2})]^2 \right\} \tag{3}$$

However, this method is not without limitations, as mentioned by Marinaș *et al.* (2011), which are related to the smoothing parameter λ, chosen depending on the frequency of data *(100 for annual data, 1600 for quarterly and 14400 for monthly)* which would affect the estimates, the filtered series being similar to the initial one at the beginning and the end of the estimation period. The highest this parameter λ is, the smoother and flatter the trend will be, so when λ → ∞ the trend will be a straight line. Dardac and Bojeșteanu (2009) treat this issue using two approaches: period by period and frequency by frequency, eliminating the disadvantages that each one, separately, would present. Thus, they estimate two dynamic correlations, attaching them a temporal dimension by calculating them period by period using a rolling window for a period of 8 years.

In their article, Bojeșteanu and Manu (2011) use 4 ways to extract the cycle: Hodrick-Prescott, Band Pass, Kalman and the series' deviation against quadratic trend; results are to be combined into a consensus measure using principal component analysis. This aggregated result is then compared through correlations with each cyclical component resulted from the application of standard filters, in order to test the robustness of the results. The highest degree of correlation is obtained with the Hodrick-Prescott filter, which is also used in our paper.

According to Tatomir and Popovici (2013), in the literature there are various methods to measure the degree of synchronization of business cycles: simple correlation (Pearson), dynamic correlation, phase correlation and index adjusted. In this article, the degree of correlation between Romania and the Member States is calculated with dynamic correlations, by estimating the Pearson correlation coefficient, but using a rolling window of 5 years. Dardac and Bojeșteanu (2009) state that, for countries with economies in transition, the dynamic correlations are more useful for capturing economic cycles, taking into account the frequent changes in the macroeconomic variables and, therefore, of the economic structure.

The measurement of synchronization is performed following the methodology of Hardin and Pagan (2006) through a concordance indicator (CI) that reflects what is the percentage of the analysed period in which the 2 analysed economies are in the same phase of the cycle:

$$CI_{i,EZ} = \frac{1}{T} \cdot \left[\sum\left(S_{i,t} \cdot S_{EZ,t} + \left(1 - S_{i,t}\right) \cdot (1 - S_{EZ,t})\right)\right] \qquad (4)$$

where,

T - the sample size; $S_{i,t}, S_{EZ,t}$ - binary variables that take the value of 1 (in the case of economic expansion) and 0 (in case of recession).

It is considered expansion if GDP growth is recorded in at least 2 successive periods and recession if there is a decrease in the GDP growth rate for at least two periods. Other conditions that were taken into consideration when calculating turning points were: the fact that the minimum duration of a complete cycle (recession and expansion) is 6 periods *(as Baxter and King (1999) consider the business cycle as having a frequency of between 6 and 32 quarters)* and that if the quarterly growth exceeds the threshold of 10%, then a new phase has started.

Moreover, it is necessary to test whether the degree of synchronization given by the CI is statistically significant, with the following null hypothesis:

$$H_0: \rho_{S_{i,t}; S_{EZ,t}} = 0 \leftrightarrow \textit{there is no concordance} \qquad (5)$$

4. Results

4.1. Krugman Indicator - structural similarities

An important aspect mentioned by Krugman (1993) and also quoted by Marinaș *et al.* (2011), is that the improvement of trade relations can affect the degree of synchronization, as each country will tend to produce, for example, goods that it is more specialized in, or that will bring the most significant gain, thus greatly differentiating each country.

Table 2 presents a comparative analysis of average share in total GVA, with results broken down by sectors and by the 4 sub-periods, which is useful for noticing the evolution of these indicators:

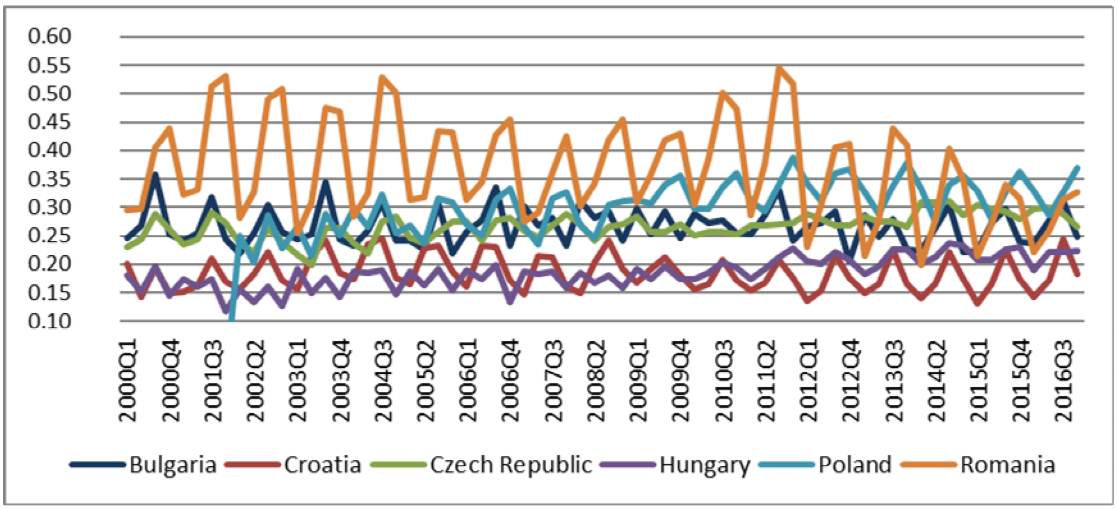
Table 2. **Comparisons regarding economic production, results by sector of activity - share of GVA**

		Agr	Ind	Constr	Com	IT&C	Fin	RE	PST	Adm	Art
2000Q1-	RO	12%	29%	6%	20%	5%	3%	8%	3%	12%	3%
2004Q4	EZ	2%	22%	6%	19%	5%	5%	10%	10%	18%	3%
2005Q1-	RO	7%	28%	9%	22%	5%	2%	9%	4%	12%	3%
2008Q3	EZ	2%	21%	6%	19%	5%	5%	11%	10%	18%	3%
2008Q4-	RO	6%	30%	10%	17%	5%	3%	9%	5%	12%	3%
2011Q4	EZ	2%	19%	6%	19%	5%	5%	11%	10%	19%	4%
2012Q1-	RO	5%	28%	7%	19%	6%	4%	9%	7%	12%	3%
2016Q4	EZ	2%	20%	5%	19%	5%	5%	11%	11%	19%	4%

(*Source:* Eurostat, authors' calculations)

It can be seen that the greatest differences between Romania and the Eurozone are found for agriculture, industry and services (public and professional, scientific and technical). In case Romania would reduce these differences and would be included in the Eurozone, it is possible that in the long-term to focus more in these same areas where it has a longer experience in, leading to the weakening of the degree of synchronization. To avoid this, it is necessary to also invest in the development of other sectors, without neglecting to support sectors that are now ineffective and industrialized, but with a lot of potential (such as agriculture). The production sectors that are the most synchronized with the Eurozone economy are: trade, IT&C, real estate activities and cultural and recreational activities. The construction sector has been perfectly synchronized with the EZ, in 2000 – 2004, before the boom period, following a continuously growing gap after this period. In the case of agriculture there has been an accelerated decline from 12% to 5%, but the gap has started to close in the latest period. The differences in financial services are caused by a less developed financial market in Romania. However, we have to admit that these areas where there are significant differences between Romania and the Eurozone are also the areas that have contributed positively to the reduction of imbalances and vulnerabilities caused by the financial crisis.

Graph 1. **Degree of structural synchronization with the Eurozone**



(*Source:* Eurostat, authors' calculations)

It is easily seen, from Graph 1, that of all the analysed CEE countries, the divergence between Romania and the Eurozone is the largest, while for Hungary it is the opposite. Both Graph 1 and Table 3 are strengthening the ideas mentioned above regarding the significant structural differences between Romania and the Eurozone, which would be an impediment to adopting the single currency.

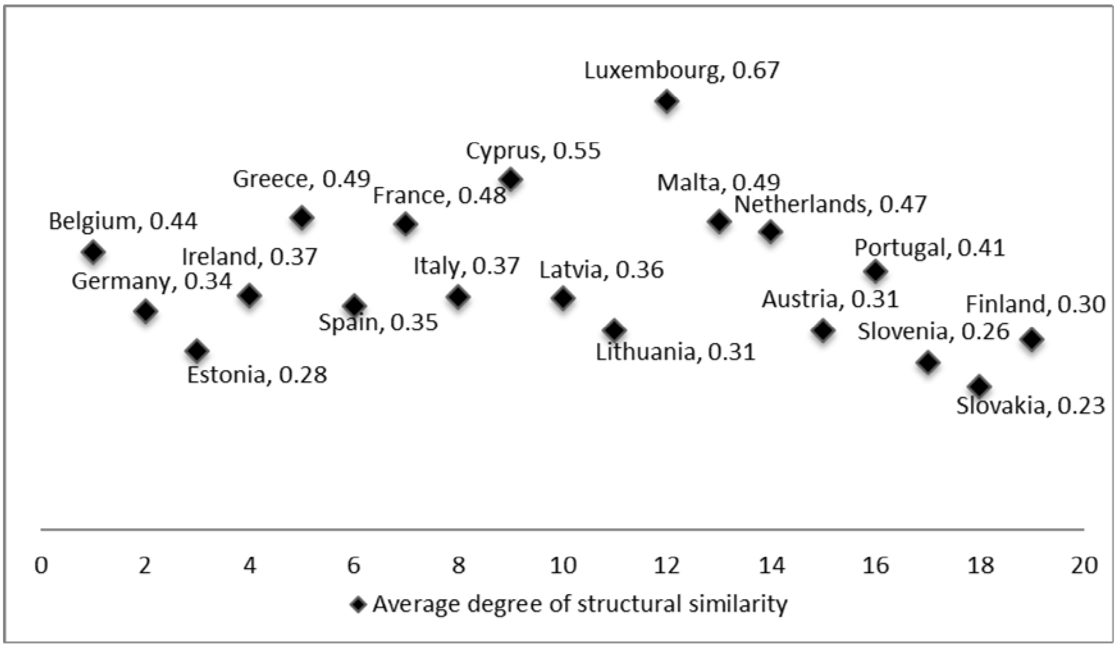
Table 3. **Krugman indicator - average**

Country	**2000Q1 - 2016Q4**
Bulgaria	0.27
Croatia	0.18
Czech Republic	0.27
Hungary	0.19
Poland	0.30
Romania	0.37

(*Source:* Eurostat, authors' calculations)

The Krugman indicator (1) was calculated, as stated in the methodology, using both the Eurozone as a whole (as an aggregate of all countries that are members) and also treating each member country separately. It was obtained that the Romanian economy is mostly similar to that of Slovakia, Slovenia and Estonia, while the largest discrepancies are with Luxembourg, Cyprus and Greece (please refer to Graph 2).

Graph 2. **Average degree of structural similarity between Romania and the members of the Eurozone**



(*Source:* Eurostat, authors' calculations)

Given that Greece and Cyprus are among the countries most seriously affected by the crisis, it can be said that it is a good thing that the Romanian economy is not similar to these countries, which in turn, based on our calculations, have a lower degree of structural similarity with the Eurozone ($S_{GR,EZ} = 0.29$; $S_{CY,EZ} = 0.33$), as compared

to Italy where $S_{IT,EZ} = 0.09$. These higher differences can lead to a significant exposure to asymmetric shocks.
Correlations for GDP and its components were calculated for the whole analysed period, obtaining the below results:

Table 4. **Correlations GDP and its components – between CEE and EZ**
(symbolizes that p-value is 15%; all other values are significant with p-value less than 1%)*

Period		BG	CZ	HR	HU	PL	RO
2000Q1 - 2016Q4	**GDP**	0.3948	0.6792	0.7329	0.6288	0.4918	0.6836
	rank	*6*	*3*	*1*	*4*	*5*	*2*
	CONSMP	0.3810	0.6335	0.7757	0.4797	0.4517	0.6060
	rank	*6*	*2*	*1*	*4*	*5*	*3*
	INVESTM	0.1906*	0.4860	0.6168	0.4723	0.6129	0.7994
	rank	*6*	*4*	*2*	*5*	*3*	*1*
	EXP	0.6089	0.7293	0.4999	0.8928	0.8199	0.6983
	rank	*5*	*3*	*6*	*1*	*2*	*4*
	IMP	0.6525	0.6959	0.6926	0.8183	0.8179	0.7920
	rank	*6*	*4*	*5*	*1*	*2*	*3*

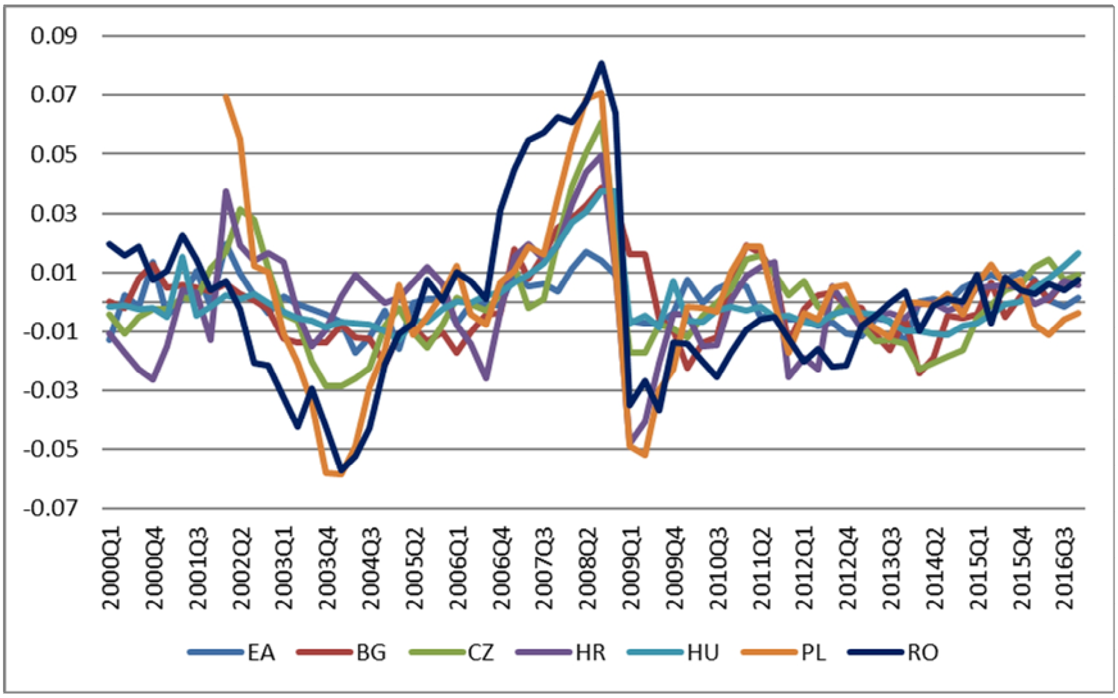
(*Source:* Eurostat, authors' calculations)

Romania, as compared to other CEE countries, ranks first in terms of correlations with the EZ for investments, and in terms of GDP exceeded only by Croatia. The last position for almost all analysed GDP components and for total GDP is Bulgaria, with the lowest level of correlation with EZ. Regarding foreign trade, Romania is placed in the second half of the ranking, where countries like Hungary and Poland prove a higher competitiveness of products and services, compared to that of Romania. As it is highlighted by Bojeșteanu and Manu (2011), we expected in the case of Romania, in terms of consumption, correlations to be much higher, given that it represents the largest share in GDP, but in this case, it is the opposite. This paradox can be caused by inefficient development of financial markets, leading to inability to mitigate revenue fluctuations; other causes can be imperfect competition or transaction costs.

4.2. Synchronization of business cycles

The next step for European integration is the synchronization of business cycles. Graph 3 captures the economic boom of 2006-2008, with the high point being in 2008Q3, followed by the financial downturn, and then later the rebalance of the economy can be seen, which is the recovery period.

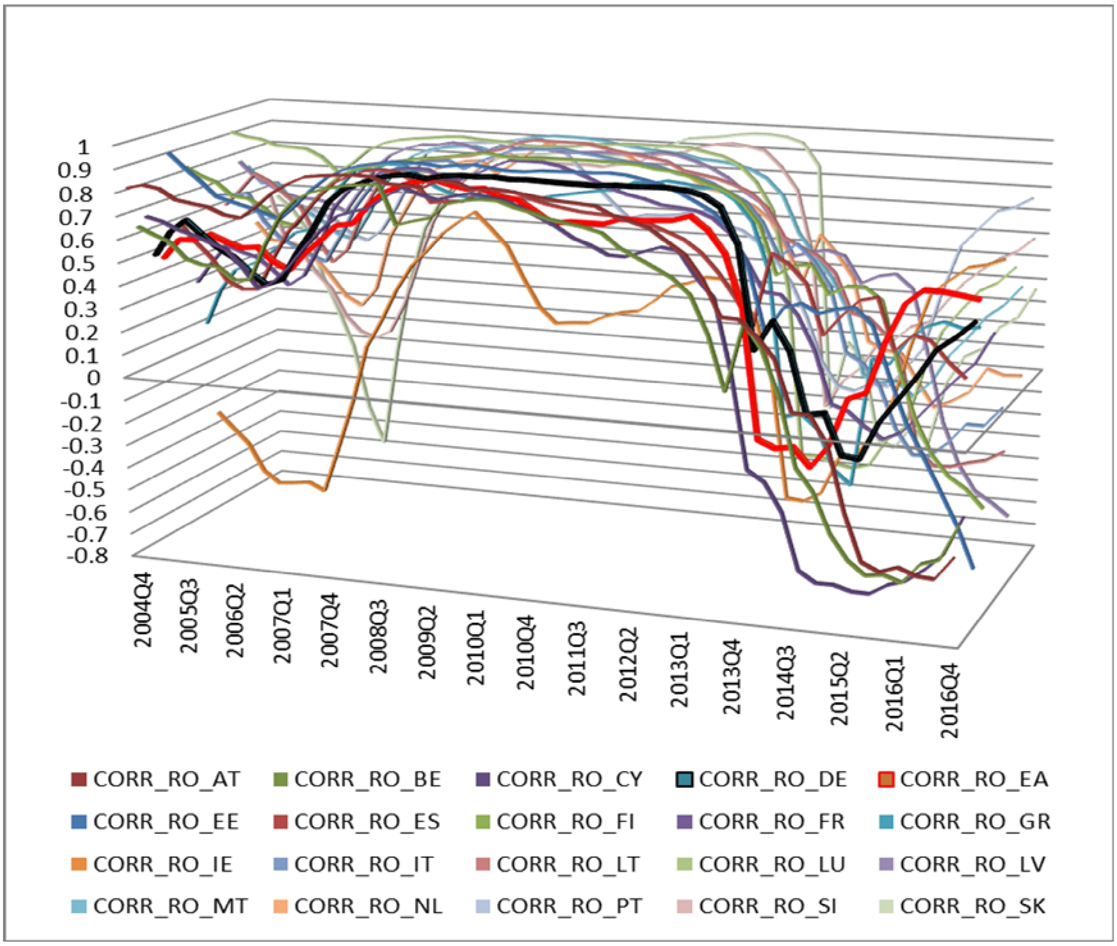
Graph 3. **Evolution of economic cycles - CEE countries and the EZ**



(*Source:* Eurostat, authors' calculations)

Estimating the correlation following a rolling window approach has the advantage that the evolution of the degree of synchronization of business cycles can be better monitored. Graph 4 below is a summary of all the dynamic correlation resulting after applying the moving average approach. It shows the correlations between Romania and the members of the Eurozone and also the Eurozone as a whole. As seen, the correlation coefficients have a similar pattern. After analysing these values and splitting them between subperiods, we concluded the following: For the period 2004-2006 there are some low correlations that stand out: Ireland and Slovakia, while the correlations between Romania and the other countries are quite high. After 2006 and up until 2008 (economic boom period) all correlations started to increase significantly. Period 2008 - 2011, being a very turbulent period for the economies, all the correlations grew due to contagion. Most of the values of the correlation coefficients are above 0.7, except for the correlation between Romania and Ireland, which remained low (approximatively 0.4 on average). This shows that indeed the economies of these 2 countries are indeed not interconnected, because otherwise the contagion would have spread as the crisis was evolving, resulting in higher correlation values. For the period 2012 - 2013, the effects of the sovereign debt crisis are reflected in the high correlation values. Starting with 2014, the correlations have abruptly changed: one example would be the correlation between Romania and Cyprus which is negative for the entire remaining period. This is also in line with our previous results according to which there is no evidence of structural similarities between these 2 countries. What is clear from this analysis is that although the correlation between Romania's business cycle and the one from the Eurozone have always been positive and mostly above 0.2, looking into detail at the correlation with each country individually, we see a completely different evolution, with wider ranges.

Graph 4. **The evolution of cycle correlations between Romania and the EZ Member States – rolling window approach**



(*Source:* Eurostat, authors' calculations)

4.3. Concordance Index

Table5. **Concordance Index**

	CI_EZ_RO	CI_EZ_BG	CI_EZ_CZ	CI_EZ_HR	CI_EZ_HU	CI_EZ_PL
CI	0.94	0.87	0.66	0.69	0.75	0.68
p-value	0.00	0.00	0.10	0.06	0.24	0.18

(*Source:* Eurostat, authors' calculations)

The concordance index shows that, out of the 6 CEE countries, Romania has the highest degree of concordance, meaning that 94% of the time the Romanian economy shares the same phase as the Eurozone. Since the concordance index between Romania and the Euro Zone is very close to 1 it means that the series are strongly procyclical. Considering the p-value, only the CI for Romania and Bulgaria are significant (assuming a significance at the 1% level), thus, rejecting the null hypothesis of no concordance.

5. Conclusions

Joining the Eurozone is relatively certain, Romania is aiming at this, however, for this to happen in the near future, our country has to prove that it can assure a sustainable and long-lasting degree of synchronization. Our article supports most of the findings of the recent studies on this subject, however, results vary depending on the analysed period, which is normal considering the fact that every country is continuously developing, moving towards achieving a better degree of synchronization and the economic structure is changing.

Based on the Krugman indicator we obtain great structural differences in agriculture and industry, sectors that have potential, but are insufficiently developed and ineffective. The sectors that are the most synchronized with the Eurozone economy are: trade, IT&C, real estate activities and cultural and recreational activities. Out of the 6 CEE countries analysed, the divergence between Romania and the Eurozone is the most significant, in terms of the degree of structural synchronization, statement which is based on an average Krugman indicator. Analysing thoroughly, we obtain that Romania's economy is similar to that of Slovakia, Slovenia and Estonia, but different from that of Greece, Cyprus and Luxembourg.

After studying the dynamic correlations by using a moving average approach we obtained increased correlations during the boom period (2006-2008) and during the high points of the downfall of the economy (2009 – 2013), which was expected as it has been proven in the literature to be characteristic for correlations to increase in such periods. What is interesting to mention is the fact that the correlations between Romania and Ireland remain low even during the crisis or the boom periods, which shows that these 2 countries are not interconnected, because otherwise the contagion would have spread as the crisis was evolving. Furthermore, the fact that it was obtained that between Romania and Cyprus, after year 2014, the correlation is negative and not significant is also in line with our previous results of finding no evidence of structural similarities between these countries.

As a further study, we believe it will be useful to consider the estimation of the dynamic correlations through a multivariate GARCH model (such as BEKK). Another idea would be to use the methodology described by **Camacho and Perez (2006)** who show, using a simulation, that when the countries analysed have highly synchronized cycles the univariate methods used to study the business cycle synchronization are less effective, so they propose a new framework using multivariate Markow switching.

Romania must become more structurally convergent, which is one of the main conditions for joining the Eurozone and adopting the euro. This means that all the actions towards synchronization have to be taken now, before joining, because it would be much more difficult after, when we can no longer turn to the monetary policy to rebalance the economy. This is a challenge and our country needs to understand the benefits and costs that it implies and make sure that the costs do not outweigh the benefits.

References

Alexe, I. & Tatomir, C. (2012), "Business Cycle Synchronization Between Romania and The Euro Area. A Fresh Look in View of the Recent Crisis", *Revista Economică*, Supplement No. 1/2012, Journal of Economic-Financial Theory and Practice 11/2012. Available through: <http://economice.ulbsibiu.ro/revista.economica/archive/suplimente/Volume1-2012.pdf>

Baxter, M. & King, R. (1999), "Measuring Business Cycles: Approximate Band-Pass Filters for Economic Time Series", *The Review of Economics and Statistics*, November 1999, 81 (4), 575–593.

Bojeșteanu, E. & Manu, A.S., (2011), "Analiza empirică a sincronizării ciclului de afaceri şi a similarității şocurilor între România şi zona euro", *Munich Personal RePEc Archive*. [online], MPRA Paper No. 31295, posted 7. June 2011. Available through: <https://mpra.ub.uni-muenchen.de/31295/>

Camacho, M. & Perez-Quiros, G. (2006), "A new framework to analyze business cycle synchronization. Nonlinear Time Series Analysis of Business Cycles.", *Elsevierís Contributions to Economic Analysis series*. Chapter 5, 276, 133-149.

Dardac, N. & Bojeșteanu, E., (2009), "An Empirical Analysis of Romania's Comovement with the Euro Zone", *Theoretical and Applied Economics*, [online and print], Vol 5, No 11 (2009), pp 40-50. Available through:<http://www.ectap.ro/an-empirical-analysis-of-romanias-comovement-with-the-euro-zone-nicolae-dardac_elena-bojesteanu/a423/>

Dées, S. & Zorell, N., (2011), "Business Cycle Synchronization Disentangling Trade and Financial Linkages", Working Paper No. 1322, *European Central Bank*. Available through:
<https://www.ecb.europa.eu/pub/pdf/scpwps/ecbwp1322.pdf?1d922e12859c4b1647d2369ad6061695>

Grigoraş, V. & Stanciu, I. E. (2016), "New evidence on the (de)synchronization of business cycles: Reshaping the European business cycle", *International Economics*, 147, 27–52.

Harding, D. & Pagan, A., (2006), "Synchronization of cycles", *Journal of Econometrics*. [e-journal], No.132 (2006) pp. 59–79. Available through:
<http://www.sciencedirect.com/science/article/pii/S0304407605000412>

Hodrick, R. & Prescott, E., (1997), "Postwar U.S. Business Cycles: An Empirical Investigation", *Journal of Money, Credit and Banking*, [e-journal], Vol. 29, No. 1 (Feb., 1997), pp. 1-16. Published by: Blackwell Publishing Stable. Available through: http://www.jstor.org/stable/2953682

Marinaș, M.C., Socol, C. & Socol, A.G. (2011), "Is Ready Romania for Euro Adoption? From Structural Convergence To Business Cycle Synchronization", *The Annals of the University of Oradea. Economic Sciences*, [online], Vol. 1, No. 2 (Dec., 2011), pp. 181-186. Article provided by University of Oradea, Faculty of Economics. Available through: http://anale.steconomiceuoradea.ro/volume/2011/n2/023.pdf

Misztal, P. (2013), "International Trade and Business Cycle Synchronization in Poland, the European Union, and the Euro Zone", *Contemporary Economics*, Vol. 7(3), 65 – 78.

Savva, C.S., Neanidis, K.C. & Osborn, D.R., (2007), "Business Cycle Synchronization of the Euro Area with the New and Negotiating Member Countries", *Centre for Growth and Business Cycle Research Discussion Paper Series no. 91, Economics, The University of Manchester.* Available through: <https://ideas.repec.org/p/man/cgbcrp/91.html>

Tatomir, C.F. & Popovici, O.C., (2013), "Business cycles synchronization in the European Union: truth or challenge?", *Theoretical and Applied Economics. Asociația Generală a Economiștilor din Romania - AGER.* [online and print], Vol. 0(7(584)), pp. 33-42, July 2013. Available through: <https://ideas.repec.org/a/agr/journl/vxxy2013i7(584)p33-42.html>

Database: http://ec.europa.eu/eurostat/data/database

Hedging the Romanian bonds risk

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Abstract: *The policies adopted by worldwide central banks after the financial crisis resulted in lower interest rates at global level, creating an environment that increased the value of bonds. However, due to the economic recovery noticed during the last years, the inflationary pressures may push interest rates higher, affecting bonds value. The paper proposes a way to cross-hedge Romanian bonds risk through other currencies' interest rates swaps. For this purpose, there were selected four currencies: two Central and Eastern European currencies (PLN and HUF), that are expected to have the same behaviour as RON and two developed markets currencies (EUR and USD), that can influence emerging markets' economies. The results are mixed, showing that there is a limited efficiency of cross hedging Romanian bonds through the discussed instruments. Both hedge ratios and hedging effectiveness tend to increase for longer tenor bonds and hedging horizons. The results suggest there is a need to develop a liquid RON interest rates derivatives market, exposed to the same idiosyncratic risks as the Romanian bonds. However, in the absence of such liquid market, Romanian bonds can be cross-hedged against rates risk using other currencies' interest rate swaps, but with a limited effectiveness.*

Keywords: *hedging, optimal hedge ratio, hedging effectiveness, interest rates swaps, bonds hedging*

1. Introduction

The response of the central banks worldwide to the financial crisis that hit global economy during 2008-2009 consisted in adopting expansionary monetary policies. The dovish stance of these policies braced different forms: conventional measures such as rate cuts or unconventional measures such as various types of quantitative easing. In all cases, that led to lower interest rates, both on short and long tenors. However, due to the economic recovery noticed during the last years, central banks started to change their rhetoric. In order to avoid overheating the economy, central banks can stop their quantitative easing programs and even start hiking key interest rates.

One of the first that changed the approach is the central bank of the United States. After halting the quantitative easing program, the Federal Reserve (FED) hiked the key rate by 25 basis points in December 2015, first time since 2006. Two more hikes followed in December 2016 and March 2017. In Table 1 are shown the Federal Reserve board projections for the main macroeconomic variables in United States. For the next years are forecasted little changes in real GDP growth, unemployment rate or inflation rate. The long run values for these variables are seen at 1.8% in case of real GDP growth, 4.7% for unemployment rate and 2.0% for the inflation rate. In order to

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ensure the stability of these variables, the Federal Open Market Committee (FOMC) projects that it will have to hike the key rate up to 3.0% until the end of 2019. Thus, the most important economy in the world is in a rate rising environment.

Table 1. **Federal Open Market Committee projections**

Variable	2017	2018	2019	Longer run
Change in real GDP	2.1%	2.1%	1.9%	1.8%
Unemployment rate	4.5%	4.5%	4.5%	4.7%
Inflation rate	1.9%	2.0%	2.0%	2.0%
Federal funds rate	1.4%	2.1%	3.0%	3.0%

(*Source*: Federal Reserve website)

The European Central Bank (ECB) continues in 2017 it's quantitative easing program and maintains the key rate at a record low. However, as shown in Table 2, the ECB staff projects for the next years a stable economic growth and a lower unemployment rate. Also, the inflation is expected to pick up to 1.6-1.7% after a low of 0.2% in 2016. Under these circumstances, the ECB staff projects for the next years a rise in both short and long term interest rates. While the short term interest rate is expected to rise just by 30 basis points during the next 3 years, the 10 years' government bond yields are considered to rise by 110 basis points during the same period.

Table 2. **The European Central Bank staff projections**

Variable	2016	2017	2018	2019
Change in real GDP	1.7%	1.8%	1.7%	1.6%
Unemployment rate	10.0%	9.4%	8.9%	8.4%
Inflation rate	0.2%	1.7%	1.6%	1.7%
3M Euribor	-0.3%	-0.3%	-0.2%	0.0%
10Y Government Bonds	0.8%	1.3%	1.6%	1.9%

(*Source:* European Central Bank website)

The Romanian central bank also forecasts an upward trajectory for the inflation rate. In its latest Inflation Report, published in February 2017, the National Bank of Romania projected that inflation rate will rise from 0.2% in the first quarter of 2017 to 1.7% at the end of the year and to 3.4% at the end of 2018. Given the inflationary pressures, it is expected that interest rates will rise in the market for both short and long tenors and the NBR will have to start hiking the key rate to avoid over-heating the economy.

Table 3. **The National Bank of Romania inflation projections**

Variable	2017				2018			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Inflation rate	0.2%	0.6%	1.3%	1.7%	2.9%	3.3%	3.3%	3.4%

(*Source*: National Bank of Romania website)

During the period of decrease in rates, the bond holders, especially those of long-dated bonds, benefited as the value of bonds is negatively correlated with interest rates and yields. However, as the economy is shifting to a state of increasing rates, there is the risk that the owners of the bonds will suffer loses, as the bonds value will decrease under these circumstances.

In Table 4 is synthetized the ownership of the Romanian bonds and treasury bills (T-bills), issued on the local market, both RON and EUR denominated. The greatest part of these Romanian government securities is local currency denominated (around 120 billion RON in face value). Banks own 47.1% of the RON bonds and T-bills, while customers own 52.7%. Non-resident customers own 17.8% of the RON-denominated bonds and bills, while the residents have 34.9%. Regarding the latter category, it is worth to mention that pension funds have in their portfolios 14.6% of the total RON denominated government securities. Same category of investors owns 25.2% of the EUR-denominated Romanian bonds.

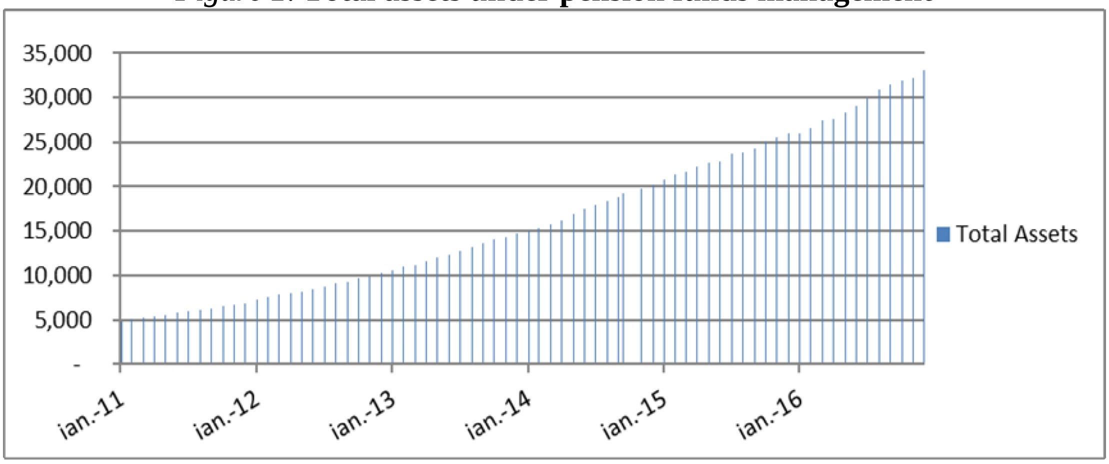
Table 4. **Romanian bonds and T-bills ownership**

Owner type	**RON denominated**		**EUR denominated**	
	Face value (mil RON)	(%) total	Face value (mil EUR)	(%) total
Banks	56,470.4	47.1%	807.6	47.4%
Central Depository	219.7	0.2%	-	0.0%
Customers:	63,202.7	52.7%	896.1	52.6%
- non-residents	21,366.0	17.8%	231.2	13.6%
- residents, out of which:	41,836.7	34.9%	664.9	39.0%
pension funds	17,525.5	14.6%	430.1	25.2%
Total	119,892.8	100.0%	1,703.7	100.0%

(*Source*: The Romanian Ministry of Finance website)

The total assets under the pension funds' management had a steady growth during the last years in Romania, as it can be noticed in Figure 1. This growth is given mainly by the contributions received by pension funds that manage Pillar 2 (mandatory) pensions, in amount of around 500 million RON per month. For Pillar 2 there were at the end of 2016 6.8 million contributors, while for the Pillar 3 there were around 400 thousand contributors. The great number of persons that contribute and will depend at retirement by the pension provided by this system makes the success of the pension funds' investments a very important issue.

Figure 1. **Total assets under pension funds management**



(*Source:* The Romanian Financial Supervisory Authority website)

The total assets managed by pension funds in Romania reached in December 2016 the value of 33 billion RON. Table 5 shows the structure of the investment portfolio of these funds. Investments in government securities such as bonds and T-bills represent

64.5% of the total assets, followed by shares (18.8%) and bank deposits (7.1%). The high weight of the government bonds and T-bills in portfolio shows that the success of the alternative pension system in Romania depends on the performance of this type of investment. Given the social implications of the pension funds success, managing the bonds risk becomes a very important issue.

Table 5. **Romanian pension funds' portfolio structure**

	Value (mil. RON)	**% in Total assets**
Bank deposits	2,329	7.1%
Government securities	21,288	64.5%
Municipal bonds	417	1.3%
Corporate bonds	1,116	3.4%
Supranational bonds	382	1.2%
Shares	6,214	18.8%
Others	1,242	3.8%
Total assets	32,988	100.0%

(*Source*: The Romanian Financial Supervisory Authority website)

Because bonds are fixed income instruments, an increase in interest rates would lead to a loss in the value of those bonds, thus in the value of portfolios held by different types of investors, including pension funds. A way to manage this risk is to hedge against rising interest rates through different financial instruments, such as interest rate swaps (IRS) or futures. Also, the question of how to optimally hedge arises.

There are numerous papers in the literature that estimate the optimal hedge ratio through different methods and for the case of various markets. The optimal hedge ratio can be estimated by using a utility maximizing perspective (Kolb and Okunev, 1993; Bessembinder and Lemmon, 2002; Cotter and Hanly, 2012) or by minimizing a risk measure (Ederington, 1979; Bennet, 1992; Ripple and Mossa, 2007; Chang *et al*., 2011). Adams and Gerner (2012) estimated optimal ways to cross-hedge jet fuel prices through Brent, WTI, heating oil and gasoil forward contracts. Moon *et al.* (2012) focused on the stock market, while Armeanu *et al.* (2013) estimated optimal hedge ratios for the agricultural market.

For the case of developed markets, hedging bonds can be achieved in a straightforward manner because there can be traded liquid financial derivatives, highly correlated with the value of those bonds. For example, the owners of German bunds can hedge their exposure by trading liquid bund futures. Also, holders of USD-denominated bonds can hedge the risk of rising USD rates by trading USD interest rate swaps. Similarly, Polish bonds can be hedger against rising PLN rates using PLN IRS. However, in Romania there is not a liquid market for RON interest rate swaps or Romanian bonds futures. The paper explores the way that Romanian bonds risk can be cross-hedged through other currencies' interest rates swaps. For this purpose, there were selected four currencies: two Central and Eastern European currencies (PLN and HUF), that are expected to have the same behaviour as RON and two developed markets currencies (EUR and USD), that can influence emerging markets' economies. After analysing the behaviour of Romanian bonds yields and PLN, HUF, EUR and USD interest rate swaps, I estimated optimal hedge ratios using simple and multiple regressions. The results are mixed, showing that there is a limited efficiency of cross hedging Romanian bonds through discussed instruments. Both hedge ratios and hedging effectiveness tend to increase for longer tenor bonds and hedging horizons (lower data frequency). The results suggest there is a need to develop a liquid RON interest rates derivatives market, exposed to the same idiosyncratic risks as the Romanian bonds. However, in the absence of such liquid market, Romanian bonds can be cross-hedged against rates risk using other currencies' interest rate swaps, but with a limited effectiveness.

The findings can be useful for Romanian bonds owners, such as pension funds, banks, hedge funds or even individual investors, as well as for regulators.

The remainder of the paper is organized as follows. In the next section, the methodology and data are described. The third section presents the results of the study, while the last section concludes and discusses the limitations of the research as well as possibilities for future improvements.

2. Data and methodology

The database used in this study comprises daily Romanian bonds yields and PLN, HUF, EUR and USD interest rate swaps prices during the period from 10-01-2011 to 10-03-2017. There are 6 years and 1562 data points for each series. The bond yields are represented by Romanian benchmark bonds yields fixings for 1, 3, 5 and 10 years' maturities, published on the National Bank of Romania website. The IRS series are represented by last prices for 1, 3, 5 and 10 years' maturities, published on Bloomberg.

The first step of the methodology consisted in analysing the data series by calculating descriptive statistics and by discussing the evolution of bonds yields (ROMGBs) and IRS prices during the selected period. The statistics that were computed are: mean, median, maximum, minimum, standard deviation, skewness and kurtosis. Then, the correlation matrix between ROMGBs yields and various IRS was computed. Because the initial data series were non-stationary, they had to be stationarized through first-order difference. The first-order differences were computed for daily, weekly and monthly intervals, using non-overlapped data. Thus, the daily difference series has 1561 data points, the weekly series has 312 data points, while the monthly interval series has 74 data points. These intervals match the hedging horizons or data frequency. It is expected that for longer time intervals the fundamental factors affecting the series (bond yields and IRS prices) to have a greater importance than the white noise created by news impacts, emotions or daily flows. Thus, it is expected that, if the series are affected by the same fundamentals, the monthly data to be more correlated than the daily data. The correlation matrix for the three intervals was also computed.

The next step of the methodology consists in estimating optimal hedge ratios using ordinary least squares (OLS) simple regressions. This method was selected for its' simplicity and due to the fact that provides similar efficiency as other complex models (Alexander and Barbosa, 2007; Park and Jei, 2010). The β in the OLS method is the estimation of the optimal hedge ratio:

$$\Delta \mathrm{ROMGB}_{m_t} = \alpha + \beta \Delta \mathrm{IRS}(C)_{m_t} + \varepsilon_t$$

Where $\Delta ROMGB_m$ is the difference between the yields of Romanian bonds with maturity *m* (1, 3, 5 and 10 years) for two consecutive periods (day, week or month), while ΔIRS_m is the difference between the IRS price of a specific currency *C* (PLN, HUF, EUR or USD) with maturity *m* (1, 3, 5 and 10 years) for the same two consecutive periods. Given that there are 4 bond and IRS maturities (1, 3, 5 and 10 years), 3 hedging horizons or data intervals (1 day, 1 week and 1 month) and 4 IRS currencies (PLN, HUF, EUR and USD), there were estimated 48 OLS simple regressions.

The second regressions set considered is the OLS multiple regression. In this case, the regression is not run against a single currency IRS, but against all 4 curency IRS:

$$\Delta ROMGB_{m_t} = \alpha + \beta_{PLN}\Delta IRS(PLN)_{m_t} + \beta_{HUF}\Delta IRS(HUF)_{m_t} + \beta_{EUR}\Delta IRS(EUR)_{m_t} + \beta_{USD}\Delta IRS(USD)_{m_t} + \varepsilon_t$$

For this case, given that there are 4 bond and IRS maturities (1, 3, 5 and 10 years) and 3 hedging horizons or data intervals (1 day, 1 week and 1 month), there were estimated 12 OLS multiple regressions.

3. Results

As mentioned above, the first step of the methodology consisted in analysing the data series by calculating descriptive statistics and by discussing the evolution of bonds yields (ROMGBs) and IRS prices during the selected period. Table 6 shows the main descriptive statistics of the data series. It can be noticed that the mean and median increase with maturity for all instruments and currencies, given that the period was characterized by positive or normal yield curves. The ROMGB and HUF IRS series exhibit the highest volatility, expressed both through the difference between maximum and minimum and through the standard deviation. The PLN IRS series follow, while the EUR and USD IRS exhibit the lowest volatility. This result was expected as emerging markets tend to be more volatile than the developed ones. The values of skewness and kurtosis show that all data sets do not follow a normal distribution.

Table 6. **Descriptive statistics**

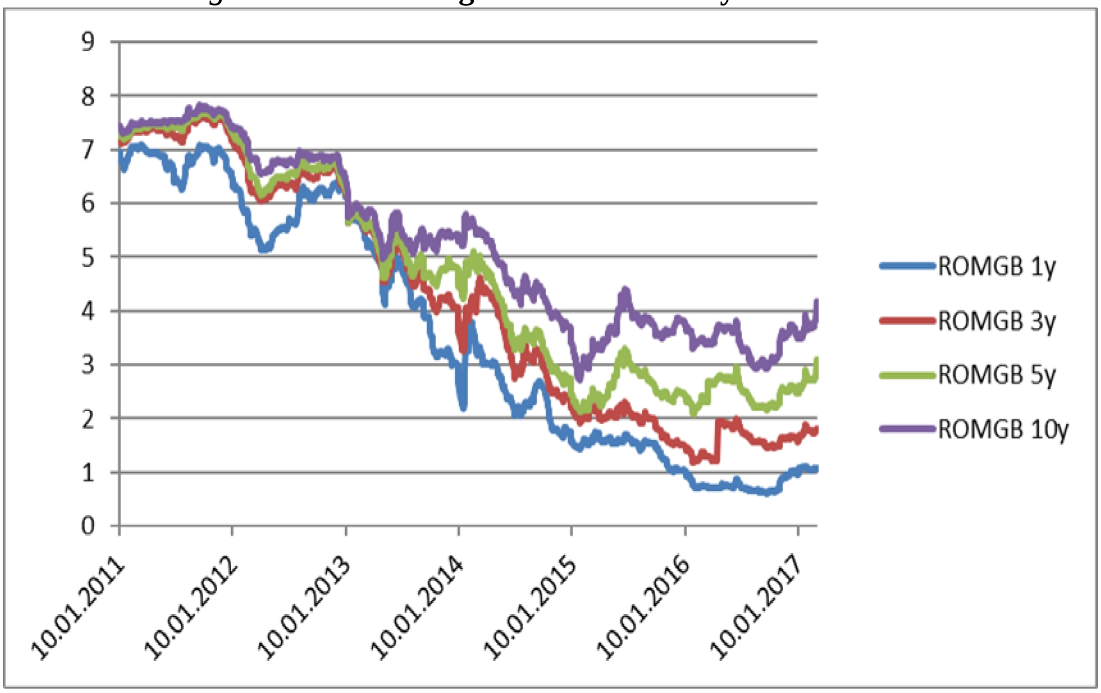
	Mean	**Median**	**Max.**	**Min.**	**Std. dev.**	**Skewness**	**Kurtosis**
ROMGB 1y	3.579	3.155	7.090	0.610	2.299	0.184	1.440
ROMGB 3y	4.205	4.145	7.690	1.190	2.226	0.167	1.461
ROMGB 5y	4.633	4.660	7.760	2.090	1.953	0.213	1.491
ROMGB 10y	5.226	5.250	7.840	2.720	1.595	0.203	1.572
PLN IRS 1y	2.969	2.725	5.185	1.458	1.333	0.457	1.590
PLN IRS 3y	3.128	3.155	5.583	1.510	1.296	0.374	1.715
PLN IRS 5y	3.318	3.350	5.755	1.563	1.254	0.323	1.769
PLN IRS 10y	3.623	3.637	5.815	1.786	1.132	0.205	1.730
HUF IRS 1y	3.625	3.101	8.658	0.334	2.397	0.330	1.641
HUF IRS 3y	3.744	3.610	8.195	0.650	2.237	0.210	1.573
HUF IRS 5y	4.012	4.058	8.100	1.020	2.115	0.143	1.561
HUF IRS 10y	4.662	4.890	8.065	1.858	1.856	0.030	1.528
EUR IRS 1y	0.484	0.352	2.039	-0.229	0.635	1.030	2.922

EUR IRS 3y	0.649	0.537	2.790	-0.251	0.740	1.165	3.675
EUR IRS 5y	0.947	0.874	3.229	-0.183	0.831	0.931	3.204
EUR IRS 10y	1.607	1.671	3.771	0.248	0.877	0.523	2.563
USD IRS 1y	0.518	0.452	1.410	0.253	0.246	1.445	4.633
USD IRS 3y	0.967	0.982	1.935	0.427	0.316	0.353	2.771
USD IRS 5y	1.476	1.511	2.614	0.729	0.399	0.185	2.522
USD IRS 10y	2.295	2.211	3.848	1.247	0.534	0.536	2.795

(*Source*: Author's computations)

In Figure 2 is emphasized the evolution of Romanian bonds yields during the selected period. Due to the dovish stance of monetary policy at both NBR and international level and to the decline in RON inflation, the ROMGBs yields steadily decreased during the period. After 2013, the ROMGB curve started to become steeper as a result of several factors: inflation expectations, political noise or changes in FED policy.

Figure 2. **Romanian government bonds yield evolution**



(*Source*: Author's processing of NBR bond fixing data)

For illustrative purpose, in Figure 3 is presented the evolution of the 10 year ROMGB, together with 10 year PLN, HUF, EUR and USD IRS. It can be noticed that the 10 year Romanian bond exhibits similar trajectory with HUF and PLN IRS, while the correlation with the EUR and USD rates is smaller.

Figure 3. **10 years bond and IRS evolution**

(*Source*: Author's processing of NBR bond fixing and Bloomberg data)

By computing the Pearson correlation coefficients between ROMGBs yields and different currencies IRS, I obtained similar results, the correlation matrix being presented in Table 7. It can be noticed that the greatest correlation is given by the HUF IRS, followed by the PLN IRS, while the USD IRS has the smallest correlation with Romanian bonds. For the latter, only the 10 years maturity exhibits a positive correlation. This can be explained by the fact that the US monetary policy started to diverge from the rest of the economies in this study. However, the US monetary decisions can be seen as a leading indicator for smaller countries' monetary policies, such as the emerging ones. Therefore, the changes in US rates had a greater impact on the 10 years Romanian bonds, as for longer maturities the international factors have greater importance, while for the shorter maturities idiosyncratic risks are dominant.

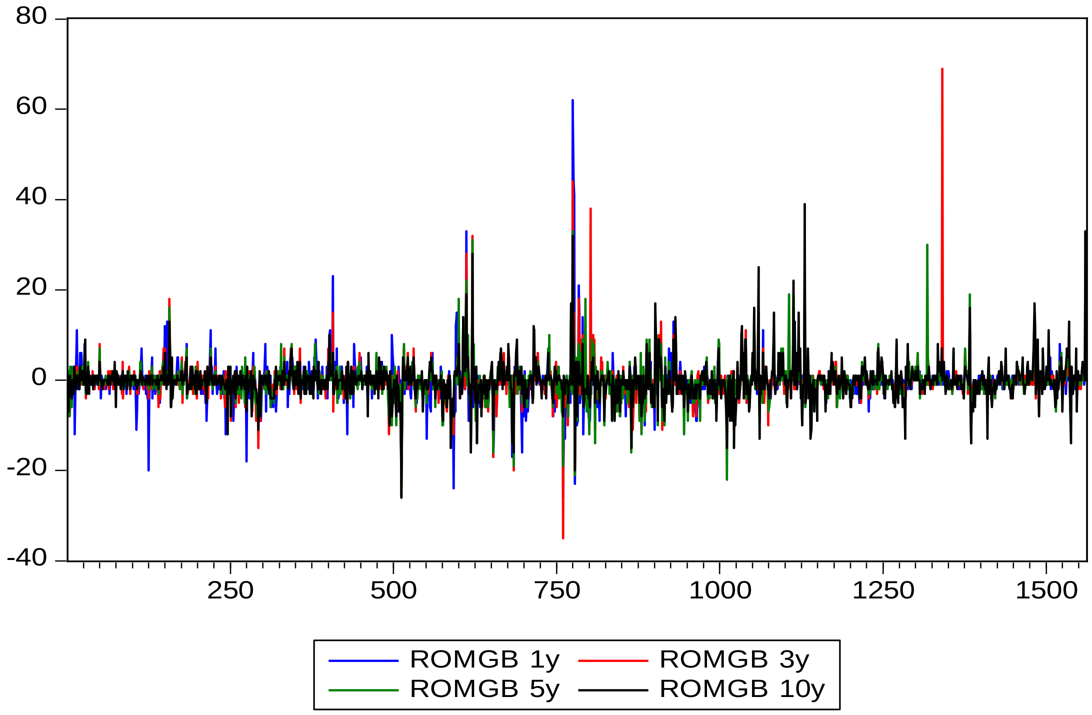
Table 7. **Correlation matrix for levels**

	1Y	**3Y**	**5Y**	**10Y**
PLN IRS	0.941	0.957	0.954	0.950
HUF IRS	0.956	0.974	0.973	0.970
EUR IRS	0.866	0.865	0.885	0.911
USD IRS	-0.475	-0.512	-0.145	0.358

(*Source:* Author's computations)

As the data series are non-stationary, they had to be stationarized through first-order difference. The first-order differences were computed for daily, weekly and monthly intervals, using non-overlapped data. For illustrative purpose, in Figure 4 are exhibited the daily variations for ROMGBs, expressed in basis points.

Figure 4. **ROMGBs 1-day differences**



(*Source*: Author's computations)

The correlation matrix between ROMGBs yields variances and different currencies IRS variances, for the 3 intervals is presented in Table 8. It can be noticed that the correlations are lower than in the case of levels. Also, the correlation coefficients tend to increase with data frequency and maturity. This result is expected and can be explained by the fact that for longer time intervals the fundamental and international factors weight more in the evolution of ROMGBs yields.

Table 8. **Correlation matrix for first-order difference**

Frequency/Tenor		**1Y**	**3Y**	**5Y**	**10Y**
1D	PLN IRS	0.069	0.147	0.208	0.204
	HUF IRS	0.168	0.129	0.163	0.149
	EUR IRS	-0.005	0.044	0.025	0.004
	USD IRS	-0.014	-0.014	-0.033	-0.003
1W	PLN IRS	0.052	0.219	0.307	0.338
	HUF IRS	0.297	0.260	0.297	0.299
	EUR IRS	-0.103	0.017	0.096	0.101
	USD IRS	0.012	0.071	0.111	0.134
1M	PLN IRS	0.063	0.250	0.334	0.423
	HUF IRS	0.120	0.223	0.376	0.433
	EUR IRS	-0.041	0.045	0.161	0.197
	USD IRS	0.113	0.108	0.144	0.158

(*Source*: Author's computations)

The next step of the study consists in estimating optimal hedge ratios using OLS simple regressions. The results are in Table 9. The determination coefficient R^2 is an estimate for the hedging effectiveness, showing the how much variance in the unhedged portfolio (the ROMGB position) is eliminated through hedging. For example, a value of 0.15 for the R^2 means that the value of hedged portfolio (ROMGB and IRS positions) exhibits a variance 15% lower than the variance in the value of the unhedged portfolio (ROMGB position alone). Both the optimal hedge ratio and hedging effectiveness increase with hedging horizon (data interval), a result that was mentioned in previous studies (Geppert, 1995; Chen *et al*., 2004; Juhl *et al*., 2012). Also, optimal hedge ratio and hedging effectiveness tend to increase with maturity, as longer maturities are more correlated than the short ones for different currencies. As it can be noticed, there is a limited efficiency of cross hedging Romanian bonds through other currencies' interest rate swaps. The highest hedging efficiency is obtained for the case of hedging 10 years ROMGBs through 10 years HUF IRS, using monthly data, and it has the value of only 19%. For that case, the estimated optimal hedge ratio is 0.30, meaning that for a 10 years ROMGB exposure with a basis point value of 10.000 RON, it would be optimally to pay a 10 years HUF IRS with a basis point value of 3.000 RON equivalent. By doing that, it is expected to decrease the variance of the portfolio by 19%.

Table 9. **OLS simple regressions results**

Frequency/Tenor			**1y**	**3y**	**5y**	**10y**
1D	PLN IRS	β	0.12	0.16	0.18	0.16
		R^2	0.00	0.02	0.04	0.04
	HUF IRS	β	0.13	0.08	0.10	0.08
		R^2	0.03	0.02	0.03	0.02
	EUR IRS	β	-0.01	0.07	0.03	0.00
		R^2	0.00	0.00	0.00	0.00
	USD IRS	β	-0.04	-0.02	-0.03	0.00
		R^2	0.00	0.00	0.00	0.00
1W	PLN IRS	β	0.11	0.28	0.31	0.33
		R^2	0.00	0.05	0.09	0.11
	HUF IRS	β	0.28	0.20	0.21	0.20
		R^2	0.09	0.07	0.09	0.09
	EUR IRS	β	-0.35	0.03	0.16	0.14
		R^2	0.01	0.00	0.01	0.01
	USD IRS	β	0.05	0.11	0.13	0.14
		R^2	0.00	0.01	0.01	0.02
1M	PLN IRS	β	0.11	0.30	0.35	0.43
		R^2	0.00	0.06	0.11	0.18
	HUF IRS	β	0.11	0.18	0.28	0.30
		R^2	0.01	0.05	0.14	0.19
	EUR IRS	β	-0.13	0.09	0.28	0.31
		R^2	0.00	0.00	0.03	0.04
	USD IRS	β	0.43	0.16	0.17	0.17
		R^2	0.01	0.01	0.02	0.02

(*Source*: Author's computations)

In Table 10 are presented the results of running the multiple regressions. Although slightly improved, the hedging effectiveness continues to be limited. For example, the highest level of hedging effectiveness, 21.6%, is obtained for the 10 years' maturity, in the case of 1 month hedging horizon. For this particular case, only the HUF and PLN IRS coefficients seem to have some degree of significance. This result suggests that a blend cross-hedging using HUF and PLN IRS can be a better option in the case of Romanian bonds.

Table 10. **OLS multiple regressions results**

		1y		3y		5y		10y	
		β_{CCY}	signif	β_{CCY}	signif	β_{CCY}	signif	β_{CCY}	signif
1D	PLN IRS	0.065	0.148	0.117	0.000	0.157	0.000	0.156	0.000
	HUF IRS	0.127	0.000	0.054	0.004	0.039	0.026	0.024	0.146
	EUR IRS	0.000	0.998	0.060	0.153	0.040	0.287	-0.040	0.259
	USD IRS	-0.104	0.170	-0.074	0.034	-0.087	0.002	-0.017	0.540
	R^2	0.031		0.029		0.053		0.046	
1W	PLN IRS	-0.037	0.762	0.147	0.090	0.197	0.009	0.243	0.001
	HUF IRS	0.286	0.000	0.154	0.003	0.120	0.016	0.087	0.068
	EUR IRS	-0.332	0.092	-0.111	0.367	-0.024	0.831	-0.091	0.414
	USD IRS	0.054	0.812	0.073	0.451	0.043	0.595	0.079	0.342
	R^2	0.098		0.079		0.112		0.127	
1M	PLN IRS	0.081	0.736	0.239	0.211	0.139	0.446	0.302	0.151
	HUF IRS	0.078	0.515	0.084	0.485	0.215	0.070	0.168	0.163
	EUR IRS	-0.236	0.548	-0.130	0.640	0.123	0.649	0.076	0.784
	USD IRS	0.365	0.438	0.052	0.816	-0.080	0.666	-0.154	0.434
	R^2	0.027		0.074		0.155		0.216	

(*Source*: Author's computations)

4. Conclusions and discussion

The response of the central banks worldwide to the financial crisis that hit global economy during 2008-2009 consisted in adopting expansionary monetary policies. These policies resulted in lower interest rates at global level, creating an environment that increased the value of bonds. However, due to the economic recovery noticed during the last years, central banks started to expect higher inflation and, thus, higher rates in the foreseeable future. The Federal Reserve, the central bank of the United States, already started the hiking cycle, and other central banks may follow. Under this new environment, there is the risk that the value of bonds may be hit. The greatest part of the bonds issued by the Romanian government is RON-denominated. This makes the holders of Romanian bonds, mainly banks and pension funds, vulnerable to a rise in RON interest rates. The case of the pension funds is a special one, due to the social implications and to the high exposure to bonds (64.5% of their total assets is invested in bonds, mainly RON-denominated). Under these circumstances, the need for hedging against higher RON interest rates appears. However, in Romania there is not a liquid market for RON interest rate swaps or Romanian bonds futures to hedge this risk in a straightforward manner.

The paper proposes a way to cross-hedge Romanian bonds risk through other currencies' interest rates swaps. For this purpose, there were selected four currencies: two Central and Eastern European currencies (PLN and HUF), that are expected to have the same behaviour as RON and two developed markets currencies (EUR and USD), that can influence emerging markets' economies. After analysing the behaviour of Romanian bonds yields and PLN, HUF, EUR and USD interest rate swaps, optimal hedge ratios are estimated using simple and multiple regressions. The results are mixed, showing that there is a limited efficiency of cross hedging Romanian bonds through discussed instruments. Both hedge ratios and hedging effectiveness tend to increase for longer tenor bonds and hedging horizons (lower data frequency). The results of running the multiple regressions to estimate optimal hedge ratios imply that a blend cross-hedging using HUF and PLN IRS can be a better option in the case of Romanian bonds than using a single currency IRS. The results suggest there is a need to develop a liquid RON interest rates derivatives market, exposed to the same idiosyncratic risks as the Romanian bonds. However, in the absence of such liquid market, Romanian bonds can be cross-hedged against rates risk using other currencies' interest rate swaps, but with a limited effectiveness.

The findings can be useful for Romanian bonds owners, such as pension funds, banks, hedge funds or even individual investors, as well as for regulators. Also, the paper may be found useful by bonds or RON IRS market makers that need to hedge their exposure.

For the subject there are several directions of future research. Improvements can be made at data level. For this paper I used Romanian bond benchmark fixing data. For example, the bond with the closest maturity to 5 years at a specific moment is used as the 5 years' benchmark bond. This may create distortions in the data at the rollover of the benchmark bond. This problem does not appear for the IRS data series. To solve this issue, specific bonds can be used, instead of using fixed maturity benchmark fixings. Also, in practice just specific bonds are owned. In this case, IRS prices that match the bond maturity can be calculated. The study can also be improved by taking into account the payments of the bonds coupons and the IRS settlements. The paper took into consideration as criteria to measure the hedging efficiency just the reduction in the variance of the hedged portfolio, a measure of risk. However, in a rising rates environment, a measure of expected return may be a better solution to assess the efficiency of the bonds hedge. The hedging effectiveness in this study was estimated in-the-sample. It would be more practical to measure the hedging effectiveness out-of-sample. Another direction for future research can be to estimate the optimal hedge ratio using more complex methods, in order to check if those could provide better out-of-sample effectiveness.

References

Adams, Z. & Gerner, M. (2012) "Cross hedging jet-fuel price exposure", *Energy Economics*, vol.34: 1301–1309

Alexander, C. & Barbosa, A. (2007) "Effectiveness of Minimum-Variance Hedging: The Impact of Electronic Trading and Exchange-traded Funds", *Journal of Portfolio Management*, vol. 33, no. 2: 46–59

Armeanu, D., Istudor, N. & Dinică, M. C. (2013) "The Optimal Hedging Ratio for Agricultural Market", *Economic Computation and Economic Cybernetics Studies and Research*, vol. 47, no. 3: 37–52

Benet, B.A. (1992) "Hedge period length and ex-ante futures hedging effectiveness: The case of foreign-exchange risk cross hedges", *Journal of Futures Markets*, vol. 12, no. 2: 163–175

Bessembinder, H. & Lemmon, M.L. (2002) "Equilibrium pricing and optimal hedging in electricity forward markets", *Journal of Finance*, vol. 57: 1347-1382

Chang, C-L., McAleer, M. & Tansuchat, R. (2011) "Crude oil hedging strategies using dynamic multivariate GARCH", *Energy Economics*, vol. 33, no. 5: 912-923

Chen, S.S., Lee, C.F. & Shrestha, K. (2004) "An Empirical Analysis of the Relationship Between the Hedge Ratio and Hedging Horizon: A Simultaneous Estimation of the Short- and Long-Run Hedge Ratios", *Journal of Futures Markets*, vol. 24, no. 4: 359-386

Cotter, J. & Hanly, J. (2012) “A utility based approach to energy hedging”, *Energy Economics*, vol. 34: 817–827

Ederington, L.H. (1979) “The hedging performance of the new futures markets”, *Journal of Finance*, vol. 34, no. 1: 157–170

Geppert, J.M. (1995) “A statistical model for the relationship between futures contract hedging effectiveness and investment horizon length”, *Journal of Futures Markets*, vol. 15, no. 5: 507–536

Juhl, T., Kawaller, I.G. & Koch, P.D. (2012) “The Effect of the Hedge Horizon on Optimal Hedge Size and Effectiveness When Prices are Cointegrated”, *Journal of Futures Markets*, vol. 32, no. 9: 837-876

Kolb, R. W. & Okunev, J. (1993) “Utility maximizing hedge ratios in the extended mean Gini framework”, *Journal of Futures Markets*, vol. 13, no. 6: 597–609

Moon, G.-H., Yu, W.-C. & Hong, C.-H. (2009) “Dynamic hedging performance with the evaluation of multivariate GARCH models: evidence from KOSTAR index futures”, *Applied Economics Letters*, vol.16: 913–919

Park, S.Y. & Jei, S.Y. (2010) “Estimation and hedging effectiveness of time varying hedge ratio: flexible bivariate GARCH approaches”, *Journal of Futures Markets*, vol. 30, no. 1: 71-99

Ripple, R.D. & Moosa, I.A. (2007) “Hedging effectiveness and futures contract maturity: the case of NYMEX crude oil futures”, *Applied Financial Economics*, vol. 17, no. 7: 683–689

PS16 PUBLIC SECTOR

Chairperson: Raluca Rațiu, IE University, Spain

The participative budgeting within the public sector. A new vision in Romania

Aurelia Ștefănescu

Gabriela Lidia Tănase

Corruption in the public sector in Romania

Ileana Nișulescu-Ashrafzadeh

Silviu Duțulescu

The politics of public sector combinations

Radu Daniel Loghin

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The participative budgeting within the public sector. A new vision in Romania

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Abstract: *The public sector entities, by their mission, have the responsibility to manage the public resources so that they address the citizens' needs. Within the current context, the limited public finance resources and the public sector entities' incapacity to address cost, quality and opportunity of offered services generate discontent for the community members and they reduce the credibility of the decision making process in the public sector. From this view, the participative budgeting reconciliates the dissensions between the public sector and the community, by involving the citizens in the decision making process in respect of public resource assignment to serve their objectives.*

The research has two components: the first component includes the literature review in respect of the conceptual approaches of the participative budgeting within the public sector; the second component includes the analysis of the citizens' perception in respect of the participative budgeting within the Romanian public sector. The research was conducted through interviews. The research results pointed out the respondents' willingness to actively take part in the process of participative budgeting, considering the advantages generated by this. Also, the respondents said they were optimistic about the impact of their involvement in the participative budgeting system and the extent to which the opinions of the community members would be taken into consideration.

Keywords: *Public sector; participative budgeting; empirical research; transparency; citizens*

1. Introduction

The premise of the research is the plusvalue generated by the adoption of participative budgets at the level of the private sector economic entities, represented by: drawing up realistic and objective budgets, triggering the employees and their dedication to draw up budgets, improvement of management credibility, promoting the transparency of decision making, building and improving the individual and entity performance (Ştefănescu and Tănase, 2013). To this, there are added the public sector characteristics, such as: limitation of the public finance resources, complexity and heterogeneousness of the types of offered services, discrepancy between the services offered to the community and its contribution to the public budget, diversity and heterogeneousness of the community needs, as well as the informational asymmetry between the public sector entities and the community.

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In Romania, the participative budgeting is a relatively new concept. In terms of adoption, the participative budgeting was implemented only at the pilot project phase, during the period 2013-2015, in Cluj-Napoca municipe, at first, in the Mănăștur district, expanding then in the entire city. The project took into account the participation of young people aged 14 - 35, considering the fact that they contributed to receiving the title of the European Youth Capital for the city of Cluj-Napoca (http://bp.primariaclujnapoca.ro/). The general objectives of the pilot project on the participative budgeting in the Mănăștur district were the following: decrease of the communication barriers and networking between the citizens and the representatives of the public local administration; increase of sustainability of public policies and local community investment; creation and promotion of a participative culture both at the citizens' level, and institutional level, within the public local administration (Report on the development of the participative budgeting pilot project in the Mănăştur district, Cluj-Napoca, 2013).

In terms of regulations, the public sector participative budgeting is not explicitly regulated in Romania. Nevertheless, there are implicitly several regulations considering only the transparency of financial information (including budget) and non-financial information known under the name of public interest information (Law no.544/2001). According to this regulation, "the public interest information includes information related to the activities or generated by the activities of public authorities or public entities, regardless of the support, form or manner of expressing this information". Also, this regulation explicitly points out the categories of information to be disclosed voluntarily to the interested parties by the public sector entities, as it follows: the regulations concerning the organizing and functioning of the public sector entity, organization structure, responsibilities of the departments, working and audience hours, surname and first name of the entity's board and the public relation officer, entity's contact coordinates, financial sources, budget and balance sheet, programmes and strategies, list of public interest documents drawn up and/or managed in accordance with the law; the manner to object to the authority or public entity's decision when people consider their rights infringed in respect of access to the requested public interest information. To these, there are added the annual publishing and upgrading of a newsletter and, at least annually publishing of an activity report.

Although the informational transparency in the public sector from Romania is regulated, the researches performed in the professional literature showed reduced transparency, inconsistence of disclosures and heterogeneousness of financial and non-financial information from the public sector entities in Romania (Ștefănescu and Dudian, 2016; Năstase *et al.*, 2014; Ștefănescu and Țurlea, 2014, 2013), as well as their limited comparison at international level as a result of the differences between the national accounting regulations and the International Public Sector Accounting Standards (IPSAS) (Tiron, 2010; Ștefănescu *et al.*, 2010; Calu *et al.*, 2008).

In the current situation from Romania, dominated by a dynamic political and economic environment, by the aggravation of the deficiency in the public financial resources, by the increase of the community members' needs and expectations, and a limitation of the information transparency, we consider that the adoption of the participative budgeting within the public sector will add value at bidimensional level. On the first dimension, that of the community, the participative budgeting will contribute to the improvement of the transparency in respect of the manner of public resource distribution and the increase of the awareness in terms of importance and benefits generated by the community members' involvement in the decision making process concerning the assignment of public financial resources for the achievement of the community objectives. On the second dimension, that of the public sector entities, the participative budgeting will enhance their responsibility in respect of public resource allotment and accomplishment of citizens' objectives and it will increase their credibility.

This article is built on the following sections: the first section describes the conceptual approaches in terms of participative budgeting within the public sector, by reference to the professional literature; the second one is intended for an empirical research in respect of the citizens' perception on the participative budgeting within the public sector from Romania and it includes the description of the research methodology and the research results. The last section is that of the final research conclusions, research limits and future research directions.

2. Literature review in terms of participative budgeting within the public sector

The concept of participative budgeting appeared in 1989 in Brasil (Augsberger *et al.*, 2017; Kamrowska-Zaluska, 2016; Gomez *et al.*, 2016; Cohen, 2012; Aragonès and Sánchez-Pagés, 2009), further extended to a large scale. At the level of the professional literature, the participative budgeting in the public sector has various approaches.

A first step in defining the concept of participative budgeting took into account the public expenditures, limited resources and responsibility in the public sector. In this respect, Gonçalves (2014) considers the public expenditures an instrument to guarantee access to goods and services which are fundamental for the citizens. In his view, the problems occur not only because of the lack of resources but also because of the defective distribution of public funds and the lack of political accountability within the public sector. Thus, there comes the problem of defective distribution of public funds for addressing the citizens' needs and demands. Although this issue could be solved through the agency of budget, taking into consideration the drawing-up process, approval and execution of it, the limited resources and their manner of distribution, this may generate disputes form the citizens' view, as contributors to the public budget. These are based on the citizens' arguments, according to which, they know better their needs. Analysed from the view of citizens' skills, their involvement into the budget drawing-up and execution is a sensitive matter generating a lot of questions. The reconciliation of the two views implies the collaboration between the public sector entities and the citizens, which is based on a participative democratic process.

Aragonès and Sánchez-Pagés (2009) present participative democracy as a collective decision-making process, conjugating the direct democracy, where the citizens have the power to make decision in respect of the policies to be implemented, and the representative democracy, where the political representatives have the role to implement the adopted policies. This way, the citizens could monitor the performance of politicians by comparing their proposals with the policies actually implemented.

An efficient model of participative democracy is the collaboration between the authorities and citizens in distributing the limited budgetary funds. This collaboration will allow to set certain objectives or terminals of optimum resource allocation for the public interest, it will support the elaboration of a budget complying with the economic reality and the limited public resources to meet the set objectives and to make efficient the resource distribution. In the professional literature, this collaboration between the state entities and the citizens or wide public for the assignment of public funds is called participative budgeting. The participative budgeting can be considered a major element in promoting the participative framework of democracy (Kuruppu *et al*., 2016).

In another approach, the participative budgeting is the direct negotiation process between the government representatives and the civil society leaders in order to find new efficient practical solutions to address the community's needs (Boulding and Wampler, 2010).

Augsberger *et al*. (2017) define the participative budgeting as a democratic process, where the citizens determine the manner in which the public funds are used. Cohen (2012) supports the definition given by Global Campaign on Urban Covernance, according to which the participative budgeting is a process or mechanism through which the population decides or contributes to the decision regarding the assignment of public funds.

In another approach, the participative budgeting is one of the tools empowering the community to make decisions (Kamrowska-Zaluska, 2016). Gonçalves (2014) presents the participative budgeting as an alternative of the budgetary process empowering the people to negotiate with the public representatives on the budgetary allocation and investment which represent priority. Gomez *et al*., 2013 consider the participative budgeting a group problem in terms of resource distribution where the citizens have to agree with a budget subject to coercions and budgetary limits.

Regardless of the chosen definition, as a ground rule, the participative budgeting should allow the citizens to take part in the assignment of a part of the budget (Gomez *et al*., 2016), based on dialogue and participation (Gomez *et al*., 2013). Therefore, the main objective of the participative budgeting is represented by public participation based on equality, justice and transparency (Kuruppu *et al*., 2016). The process of participative budgeting is considered a unique one, due to the distribution of authority between the citizens and government officials, permitting the government fund allocation to the citizens (Augsberger *et al*., 2017).

An interesting view on the participative budgeting is that of its benefits. It is considered that the participative budgeting system within the public system could have impact on the creation of civil society, it could contribute to democratize the decision making process and improve the dialogue between the officials and non-governmental organizations and it could lead to increase transparency in public finance management Kamrowska-Zaluska (2016). The results of the research performed by Gonçalves (2014) prove that the use of participative budgeting in Brazil led to the allocation of public funds in a similar manner to the people's preferences, the largest part of budget being assigned to sanitation and health services, which led to the decrease of infantile death rate. Also, Gonçalves (2014) considers that the direct interaction between the elected public representatives and the citizens within the budgetary process could have impact on both resource assignment and standard living outcomes.

Gonçalves (2014) considers that participative budgeting improves the information flow between the decisional political factors and the citizens as users of public services, it allows the supply of goods and services closer to the desires and needs of people, and it increases the political accountability. Moreover, by reducing the informational asymmetry between the political factors and the citizens, the population could widely "check" the activities of the public representatives, leading also to the increase of transparency within the public sector.

Aragonès and Sánchez-Pagés (2009), approach aspects related to the traditional model versus the model of participative democracy. A first aspect is referring to the fact that, if within the traditional model the elected representatives made the decisions and the people reacted to them, in the proposed model of participative democracy, people propose the policies to be implemented and the politicians are those who react to them, adopting the decision of implementing them or not. The second aspect considers the double power of people, respectively, they decide by participation on the policies to be implemented and they decide by voting the election of the political representatives. In respect of people participation, this is based on the cost-benefit analysis. In terms of the effects of the participative budgeting on the city of Porto Alegre in Brazil, Aragonès and Sánchez-Pagés (2009) mention the following: improvement of the political leaders' conduct, taking into account that they confront with a better informed population, whose re-election they depend on, thus being reduced the corruption; increase of population involvement, especially the segment of less rich or less educated citizens; and it appeared a redistribution of incomes.

For Boulding and Wampler (2010), among the advantages a participative budgeting system should generate are the following: improvement of the governing system, increase of the citizens' power to make decisions, improvement of the democracy quality, improvement of standard living quality, and increase of social justice. In prudential view, the authors remark that, although these advantages are ascribed to the participative budgeting system, there is limited empirical evidence to demonstrate them.

A counter view is that of the disadvantages of the participative budgeting. The results of the research performed by Kuruppu *et al*. (2016) on the participative budgeting within an urban council from Sri Lanka point out the failure of the participative budgeting system, which is becoming a power and domination practice, instead of a political emancipation means. The research results emphasize the fact that the participative budgeting is constrained by structural and relational aspects, in the end this system being a failure in achieving the major objective: the public participation. Moreover, the authors point out the fact that the participative budgeting could become a means of power monopoly and domination exercise.

Also, the analysis performed by Boulding and Wampler (2010) on 220 cities from Brazil using the participative budgeting system, shows prevalence of budgetary resource assignment towards health and education programmes, but also the existence of limited evidence according to which these re-assignments would have measurable impact. Moreover, the authors bring forward another aspect, often ignored when determining the effects of the governmental programmes on the citizens' welfare, respectively the level of available resources to be invested in new programmes, which sometimes could be too low to solve important issues such as poverty and inequality. Therefore, the authors consider that the simple improvement of this governing system, in default of additional resources, will not lead to the improvement of the services offered to the society or to the citizens' welfare, in this respect pleading for the improvement of the tax collecting system and other manners of increasing public revenues or funds.

The undertaken research points out the fact that in respect of concept, the participative budgeting in the public sector shows various information valences, being based on the following elements: citizens, governmental entities, transparency, limited public resources, efficient distribution of public resources, citizens' participation in the budgetary process, decision.

3. Empirical research on the citizens' perception upon the participative budgeting within the public sector from Romania

3.1 Research methodology

The study of the citizens' perception on the participative budgeting within the public sector from Romania was based on semi-structured interviews.

The population under investigation is represented by graduates in the field of Accounting, professing within accounting while continuing master programmes at the Faculty of Accounting and Management Information System within the University of Economic Studies in Bucharest. The average age of respondents is 23 years old.

The choice of this sample is supported by the following elements: acquaintance with aspects related to the budgetary system as a result of studying the Public Accounting subject; usage of all means of information and communication, including those by social-media, e-mail, on-line; opening towards the introduction, involvement and promotion of a new vision within the public sector, considering the fact that at present, the participative budgeting is not applied at the public sector level in Romania.

The interviews were performed face to face with 48 respondents, within the consulting activities, they were performed during January-March 2017, and the length of each interview was of 15-20 minutes. The interviews were not recorded, but every interviewer wrote down the answers to the questions asked to the interviewed.

3.2 Results of research

Question 1: The participative budgeting in the public sector means the citizens' involvement in resource allotment and budget execution. To what extent do you consider that Romania should adopt a participative budgeting system?

The great majority of the respondents (38) consider to a large extent that Romania should adopt a system of participative budgeting at the public sector level. R5, R17, R23, R33, R38, R41, R43, R36, R37, R48 support to a very large extent the adoption of participative budgeting within the national public sector, and R36, R37 and R48, have a different opinion, considering on a small scale the adoption of this new vision.

Question 2: To what extent would you take active part in a participative budgeting process?

To a large extent, 35 respondents would actively take part in the participative budgeting system within the public sector from Romania, and four respondents (R3, R30, R33, R47) would take part to a very large extent in this enterprise. For 9 respondents (R1, R2, R10, R11, R21, R28, R35, R36, R37) the interest is low in the participative budgeting, due to their low involvement within it.

Question 3: In your opinion, which are the advantages offered by a participative budgeting system?

In some respondents' view (R5, R8, R25, R40, R45), the advantages offered by the participative budgetary system are the following: it contributes to a more efficient resource assignment, it involves the citizens and includes them into the decision making process, it ensures the distribution of state resources to the projects, objectives and needs of the citizens and it generates benefits both to people and public entities.

R13 considers the adoption of the participative budgeting system within the public sector will streamline the allotment of the public financial resources, will take into account the citizens' objectives, will assign resources in order to achieve those objectives, and will involve people in the decision making process. R38 and R44 ascribe to the participative budgeting the following advantages: it includes citizens in the process of decision making in respect of budget, assigns the budgetary resources in accordance with the citizens' projects, increases the public sector credibility, and is beneficial for both parties involved, respectively the citizens and the public sector entities.

From other point of view, plusvalue generated by the adoption of the participative budgeting is represented by: more efficient allotment of public resources, involvement of the community into the decision making process, increase of the public sector credibility, distribution of public resources according to the community's objectives and supplying benefits to the community and public sector (R14, R34, R36), respectively, increase of efficiency in respect of public resource distribution, involvement of the citizens in the adoption of the decision process, increase of the public sector credibility and supplying benefits in a dual manner – citizens - public entities (R41).

17 respondents have a tri-dimensional view on the advantages offered by the participative budgeting system, as it follows: it involves the citizens into the decision making system, assigns the state resources towards citizens' projects and offers benefits both to the citizens and public entities (R3, R19, R22, R24, R39, R47), it improves efficiency of resource allotment, directs them towards the community objectives and it is beneficial for both the citizens and public entities (R4), it involves the citizens into the decision making process, increases the public entities' credibility and distributes public resources towards the citizens' needs (R15, R16), it assigns

more efficiently the public resources, involves the citizens into the adoption of decisions in respect of public resource use and generates benefits for the citizens and public sector (R17, R31, R35, R36), it involves the citizens in the decision making process, distributes the resources according to the citizens' projects and improves credibility of the public sector (R43), it assigns more efficiently the public resources, in the resource distribution process the citizens' objectives prevail, and the citizens are involved into the decision making process (R23, R29, R48).

Other respondents consider that the advantages of the participative budgeting are relatively reduced, such as: it improves the manner of assigning the state resources and involves the citizens at decision making level (R21), it supports the involvement of citizens in the decision making process and improves the public sector credibility (R33), it increases the efficiency of resource distribution and brings benefits to the community and public sector (R42), it draws the citizens in the decision making process and is beneficial for both the citizens and the public sector entities (R20), it allots more efficiently the resources and includes the community in the decision making process (R12, R26, R27, R28, R30, R32). Similar opinions were given by eight respondents who ascribed unique advantages to the participative budgeting, respectively: allotment of the public resources in accordance with the needs of citizens (R18), citizens' involvement into the decision making process (R1, R6, R20), more efficient assigment of the public resources (R7, R9), advatages offered to citizens and public entities (R10, R11).

Question 4: In your opinion which categories of people should be involved in the perticipative budgeting system within the public sector?

From some respondents' point of view, all citizens should be involved in the process of participative budgeting (R4, R18, R26, R27, R28, R41, R42, R43, R46). In terms of acquiring full exercise capacity, most of the respondents estimate that the participative budgeting should involve people over 18 years old (R1, R2, R3, R5, R6, R8, R16, R19, R22, R24, R25, R30, R31, R44, R45). On the contrary, R7 considers that people over 14 years old should be involved in the participative budgeting within the public sector.

9 respondents approach the typology of the people taking part in the participative budgeting system in terms of age, studies and professional experience, respectively: people older than 18, but who graduated economic studies and have experience in the field (R14, R23, R29, R32, R33, R34, R35, R39, R40). Other respondents define the profile of the participants in the participative budgeting within the public sector by studies and experience in the field (R1, R10, R11, R12, R13, R15, R17, R20, R21, R36, R37, R38, R48). In another approach, R9 and R47 limit the participants in the participative budgeting, to the tax-payers to the public budget.

Question 5: In your opinion which are the manners to perform the participative budgeting in order to involve as many citizens as possible?

6 respondents consider that to involve a higher number of people in the participative budgeting, they should be informed by various communication means, such as mass-media, social-media (R1, R2, R6, R27, R37, R47). R3 states that the participative

budgeting should be performed by face to face meetings, and other respondents plead for both face to face and on-line meetings (R18, R19, R20, R21).

From other perspective, in order for more community members to get involved in the participative budgeting, this process should be regulated (R10, R11 and R15). Another manner to account for the citizens to take part in the participative budgeting is that of participative voting to adopt the projects proposed by the citizens (R4, R7, R13, R16).

In another vision, the respondents propose a portfolio of means which, applied within the public sector, would convince the citizens to get involved in the participative budgeting, as it follows: informing the community by various communication means, performing the meetings on-line, regulating the participative budgeting and participative voting to adopt the projects proposed by the citizens (R8), informing people through various and accessible communication means, performing the meetings on-line and adopting the projects proposed by citizens by participative voting (R9), putting forth the participative budgeting through various means, face to face meetings and democratic adoption of the projects proposed by the citizens, through the agency of participative voting (R14, R28), promoting within media the participative budgeting, performing meetings on-line and face to face and adoption by participative voting of the projects proposed by the citizens (R23, R29, R33, R39, R45, R46), promoting within the community the participative budgeting through the agency of media means, on-line and face to face meetings, drawing up a participative budgeting regulation and adoption of the citizens' proposals by participative voting (R44), informing the citizens by various communication means, existence of a regulation regarding the participative budgeting and adoption of the citizens' proposals by participative voting (R38), informing the citizens by various accessible communication means, face to face meetings and participative voting to adopt the projects proposed by the citizens (R40).

In other respondents' view, the manners determining more and more citizens to get actively involved in the participative budgeting, are the following: performing meetings on-line and adopting the citizens' projects by participative voting (R5), informing on a large scale the community in respect of the participative budgeting and on-line and face to face meetings (R17, R24, R25, R26, R36, R41), on-line and face to face meetings and adoption by participative voting of the projects proposed by the citizens (R22, R31), face to face meetings and adoption by participative voting of the projects proposed by the citizens (R34), informing the community on the participative budgeting through the agency of media and adoption by participative voting of the projects proposed by the citizens (R35, R43, R48), promoting the participative budgeting by media means and performing face to face meetings (R42).

Question 6: In case Romania adopts the participative budgeting system within the public sector, in your opinion what impact will your participation have?

25 respondents consider that their participation in the participative budgeting system within the public sector will have impact on the assignment of public resources and will take into consideration the citizens' opinion. Also, 8 respondents state that their involvement will influence the participative budgeting, but this could not possible be measured (R22, R36, R37, R39, R40, R44, R45, R46). Relatively similar opinions

were given by other respondents who appreciated that, by involvement in the participative budgeting, that system would be influenced, but not in a significant manner (R8, R12, R16, R18, R19, R23, R29, R30, R31, R35, R43).

In another vision, the involvement in the participative budgeting system will influence the manner of public resource distribution, but this could not possibly be quantified (R28), respectively, it will influence the manner of public resource distribution, but it will point out the difference of power between the governmental authorities and the citizens (R34, R38). R44 states that its involvement will have impact on the participative budgeting, but this could not be quantified.

In opposition, there are the respondents' opinions saying that by taking part in the participative budgeting at the public sector level, there will be pointed out the power difference between the state entities and the community (R20, R26, R29).

4. Conclusions, limits and future research directions

The undertaken research shows that the participative budgeting within the public sector is widely treated in the professional literature, taking into account the characteristics and financial difficulties of the public sector, but also the indubitable advantages of participative budgeting, such as: improving the communication between the community and government entities, increasing the transparency of the public resource distribution and management, improving the governing system, increasing the decisional power of the community, improving democracy quality, improving life quality etc.

The research results on the assessment of citizens' opinion regarding the participative budgeting within the public sector from Romania have showed that most of the respondents largely support the adoption of the participative budgeting system at the public sector level from our country and, also, their active involvement in this system. In this respect, the respondents emphasize the following advantages of the participative budgeting: efficiency of the public resource distribution, involvement of the citizens in the process of adopting the decisions concerning the budget, increase of the public sector credibility, assignment of the public resources according to the projects and needs of the community, offering benefits both at community level and public sector entities' level.

In respect of the participants in the participative budgeting process, the respondents define the following profiles of the citizens: involvement of all citizens, people aged over 18, graduates of economic professional studies, respectively, people with experience in the field.

In terms of manners through which the participative budgeting should be carried out as to involve most of the citizens, the respondents support the information of community by various means of communication, such as mass-media, social-media and on-line and face to face meetings. Also, the respondents plead for regulating the participative budgeting, considering that the existence of certain intelligible and comprehensive coordinates of the participative budgeting increases the citizens' trust in this process and, implicitly, their involvement in the highest number. Another manner to motivate the community to take part in the participative budgeting is the adoption by participative voting of the projects proposed by the community. This practice assures correctness and transparency for the adopted projects, it improves the credibility of the participative budgeting and diminishes the information asymmetry between the community and the public sector entities.

In case of adopting the participative budgeting in the public sector from Romania, most respondents state that by their involvement they will influence the process of the public resource distribution and there will be taken into consideration the opinions of the community members. Less optimistic respondents argue that their participation in the process of participative budgeting will influence the participative budgeting, but the influence will be insignificant or it could not be measured. In opposition, the pessimist respondents consider that the adoption of the participative budgeting will emphasize the difference of power between the governmental entities and the community.

The main limits of the research take into account the limitation of the area of studies and the age of respondents. Considering the fact that the participative budgeting is not applied at present at the Romanian public sector level, being a prospect approach, the concept intelligibility supposes acquiring knowledge in the field of Accounting, respectively the study of the Public Accounting subject, we consider that this limit does not affect the research results.

As future research directions, we propose a sequel of the research on the participative budgeting within the public sector from Romania, by extending the sample of respondents to other categories such as the respondents' socio-professional category, average age category and their geographical area.

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References

Aragonès, E. & Sánchez-Pagés, S. (2009) "A theory of participatory democracy based on the real case of Porto Alegre", *European Economic Review*, vol. 53, Issue 1:56-72

Augsberger, A., Collins, M.E., Gecker, W., Lusk, K. & Zhao, Q. J. (2017) „She treated us like we bring valid ideas to the table: Youth experiences of a youth-led participatory budgeting process", *Children and Youth Services Review*, In Press, Corrected Proof, available at 20.02.2017

Boulding, C. & Wampler, B. (2010) „Voice, Votes, and Resources: Evaluating the Effect of Participatory Democracy on Well-being", *World Development*, vol. 38, Issue 1:125-135

Calu, D., Pitulice, I.C., Dumitru, M. & Gorgan, C. (2008) "Empirical Study Concerning the Financial Statements Disclosure within the Public Sector Entities" („Studiu empiric privind prezentarea situaţiilor financiare în entităţile din sectorul public*")*, *Public Administration and Management Magazine (Revista Administraţie şi Management public)*, no.11: 47-62

Cohen, T. (2012) „*Can participatory emissions budgeting help local authorities to tackle climate change?”, Environmental Development*, vol. 2: 18-35

Gomez, J., Rios Insua, D., Lavin, J.M. & Alfaro, C. (2013) „On deciding how to decide: Designing participatory budget processes”, European Journal of Operational Research, vol. 229, Issue 3:743-750

Gomez, J., Rios Insua, D. & Alfaro, C. (2016) „A participatory budget model under uncertainty”, *European Journal of Operational Research*, Vol. 249, Issue 1:351-358

Gonçalves, S. (2014) „The Effects of Participatory Budgeting on Municipal Expenditures and Infant Mortality in Brazil”, *World Development*, vol. 53: 94-110

Kamrowska-Zaluska, D. (2016) „Participatory Budgeting in Poland – Missing Link in Urban Regeneration Process”, *Procedia Engineering*, vol.161:1996-2000

Kuruppu, C., Adhikari, P., Gunarathna, V., Ambalangodage, D., Perera, P. & Karunarathna, C (2016) „Participatory budgeting in a Sri Lankan urban council: A practice of power and domination”, Critical Perspectives on Accounting, vol. 4:1-17

Năstase, P., Toader, Ş., Albu, C.N., Ştefănescu, A. & Kiss, C. (2014) „Survey on the Improvement of the Transparency of Reporting in the Romanian Public Sector”, *Audit Financiar*, no. 9:50-58, available at http://revista.cafr.ro/RevistaDetalii_EN?Cod=133, accessed on 10.03.2017

Parliament of Romania, 2001, Law no. 544/2001 related to free access to the public interest information, published into the Official Monitor of Romania no.663 dated 23.10.2001

Cluj City Hall (Primăria Cluj) (2013) “Report on the Pilot Project of Participative Budgeting in the Mănăștur District, Cluj-Napoca” („Raport cu privire la desfăşurarea proiectului pilot de bugetare participativă în cartierul Mănăştur, Cluj-Napoca”), available on-line at http://bp.primariaclujnapoca.ro/wp-content/uploads/Raport-BP-2013-Cluj-Napoca-Manastur.pdf , accessed on 10.03.2017

Ştefănescu, A. & Dudian, M. (2016) „Research on the Transparency of Information Regarding the Public-Private Partnership in the Public Hospitals from Romania”, 20th Eurasia Business and Economics Society Conference Vienna (EBES), 28-30 September 2016, Viena, Austria: 56

Ştefănescu, A. & Tănase, L.G. (2013) “Expansion on Economic Entities’ Budgets and Performance from the Employee Perspective”, *Audit Financiar Journal*, no.11: 39-55, available on-line at http://revista.cafr.ro/RevistaDetalii_RO?Cod=110 , accessed on 15.03.2017

Ştefănescu, A. & Ţurlea, E. (2014) „Research on the Financial Transparency into the Healthpublic System in Romania. Case of Hospitals Subordinated to the Health Ministry”, *Annales Universitatis Apulensis Series Oeconomica, Alba Iulia*, vol.1, no.16: 239-259

Ştefănescu, A. & Ţurlea, E. (2013) „Dissemination of financial information into the public sector-an approach from the view of the central public administration entities from Romania”, *Annales Universitatis Apulensis Series Oeconomica, Alba Iulia*, vol.1, no.15: 134-144, available on-line at http://www.uab.ro/oeconomica/, accessed on 10.03.2017

Ştefănescu, A, Ţurlea, E., Calu, D.A. (2010) „Reporting the Financial Performance of Romanian Public Sector Entities-Convergence or Compliance”*?* The 18th Congress of Accounting Professional in Romania, CECCAR Printing House, Bucharest, 377-390

Tiron-Tudor, A. (2010) „Romanian Public Institutions Financial Statements On the Way of Harmonization with IPSAS”, *Accounting and Management Information Systems*, vol. 9, no. 3: 422-447

Corruption in the public sector in Romania

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Abstract: *Defining corruption in the public sector involves at least two levels, is about corrupt officials in the public sector and the corrupting power which usually occurs in the direction of people who have certain needs that they want and solve preferentially or at the limit of legality, reason for calling the submission of tangible assets, financial or other for employees in the public sector to achieve the objectives.*
This study starts from the need to identify as precisely causes that favor the development of corruption in the public sector. Thus it was ordered to collect information from the Court of Auditors reports for 2014, which combined with other variables such as share public employees, the percentage of people who have been convicted for committing acts of corruption, and the average salary, that have resulted from analyses, the assessment on the main factors that are responsible for the existence of corruption in the public sector.
The final conclusions showed that the main responsible for the manifestation of corruption in the public sector are the lack of effective control of state authorities and tolerant behavior among the population.
As solutions to diminish this phenomenon we have strengthening and improvement of checks on employees in the public sector, but also "educate" the population through the media or by any other means in terms of the negative effect it can have this phenomenon on the level of live.

Keywords: *Corruption, sector budget, corruptible behavior, state institutions*

1. Introduction

Corruption is one of the biggest threats to the democratic ideal of self-government, in violation of social justice, by discrediting state institutions and undermine economic development (Strapenhurst et al, 2006). Corruption requires the creation of social inequities that in process of time creates a climate of tension among the population, and in some cases can reach to violence or even civil wars.

Following the studies, Uslaner finds that in countries with totalitarian regimes there is a much greater risk of manifestation of corruption than in a country where democracy prevails. In the same direction, Moris has conducted several studies to examine the possibilities of a political class whether it comes from a totalitarian or democratic, to be able to implement measures strong enough to reduce as much as possible the size of corruption.

In our country, corruption is divided on 2 levels. "Grand corruption" that is specific to those important functions of decision in public administration (through the power

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conferred by functional statute can discredit the institutions they represent) and "petty corruption" which is the target of preventive actions that attack the pyramid phenomenon (Micu and Nica, 2013). As an approach to the issue of corruption, we find the paradigm of cost-benefit analysis advanced by G. Backer, meaning that individuals take into account costs and benefits, and in relation to other people, always trying to maximize profits. Another view of this paradigm is advanced by George Homans through social exchange theory. The author believes that an individual interest is a combination of economic and psychological needs. In this respect, the Romanian sociologist P. Iliuţ says that the law of interaction between individuals can be expressed by words like "I gave you, I expect you to give me," "what you gave me, so I give you."

By focusing on our public institutions where corruption level is at the highest level, we find two types of individuals with different views on corruption. Officials have among both men and women supporting the corrupt conduct, but understanding the motivations underlying each category can help reduce corrupt behavior in public institutions (Mihăilă, 2011). According Alolo, feminine traits such as compassion, mercy and justifications supporting female officials for corruption, while masculine traits such as objectivity and willingness money highlights male officials justifications for supporting corruption.

Finally behaviors that encourage corruption must be discouraged and even punished, be it men or women, by understanding these behaviors we might help resolve this situation, more easily and with much lower costs.

Although corruption is directly responsible for most damages that accrue to us through a very limited standard of living and purchasing, few of us are those who find a causal link between the very low level of our grandparents pensions and fiscal evasion or fictitious connection between a prescription issued by a physician and insufficient funds for covered medications, and rarely unemployed blame for the lack of jobs on employer who employs illegal.   By fiscal tax revenues are collected from taxpayers. Public authorities are required to manage and allocate these resources for different types of expenditures (Băcanu, 2016). Thus, tax evasion is the one that resulted in increased taxes and the decrease of supply of jobs and ultimately that led to corruption as result of this process.

2. Methodology

The research report aims analyzing in detail and issuing value judgments regarding the presence of corruption in the public sector. The hypothesis of leaving this research is that the probability of committing corruption is much higher in the public sector than in the private sector because the private sector has the main objective of making a profit from the work they perform, while in public sector priorities are totally different.

In the private sector, the main priority is to obtain profit, and where employees manifest a corruptible behavior, the entire entity would be suffering. By apprising such cases, shareholders of that entity would act very quickly by disciplinary endorsement and even dissolution of employment contracts of the persons concerned, the risk is that the entity would register lower economic results. When corruption manifest in an entity, it has to suffer directly or indirectly in its entirety, from the guard to whom the may diminish the festive bonus, to shareholders who earn less dividends at the end of the financial exercise, or even reach to bankruptcy.

In the public sector, budgetary institutions being forced to finance themselves or obtain profit, may be a more suitable area for the manifestation of corruption. When an employee in the public sector is not financially affected by corrupt behavior of another colleague, he becomes more tolerant of such behavior.

Therefore, to supervise such conduct, it regularly carries out checks by specialized institutions among public sector entities. Based on the reports of the Court of Auditors (Annex 1A, containing complaints, which were forwarded to the Public Prosecutor for criminal prosecution in cases where the estimated damage exceeds EUR 500. 000 and which were started in 2014 and unresolved until 07.31.2016) were taken for analysis 20 entities in which were found irregularities, and for a greater dispersion as nationwide, it was intended that each of these public entities come from different counties and different areas.

Once a classification of a sample of 20 entities across the same number of counties was made, it went after the extent of the damage estimated by employees of the Court of Auditors who have made financial controls. For a clearer picture on corruption was resorted to gandul.info databases for information on the average salary in 2014 for each of the 20 counties. Analizeeconomice.ro was also used for variable share of employees in the budgetary sector and romaniacurata.ro for the share of people who have come to justice as a result of the deployment of corruption.

For the beginning, it will perform a correlation between the first variable (extent of the damage) and the share of employees in the public sector implicitly employed for each county. The correlation will be with the Data Analysis tools and graphical software module Excel. The working hypothesis is that the share of employees in the public sector is directly proportional to the probability of committing corruption. A second envisaged correlation is between the share of budgetary employees and the share of corrupt. The hypothesis shows that the larger budget is in terms of numbers, the greater the share of corrupt persons will be. The third correlation for which they applied the same tools as for the other two charts, will perform between the share of corrupt and average wages. The assumption is that, since average wages much higher are, the percentage of people who commit acts of corruption should be reduced.

Finally, on the basis of information already existing and the results of the analysis performed at the pairs of variables could be determined the impact that they have in defining the estimate of public sector corruption based on data obtained from the Court of Auditors reports.

3. Results and discussions

After the process of collection, ordering, classification, and processing of the collected information for each variable which stands to be analyzed, it was compiled a database as in table 1.

Table 1. **Database**

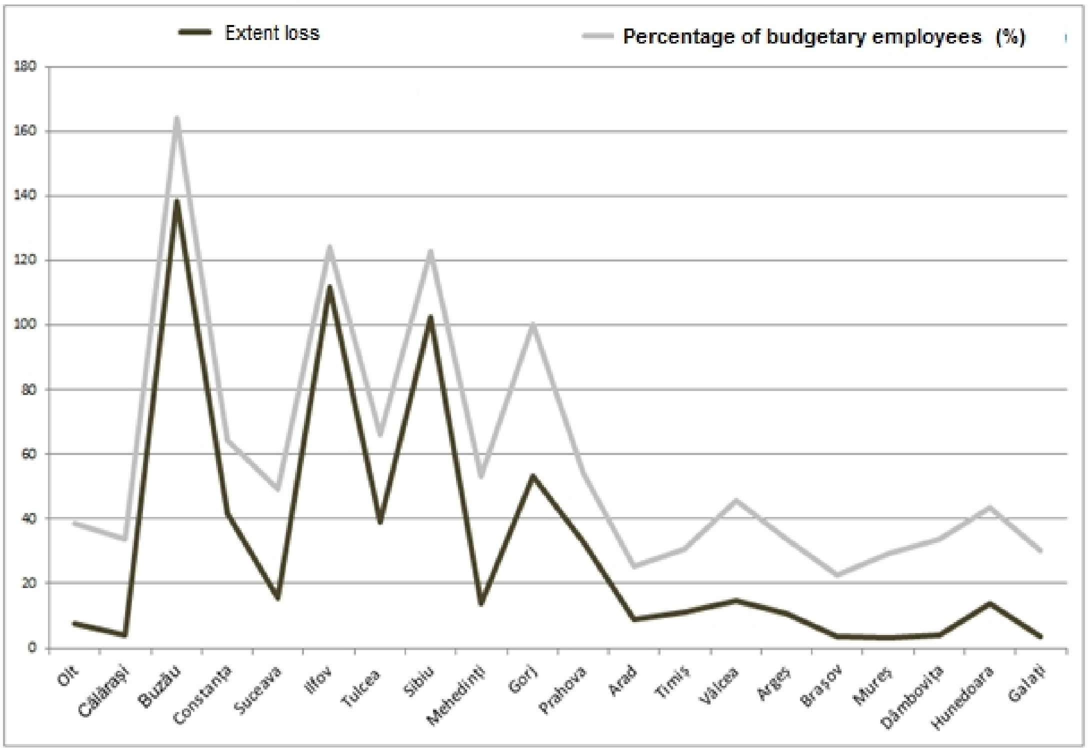
Name of public entities	Geographical localization	Extent loss (lei)	% of budgetary employees	% of corrupt personnel	Average wage
Olt Water Company SA	Olt	7.544.035	31,00	0,53	1558
Călărași County Council	Călărași	4.138.516	29,70	0,95	1365
Buzău County (Town hall)	Buzău	138.283.814	25,90	0,53	1326
Constanța County Autonomous Administration for roads and bridges	Constanța	41.532.383	22,80	1,58	1571
Brodina Commune (Town hall)	Suceava	15.560.322	33,50	0,57	1352
Public Financial Administration of Ilfov County	Ilfov	111.999.442	12,40	1,67	2087
Nalbant Commune (Town hall)	Tulcea	38.954.238	27,00	0,89	1482
Mediaș Autonomous Administration Romgaz for natural S.A.	Sibiu	102.352.849	20,60	0,55	1616
Mehedinți Autonomous Administration for nuclear activities	Mehedinți	13.837.829	39,60	0,23	1475
Oltenia Energy Complex National Enterprise S.A.	Gorj	53.038.493	47,00	1,7	1761
Prahova Forestry Division	Prahova	32.688.986	21,40	1,3	1687
Pleșcuța Commune (Town hall)	Arad	8.874.529	16,60	1,51	1492
Timișoara Airport – Traian Vuia	Timiș	11.213.430	19,30	1,29	1836
Voineasa Commune (Town hall)	Vâlcea	14.637.573	30,90	1,35	1337
Curtea de Argeș Hydropower Subsidiary	Argeș	10.534.802	23,00	2,43	1785
Măieruș Commune (Town hall)	Brașov	3.587.307	18,90	1,04	1604
Târgu Mureș National Theatre	Mureș	3.038.255	26,10	0,73	1509
SC Thermal SA Târgoviște	Dâmbovița	3.874.623	30,00	0,81	1488
SC Hunedoara Energy Complex SA	Hunedoara	13.875.740	29,60	0,53	1393
SC Zooland Tec SRL Tecuci	Galați	3.382.862	27,00	1,03	1576

(*Source*: Intrinsic elaborations based on collected informations from Court of Auditors reports. http://www.analizeeconomice.ro, http://www.romaniacurata.ro and http://www.gandul.info)

As shown in table 1 above, we have a sample of 20 budgetary entities from as many districts, which, after Court of Auditors inspections irregularities were estimated from 3,038,255 lei Târgu Mureș National Theatre, to 138 283 814 lei Buzău City Hall. As shown in the first working hypothesis that the share size of damages should be directly proportional to the percentage of the total budget employees can not be confirmed for several precise cases.

We remember Gorj county with a share of employees in the public sector by 47%, yet it has an estimated prejudice almost 3 times lower than in Buzău county, which although it has a share of budgetary sector employees slightly lower than in Gorj county, recorded a loss of approximately 3 times higher than Gorj. Thus Buzău county is one of the exceptions, the situation can be seen on account of one person's longevity as a mayor (20 consecutive years). For a better understanding of this correlation we have figure1.

Figure 1. **Correlations: extent loss vs. balance employees**

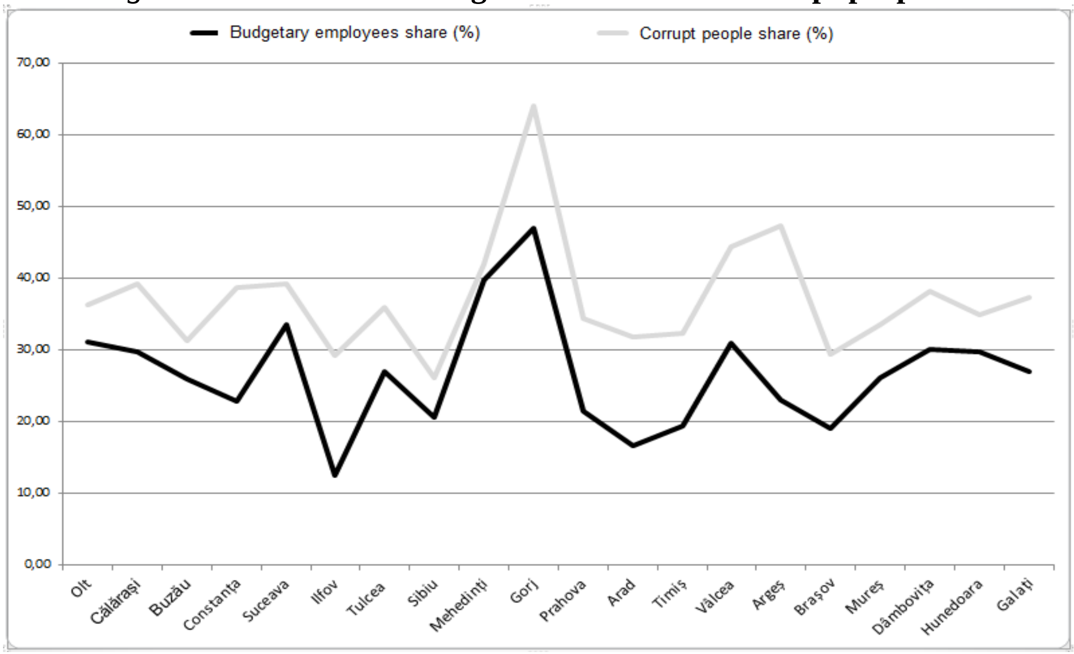


(*Source*: Authors' processing)

As seen in Figure 1, the two graphs with few exceptions almost copy one each other, which leads us to say that the hypothesis stated previously that between the extent of the damage and the share of budgetary employees in total employees is confirmed in most of the 20 observations. As exceptions most obvious apart from Buzău county, we have Dâmbovița which albeit accounting for 30% of employees in the budgetary sector extent of the damage is quite substantially reduced, similar to the one in Brașov county with a share in the public sector with only 18.90%. Another exception is that although Vâlcea county has a share of 30.90% of the employees in the public sector, it recorded a loss in value similar to Timiș county where the number of employees in the public sector is only 19.30%.

For the next collection between the pair of variables, the share of budgetary employees and share of corrupt persons we have the figure 2.

Figure 2. **Correlations: budget sector share vs. corrupt people share**

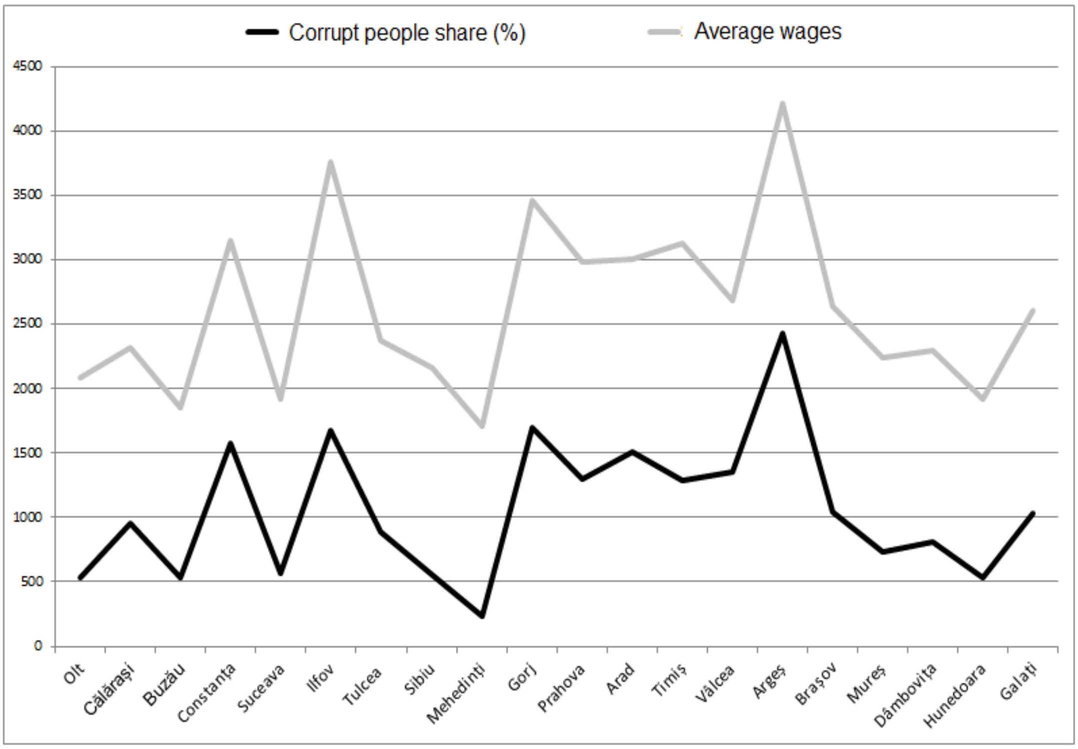


(*Source*: Authors' processing)

In Figure 2 we have an overlap of the two graphs, each representing a variable. It"s about variable share of budgetary employees in total number of employees with few exceptions pursues other variable values graphically represented by the share of corrupt persons. The hypothesis formulated in the methodology was that as the share of people in the public sector is higher in a county so there is a higher probability that in that county corruption would manifest more pronounced. To do this, between the 2 variables should be a good correlation, which can be seen easily through a simple analysis of the two graphs.

It is true that we can not talk about a perfect symmetry, but as in most of the comments the 2 graphs are watching each other and we can say that between the two variables there is a good correlation, and thus, the working hypothesis is confirmed. Also we have some particular situations in which the two trends act in different directions. An example is Constanța county, where although the share of the sector is 22.8%, close to the Sibiu County (20.60%), the share of corrupt in Constanța is almost 3 times higher than that of people from Sibiu. Another obvious example is in the county of Tulcea, represented by the town hall Nalbant, which albeit a share of people working in the public sector by 27%, which is lower than in Hunedoara (29.6%), recorded with a share of corrupt persons over 67% higher than that recorded in Hunedoara. Another obvious example is in the county of Tulcea, represented by the Nalbant tow hall, which register a share of people working in the public sector by 27%, which is lower than in Hunedoara (29.6%), recorded with a share of corrupt persons over 67% higher than that recorded in Hunedoara.

Figure 3. **Correlations: corrupt people share vs. average wages**



(*Source*: Authors' processing)

According to the working hypothesis, which was formulated in the methodology, since average wages are at a higher level, the corruption should be at some lower values, therefore the share of corrupt persons should be declining. The result is that to confirm the hypothesis, the two graphics should not have the same trend as in most of the 20 observations, which was not happening in this case. In support of this finding we have not only those two trends presented in Figure 3, which is clearly observed that in most places continues each one other instead of being in different directions, but we have the values of variables that proves most situations that initial hypothesis has not practical support.

Vâlcea County average wage in 2014 was 1337 lei and in 1785 lei in Argeș county. However, the share of corrupt people in Argeș county was higher than that of people in Vâlcea county by over 60%. Another more obvious examples are Gorj (1761 lei) and Dâmbovița (1488 lei) and the share of corrupt people in Gorj county is two times higher than that of people in Dâmbovița county, and examples can continue. It is possible that if a higher amplitude the results can differ materially, to confirm the initial hypothesis.

4. Conclusions

Although corruption is a mass phenomenon, it requires a more pronounced character in the public sector versus the private sector.

The size of damage caused by corruption in the public sector are determined by a number of factors such as: the desire of fast enrichment of the civil servants in a short time, or tolerant behavior of people when they witness committing corruption.

This study showed that the size may also affect the size of the budgetary damage to a county community due to corruption. In this respect, the initial hypothesis, that there is relationship between the size of the damage caused and the share of employees in the public sector, was confirmed. Also from the research it was demonstrated that there are exceptions, but they are punctual.

In this study we demonstrated that there is a correlation between the percentage of people who work in the public sector and the share of people who carry out acts of corruption in each county. The mechanism is quite simple, as there are a higher percentage of public employees, the more likely the manifestation of corruption increases.

The last assumption is that the share of corrupt individuals influenced by wage level has not been confirmed. This shows that low wage levels are among the main causes generating corrupt behavior from employees in the public sector.

Even if the maximum amplitude of the average wage is 510 lei (maximum recorded in Timiș county and minimum in Buzău county), for a conspectous view, we should mention the cost of living in the two districts (the price of housing, rents, labor employment and the level of local taxes).

Following this research it was demonstrated that any of the assumptions stated above could not be confirmed or denied entirely, for each one there are exceptions.

The existence of corrupt behavior from employees in the public sector is determined both by the lack of effective control by the authorities, but also from the collective culture of the population, and a very tolerant conduct of corruption acts.

While in Scandinavia to offer a public official a “gift” for a service which is in the job, it may be an insult, but in Romania this practice is perceived as an act of gratitude to that public official.

The difference in mentality between Romanian and Scandinavian tolerance granted on corruption, has its historical roots, something that could explain this major difference of perception on corruption. It is very likely that this corruptible behavior was developed most during Phanariot reigns which encouraged such behavior.

Court of Auditors reports reveal that although damages are borne by the community, this is due in good measure to the tolerant manifestation of the corruption behavior.

Employees in the public sector are not stimulated to commit corruption only for financial reasons but because of deficient control system and the unconsciousness of people about the negative consequences that this phenomenon can have on standard of living.

The highest values in terms of size of damage were recorded in Buzău (138 283 814 lei), Ilfov (111 999 442 lei) and Sibiu (102 352 849 lei) and the lowest valuesof damage in 2014, were recorded in Mureș (3,038,255 lei), Galați (3,382,862 lei) and Brașov (3,587,307 lei).

Regarding the share on a total of employees in the public sector, the largest amount reduced from 12.40% recorded in Ilfov county, that ranks on the second position in terms of size of the damage, while the largest share among public sector it is registered in Gorj.

In the future it aims to accomplish a research on a period of three years (2013, 2014 and 2015) in terms of size of damage discovered checks made by the Court, and also to focus only on Ilfov county and each district of Bucharest.

References

Alolo, N.A. (2007). Fighting public sector corruption in Ghana: does gender matter? In: S. Bracking, ed. Corruption and development: the anti-corruption campaigns. New York: Palgrave Macmillan, pp.205-220.

Băcanu, M. N. (2016.) Comparative study regarding the taxation objectives and the accounting objectives – domains of influence in the economic circuit. Theoretical and Applied Economics, 23(Special Issue-Spring), pp. 43-52

Becker G, William M. L. (1974), Essays in the Economics of Crime and Punishment. Publisher: UMI

George Homans (1958), Social Behavior as Exchange, American Journal of Sociology, vol 65, no 2, p 161-178

Iluţ P. (2005), The social psychology and anthropology of the family. Iași: Polirom

Mény, Y. (1996), Fin de siècle' corruption: change, crisis and shifting values. International Social Science Journal, vol.48, no.3. London, Blackwell Publishers, pp.309-320

Micu, G. & Nica, M. (2013), Tax havens and the globalization of corruption. Journal of criminal investigation, 4(1), pp. 292-299

Mihăilă, R. (2011), (Un)Gendered private space in nineteenth-century Romanian society, Journal of Research in Gender Studies, 1(1), pp.147-163

Morris, S. D. (2009), Political corruption in Mexico: The impact of democratization. Boulder, CO: Lynne Rienner Publishers

Stapenhurst, R., Ulrich, M. and Strohal, S. (2006), Introduction: Parliamentarians fighting corruption, in R. Stapenhurst, N. Johnston and R. Pelizzo (eds.), The role of parliament in curbing corruption. Washington, DC: The World Bank, pp.1-12.

Uslaner, E.M. (2008), Corruption, inequality, and the rule of law: The bulging pocket makes the easy life. New York: Cambridge University Press

Map of wages throughout the areas [online] Available at: <http://www.gandul.info/financiar/harta-salariilor-in-2015-cu-cat-vor-creste-lefurile-romanilor-din-fiecare-judet-13743567> [Accessed 8 November 2016].

Share of budgetary employees throughout the entire number of employees – database [online] Available at: < http://www.analizeeconomice.ro/2016/02/topul-judetelor-dupa-ponderea.html > [Accessed 11 November 2016].

Share of corruption convicted individuals – database [online] Available at: < https://www.romaniacurata.ro/harta-coruptiei/> [Accessed 5 Octomber 2016].

Reports by Romania's Court of Auditors – database [online] Available at: < http://www.curteadeconturi.ro/Publicatii/Raport_public_2014.pdf> [Accessed 12 November 2016].

The politics of public sector combinations

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Abstract: *The lobby process is perhaps one of the most important aspects of the standard setting process for users and preparers of financial statements alike. While the number of reporting entities may be lower in the public sector than in the private sector, the importance of the lobby process in the case of public sector entities is not diminished. Our paper aims to analyze such a lobby in the case of government combinations in the GASB and IPSASB frameworks with an emphasis on goodwill, an element of novelty for the public sector accounting discourse. Our results reveal that there is no defining trait which unites supporting jurisdictions over this matter while we witness an ever-increasing diversity in the represented stakeholders.*

Keywords: *Public sector combinations, goodwill, IPSASB, GASB*

1. Introduction

Public sector accounting, even if it is somewhat overlooked by researchers at the national and international level, can be considered a treasure trove of potentially original research. Standard-setting sits at the crossroads of legislation with public sector accounting, allowing scholars to shed light over the activities performed by the main international bodies in this area of expertise: Governmental Accounting Standards Board (GASB) and The International Public Sector Accounting Standards Board (IPSASB).

Public sector combinations have been largely overlooked by the majority of accounting scholars save a few like Mitu and Tiron Tudor (2013a; 2014). This topic, which depicts transfer of operations/functions, mergers or acquisitions, has considerable effects on the on the economy. For this reason, we aim to explore the subject from the standard setting perspective.

While many others have addressed the concept of business combinations from a standard setting perspective (Ramanna, 2008), few have done so for the public sector especially in matters regarding the concept of goodwill, mainly inexistent in public sector accounting norms. For this we bring into focus factors such as conceptual frameworks and evaluation methods within the standardization process.

The key feature of this paper is performing a comprehensive analysis of the jurisdictions in support of the decision making process of both GASB and IPSASB. While others have debated the role of jurisdictions in the standard setting process for business combinations (Ding *et al.*, 2008), we are addressing their role in the public sector context.

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The resolution of the 2016 IPSASB comment process allows us to perform an overview of the entire public sector combinations convergence project as implemented by the IPSASB and GASB. As of 2017, the new IPSAS 40 has provided an international solution to regulating public sector combinations. This provides us with the necessary data to develop a comprehensive image of the responders and their leverage relative to the decisions taken by the standard setters.

The responders through their comment letters are considered to be our source of data for the current analysis and they are derived of significant jurisdictions with an influence over the public sector GAAP and IPSAS standard completion.

Although uncommon in our national market economy, we consider public sector combinations to be a future necessity as the need of cooperation increases within the European Union and with it the probability of occurrence of inter-governmental operations. Correspondingly, this research underpins the future vision improving on singular elements or with low frequency which may affect an economy and subsequently aim at perfecting legislation.

2. Historical background

Standard-setting organizations fill both monitoring and normative roles for the accounting profession. While the means of achieving accounting normalization may be different (standards, laws, executive orders or court decisions), the standard-setting activity insures conformity and uniformity in the accounting domain. While there are numerous powerful standardization organizations in the world, we consider that none is more influent than the Governmental Accounting Standards Board (GASB) and its counterpart the International Public Sector Accounting Standards Board (IPSASB) (Mitu and Tiron Tudor, 2013b).

The history of the IPSAS Organization begins in 1996 (Ilie and Miose, 2012), with the purpose of developing accounting standards for the public sector entities and offer guidance to stakeholders. Since its inception, the IPSASB has been actively pursuing the transition from the cash-based accounting system to the accrual-based accounting system for the public sector (Ilie and Miose, 2012), thus enabling users of public sector financial statements with a background in private sector accounting to better understand the financial numbers. While drawing inspiration from the International Accounting Standards Board (IASB) innovations in the private sector, IPSASB has since issued a multitude of public accounting standards, which totaled 38 by January 2016 (Nistor and Deaconu, 2016) and three recommended practice guidelines, which provide guidance on the broader areas of financial reporting outside the financial statements. Furthermore, in October 2014 the board has issued the first global conceptual framework for public sector entities (Ellwood and Newberry, 2016).

Established in 1984, the Governmental Accounting Standards Board (GASB) is the older counterpart to the IPSASB. Unlike the IPSASB however, GASB did not step to fill a void in accounting regulation. GASB is the successor to a previous regulatory body operating within the United States of America, the National Council on Governmental Accounting, whose influence covered a decade of regulatory needs. Its challenge is to develop accounting standards at a federal level, which can be endorsed by the states; as the states chose what standards they apply under the US Constitution

(Roybark *et al.*, 2012). Thus, while addressing a single jurisdiction, GASB still has to balance the stakeholders in a manner unlike that of IPSASB in order to achieve its aims to develop independently accounting and financial reporting standards for U.S. state and local governments.

While both organizations have significant experience in regulating public sector entities, the issue of public sector combinations is a recent topic on their agenda, considering the controversies in private sector accounting (Ramanna, 2008). The two agendas started in 2009 for IPSASB and 2012 for GASB respectively, years after the sagas of IFRS 3 and SFAS 141/142 had completed.

Perhaps, one of the reasons for the delay could be that public sector accounting had to draw experience from the private sector, where innovations in accounting such as goodwill occur more frequently. We could theorize that the private sector might enjoy more contractual flexibility, as a result of limited supervision from stakeholders, and thus innovate faster than their public sector counterparts.

One of the earliest modern standards for private sector combinations was issued on August 1970 by the Accounting Principles Board (APB) Opinion No. 16 Business Combinations. (Zyla, 2009). While a small step compared to its predecessor ARB 24 (American Institute of Accountants, 1944), the standard was issued during the Cold War, when the public sector develops heavily to accommodate the increased security needs. The following series of US GAAP and IAS/IFRS would bring us to the current regulatory landscape after more than thirty years of private sector experience.

Unlike the private sector, the public sector emphasizes a thorough and adequate budgeting to ensure control of efficiency and effectiveness in public spending. Unlike the private sector where creative accounting can favor some types of business combinations over others, like for instance in the purchase vs pooling controversy (Ramanna, 2008), public sector entities are controlled by many layers of stakeholders. Expenses are strictly controlled and monitored. Since goodwill usually describes an overpayment/underpayment in exchange for future cash flows it is difficult to envision the occurrence of goodwill in a government combination. Also, there are significant costs for the development of an accrual budget to track goodwill, and accrual budgeting is a key aspect in the complete and correct transition to full public sector accrual accounting (Nistor and Deaconu, 2016).

Moreover, the successor to the Accounting Principles Board (APB), the Financial Accounting Standards Board (FASB) has benefited from a host of research based upon APB 16 which enable it to assess its policies like the ones performed by Nelson and Strawser (1970), Anderson and Louderback III (1975), Rayburn and Powes (1991), to name a few.

The complexity of the public sector accounting data makes it a challenging endeavor for researchers to retrieve and use it for meaningful statistical analysis like in the case of private sector accounting. Thus in the case of private sector combinations more respondents could integrate research papers in their arguments than in the case of public sector stakeholders.

The IASB/FASB projects also benefited from an organized convergence project between the two bodies, which also used the outreach platforms and thus the insight from the comment letters could be shared by IASB/FASB and facilitate their implementation.

Thus, as this paper will reveal, the issue of goodwill was controversial for the four public consultation sessions, even if the standard-setting boards in charge of it possessed the necessary political and technical experience to perform such a step.

3. Sample and methodology

Our methodology provides an empiric approach to the issues surrounding the lobby process which goes with the IPSASB & GASB standard-setting mechanism. While a transparent comment process is required for an adequate standardization process, the number of respondents is reduced by the limited focus relative to the private sector. Hartwig (2012) identifies 94 comment letters in the 2005 IASB consultation for business combinations. In contrast, a mere 14 respondents were involved in the first round of discussions regarding public sector combinations. These sampling limitations restrict the scope of the research, and force us to take into account all comment letters from the public consultations in 2009, 2012 and 2016 proper from both GASB and IPSASB.

The data was collected from the online archives maintained by the GASB and IPSASB. No other opinions on the matter ware considered for the sample. Even though the deadline has expired for all four public consultation sessions, the data was collected during the same period from all four consultation sessions. The data collection period was February 2017. Data about the respondents was collected from their official internet pages. Data about the jurisdictions was drawn from their respective constitutions.

While Mitu and Tiron Tudor (2013a) provide an empiric study of the comment letters during the 2012 IPSASB consultation, the scope of this paper goes beyond the quantification of the public support for the consultation process. This means that the features of the participants had to be standardized for diversity metrics. For this purpose, we relied on external sources to identify the statute of the participants, the bylaws by which they abide, as well as other clues in order to develop the taxonomy for the participants involved with the lobby process.

The resulting multilayer classification is based upon national affiliations, types of entities, as well as the types of jurisdictions involved in the feedback process. All respondents were assigned to their mailing address, which binds them to the jurisdiction from where they replied except for explicit international entities like the European Commission and the United Nations. While the jurisdiction for some respondents might be debatable for stakeholders with a global outreach and influence, such as the Big 4 audit firms, the rule was applied without exception as for all the respondents. The Federation of European Accountants was considered an international body for this analysis.

Table 1. **The taxonomy of the respondents**

Type of entity	Abbreviation	Respondent examples

State government	GS	state controlling agencies, state governments
Professional body	OP	staff of various organizations, accounting institutes
Private individual	PP	researchers, accounting professionals, citizens
Accounting firm	FC	Big 4 accounting practices
National government	GN	National governments, departments, parliaments
International organization	OI	International accounting federations, United Nations
Standardization committees	CS	Standardization committees

The classification in Table 1 was afterwards used for a diversity analysis of the respondents. In order to provide a complete image which includes the GASB regulation efforts, diversity was measured only by the type of entity classification using the Herfindahl-Hirschman Index, since few international commenters would choose to get involved with the GASB standard setting process.

By means of a Pearson correlation matrix, we can determine international lobby patterns for the issue of public sector combinations, with corresponding p-values. While a regression model would be desirable, other research like Hartwig's (2012) survey also lack a regression model.

For implementation issues, where the respondent explicitly refused to answer the specific items in a multiple answer question which addressed goodwill or explicitly rejected to answer at all was eliminated from the subsample for consistency purposes. An exception was made in the case of a follow-up answer if it addressed the issue in question.

The first variable included in the analysis, as per Table 2, was the type of relationship between the jurisdictions to which the respondents belonged (Fed) and their components. This distinction between the jurisdictions was allowed by the binary variable federal/non-federal, regardless of the influence of other related characteristics such as market status and IPSASB adoption status. In the case of Switzerland for instance, the public sector accounting reform was initiated at the canton level and finished at the federal level (Bergmann, 2012), which might suggest that federal jurisdictions would be more enthusiastic to implement public sector accounting innovations from the private sector, such as purchased goodwill. The prediction is also backed by research performed by Christiaens *et al.* (2015), which identifies less eagerness for the implementation of IPSAS standards in the case of central governments.

The second item for classification was the EU membership of the respondent's national jurisdiction. The European Union could, in itself, be considered a unique actor, since it is one of the oldest international organizations to recognize the benefits of convergence (Camfferman and Zeff, 2006). The European Union is closely working with the IFAC for the development of an IPSASB-derived public accounting system for its member states. Brusca *et al.* (2016) reveal that this unique arrangement can provide us with valuable additional insight into the workings of the IPSASB standard-setting process.

Our study also accounts for physical borders between jurisdictions through the variable Iso. We deem jurisdictions which share borders as more likely to engage in dialogue on a whole range of subjects, including public accounting practices, which might lead to more co-integration between bordering jurisdictions. If the jurisdiction of the respondent bordered a jurisdiction which also participated in a feedback session the respondent was marked with one. If on the contrary, the respondent was considered geographically isolated from other respondents, then the variable was zero. In the case of Great Britain, the Channel Tunnel was considered a tangible physical border with France. In the case of Australia and New Zeeland the Trans-Tasman Travel Arrangement coupled with a degree of co-integration between the two jurisdictions in the context of geographical isolation substitutes a physical border.

As previous research in the field of goodwill like Johnson (1985) or Ding *et al.* (2008) have shown, the distinction between the two major legal systems in the world (civil law/common law) is essential for the comprehension of goodwill in the private sector. Thus any jurisdiction which had a degree of common law influence, regardless of pure common law/mixed system distinctions was marked with 1, whereas other law systems such as civil law ware marked with 0.

The final issue concerning the respondents was their engagement. For the GASB feedback process there were no follow-ups to the initial consultation and thus no measurement could be made with respect to their engagement. However, in the case of the IPSAS counterpart the data was sufficient to identify habitual respondents. Like the EU/non-EU and federal/non-federal distinctions, the variable was binary. For a minimum of two consultation sessions feedback, the respondent was considered an engaged respondent and was scored with a one, while for those with just one comment letter the score was zero.

Table 2. **Respondent based variables**

Variable	Computation
Fed	1 for federal national affiliations, 0 for rest
EU	1 for EU member state affiliations, 0 for rest
Iso	1 for connected, 0 for isolated
Eng	1 for a minimum of two response letters, 0 for rest
Law	1 for common law derived system, 0 for all other

The last set of variables revolved around support for the implementation of the acquisition method in public sector accounting with the recognition of goodwill. This was achieved through different approaches.

The first support variable (Sup1) signifies the overall support for the inclusion of goodwill in the consolidated financial statements of the public sector entities. There are three values namely 1 for support for the inclusion of some sort of goodwill in the consolidated financial statements, 0 for rejection of goodwill in the public sector context and 0.5 for an inconclusive argument on the matter presented by the respondent.

The second support-related variable (Sup2) indicates persistent support through at least two stages of the feedback process. Thus, if the respondent supported the conclusions through at least two sessions, it received a score of one, whereas if the respondent supported the notion through just one session, it received a score of zero.
The content of the initial consultation session letters challenges standardization of the lobby process, since both the first GASB and IPSASB feedback sessions lacked the structure and form of the latter two IPSASB feedback sessions. The degree of freedom provided by the unstructured approach reduces the likelihood that a participant in the preliminary feedback sessions identifying goodwill evaluation as an issue for the standardization process.

The opportunity of providing a comparison with the GASB process is undermined by the fact that the issuers of project 3-17E didn't recognize goodwill as an identifiable asset which might arise through government combinations. The item identifiable in the context of the debates as goodwill is the difference between consideration provided and net position acquired. As less than 5% of the participants even mentioned the concept of positive goodwill, the GASB consultation session could not be included in any meaningful way in the overall correlation analysis.

Through all three IPSASB public consultations respondents had the opportunity to reject or approve the inclusion of goodwill in the consolidated financial statements. All respondents had an opportunity to change their opinions about the matter during the last consultation period. Question 5 from the third IPSAS consultation provided the opportunity for stakeholders to express their concern over the inclusion of goodwill in the consolidated statements; a specific question 5 in the second round of discussions concerned the recognition of goodwill. Since the final version of IPSAS 40 „Public Sector Combinations" also included goodwill as part of the acquisition method, this controversial item can also be considered a benchmark for the ability to influence the IPSASB decision process. Where support for goodwill was wavering the variable took the value of 0.5.

The statistical tool deployed for the analysis is the Pearson matrix of correlation with corresponding p-values in Matlab 2011b. The database itself was compiled in Microsoft Excel.

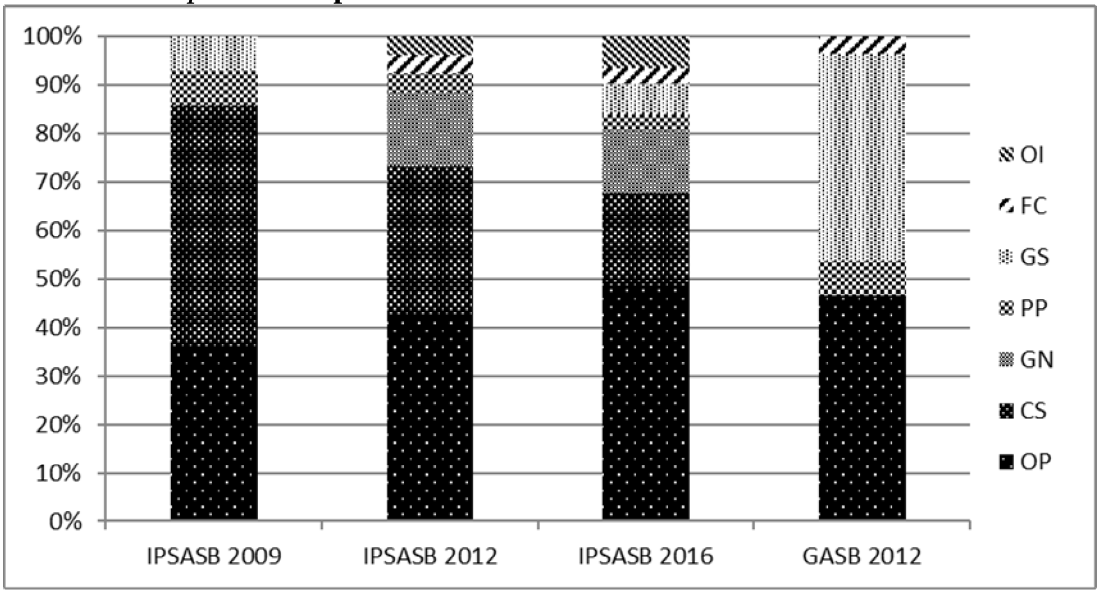
The degree of freedom provided by the unstructured approach provides an opportunity to identify the primary issues presented by the respondents in the first GASB and IPSASB consultation sessions.

4. Results

Our first results in Graphic 1 indicate an increase in the diversity of the respondents and thus a gain in the number of viewpoints. Likewise, the Herfindahl Index reveals an upturn in diversity. While the GASB consultation was the least diverse of the four consultation sessions, it did enjoy a significant percentage of state government involvement, compared to the IPSASB consultation, where state governments ware less involved and the responsibility largely fell on standardization committees and professional bodies.

The Herfindahl Index moves from 38.78% for the 2009 IPSAS public consultation, to 30.18% in 2012 and finishes at 29.86% in 2016. By contrast the 2012 GASB consultation has a 40.56% Herfindahl Index. The difference might be explained by the sampling jurisdictions. While IFAC and by extension, IPSASB, boasts of an international coverage, GASB only covers the 50 American states, plus dependent territories. Still there are some exchanges between the two standard setting committees. 3.6% of the GASB respondents ware non-resident non-US citizens.

Graphic 1. **Respondent structure for each consultation session**



Another noticeable dynamic is the growing role of the international community in public sector standard setting, which can be seen through the growth of the share in international actors involved with the IPSASB deliberations. While no international actors were active in the GASB standard-setting process, the same cannot be said for its IPSASB counterpart. In the case of the latter, the share of international actors involved in the standard-setting process experiences an upturn. Thus we can observe the increasing importance of the topic on the international agenda.

The next issue revolves around the correlation matrix for the interactions observed between the variables. Statistically insignificant results (p-value<0.1) are not shown. The results with their corresponding p-values are recorded in the below table.

Table 3. **Significant correlations between the variables**

Variable 1	Variable 2	Pearson coefficient	P-value
EU	Fed	-0.49	0.01
EU	Iso	0.42	0.01
EU	Law	-0.30	0.04
Law	Eng	-0.44	0.01
Law	Sup2	-0.40	0.01

As we can observe in the table above, surprisingly the only variable that correlates with the support for the full application of the acquisition method for public sector combinations is the common law legal system, which opposes its implementation in the public sector accounting practice. Such findings are suprising considering the decisive role played by common law jurisdctions in the development of the concept for the private sector. Surprisingly, some of the common law jurisdictions also have rejected its implementation, such as the United States of America.

Also, the EU participants to the feedback sessions came from unitary, clustered civil law entities. This profile generally fits the national characteristics, with the exception of the clustering aspect. While the point of view of Romanian stakeholders was not represented during the debates by an official representative, the characteristics of the jurisdictions from which the EU respondents hailed ensured Romanian interests were represented in the debate.

Common law respondents ware less engaged than civil law respondents, thus allowing the latter to shape the debate. Civil law respondents also showed consistent support for the recognition of goodwill, unlike their counterparts. Since the decision was inclusion of goodwill in the final standard, we can be assured that civil law jurisdictions prevailed in the struggle for leverage.

Overall, none of the selected characteristics identified for the jurisdictions in question made any meaningful difference when it came to the support for goodwill recognition in the public sector financial statements. EU member states (including Great Britain) ware not united in expressing a single coherent position. Likewise, geographical clustering played an insignificant role at an international level for the issue of goodwill recognition. While federal and unitary governments may have different dynamics when it comes to public sector combinations (interstate amalgamations for example), those differences didn't matter when faced with an accounting innovation for public sector accounting such as goodwill from the acquisition method. Accounting culture, which may permeate national borders, was not a coagulant of opinion among the respondents. These findings could corroborate the findings of Bellanca and Vandernoot (2014), who address the fragmented landscape of IPSAS adoption across the European Union block.

Engagement was also a non-issue when it came to the controversial topic of public sector goodwill. While a majority of respondents (33 out of 47 unique national respondents) ware not engaged beyond one feedback session, those who chose to respond to more than a single round did not reveal a statistically significant difference in support from their counterparts. Regarding the European engagement rates, no statistical difference was detected in comparison to the rest of the sample. Thus we can argue that European involvement in the standard setting process was not exceptional.

The non-response of the European Commission on the issue of accounting for goodwill during the 2012 IPSASB consultation session also indicates the absence of a European consensus on the matter, which further puts emphasis on the active role of the sovereign national jurisdictions.

5. Conclusions

A single set of financial standards for the public sector is still a daunting challenge which IFAC will have to face in the near future. The lack of uniform engagement from its constituents means that key issues have been left out of the public response sessions. The asymmetric implementation of accrual accounting in the public sector means that the small sample on which IPSASB drew its conclusions may prove inadequate for the current diversity in practice for public sector accounting.

While a structural bias existed in the debate sessions, it did not manifest itself in a way which affected the outcome of the consultations with regards to accounting policies for goodwill in the acquisition method. While the rarity of such transactions could have played a role, it is without doubt that common law jurisdictions were less engaged than their civil law counterparts and that the civil law inspired jurisdictions were more likely to manifest constant support for the recognition of goodwill. It might be possible that the common law jurisdictions had more legal experience and chose to avoid the legal controversies surrounding goodwill. This is at odds with the traditional image of innovative Anglo-Saxon accounting practices.

Regarding the case of Romania, the lack of a European consensus and an official European Commission point of view could allow in our point of view for stakeholders to persue their interests in a more autonomous manner concerning public sector combinations.

While the lobbying networks presented in this paper are not similar to those uncovered by Ramanna (2008) for the private sector, future research could address those issues in a more meaningful way. Other public sector specific variables could be considered for inclusion, such as the size of the public sectors, specific bylaws as well as other dimensions to the jurisdictions in question. Likewise, statistic methods could be further refined in order to generate a working regression model for the explanation of support for goodwill inclusion in the consolidated financial statements.

References

American Institute of Accountants (1944) “ARB 24: Accounting for intangible assets”, available on-line at: http://clio.lib.olemiss.edu/cdm/ref/collection/deloitte/id/9502 [Accessed 20/10/2013]

Anderson, J. C. & Louderback III, J. G. (1975), “Income Manipulation and Purchase-Pooling: Some Additional Results”, *Journal of Accounting Research*, vol. 13, no. 2: 338-343

Bellanca, S. & Vandernoot, J. (2014) “International Public Sector Accounting Standards (IPSAS) Implementation in the European Union (EU) Member States”, *Journal of Modern Accounting and Auditing*, vol. 10, no. 3: 257-269

Bergmann, A. (2012) “The influence of the nature of government accounting and reporting in decision-making: evidence from Switzerland”, *Public Money & Management*, vol. 32, no. 1: 15-20

Brusca, I., Caperchione, E., Cohen, S. & Rossi, F. M. (eds) (2016) *Public Sector Accounting and Auditing in Europe: The Challenge of Harmonization* New York: Palgrave Macmillan

Camfferman, K. & Zeff, S. A. (2006*) Financial Reporting and Global Capital Markets. A History of the International Accounting Standards Committee, 1973-2000*, Oxford: Oxford University Press

Christiaens, J., Vanhee, C., Manes-Rossi F., Van Cauwenberge P., & Aversano N. (2015) “The effect of IPSAS on reforming governmental financial reporting: an international comparison”, *International Review of Administrative Sciences*, vol. 81, no. 1: 158 - 177

Ding, Y., Richard, J. & Stolowy, H. (2008) “Towards an understanding of the phases of goodwill accounting in four western capitalist countries: From stakeholder model to shareholder model”, *Accounting, Organizations and Society* vol. 33, no. 7: 718–755

Ellwood, S. & Newberry, S. (2016) "New development: The conceptual underpinnings of international public sector accounting", *Public Money & Management*, vol. 36, no. 3: 231-234

Hartwig, F. (2012) "Preparers' and Non-Preparers' Lobbying on the Proposed Prohibition of Goodwill Amortisation in ED3", *Liiketaloudellinen aikakauskirja*, vol. 4, no. 12: 30-60

Ilie, E. & Miose, N. (2012) "IPSAS and the Application of These Standards in the Romania" *Procedia-Social and Behavioral Sciences*, vol. 62, no. 1: 35-39

Johnson, O. (1985) *Common Law Accounting: The Case of Goodwill*, University of Illinois Urbana-Champaign: Bureau of Economic and Business Research

Mitu, I. & Tiron Tudor, A. (2013a) "Public Sector Combinations: A New Challenge for IPSASB", *The Annals of the University of Oradea. Economic Sciences*, vol. 51, no. 2: 540-549

Mitu, I. & Tiron Tudor, A. (2013b) "The Paradigms of Public Sector Combinations", *Procedia - Social and Behavioral Sciences*, vol. 1 no. 1: 567-573

Mitu, I. & Tiron Tudor, A. (2014) "Public Sector Inter-institutional combinations – an interdisciplinary perspective", *SEA – Practical Application of Science*, vol. 2, no. 3: 475-482

Nelson, K. & Strawser, R. (1970) "A note on APB Opinion No. 16" *Journal of Accounting Research*, vol. 8, no. 2: 284-289

Nistor, C. & Deaconu, A. (2016) "Public accounting history in post-communist Romania", *Ekonomska istraživanja*, vol.29, no. 1: 623-642

Ramanna, K. (2008) "The implications of unverifiable fair-value accounting. Evidence from the political economy of goodwill accounting", *Journal of Accounting and Economics*, vol. 45, no. 2: 253-281

Rayburn, F. & Powes, O. (1991) "A History of Pooling of Interests Accounting for Business Combinations in the United States", *Accounting Historians Journal*, vol .18, no. 2: 155-192

Roybark, H. Coffman, E. & Previts, G. (2012) "The First Quarter Century of the GASB (1984–2009): A Perspective on Standard Setting (Part One)", *Abacus*, vol. 48, no. 1: 1-30

Zyla, M. (2009) *Fair Value Measurements: Practical Guidance and Implementation*, New York: John Wiley & Sons