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Contents

From the Editors

Finance is central to the success of any innovation process (Fagerberg, 2006). Even the best ideas cannot be implemented without capital. This special *'Innovation in Finance'* issue of the Journal of Entrepreneurship, Management and Innovation contains five articles offering contributions to knowledge in the fields of financing innovation and financial innovation in the capital market. This selection of articles contributes to global research in this field, with papers written by authors from Nigeria, Hungary and Poland, based on well-developed theoretical frameworks and demonstrating a range of research methods.

The opening paper presented by Katarzyna Kozioł-Nadolna addresses the critical problem of capital shortages faced by entrepreneurs when financing innovative projects. The author discusses crowdsourcing as an alternative source of finance for such enterprises. The discourse includes both the theoretical and practical perspectives on the issue, highlighting that the role of crowdfunding may include more than just the supply of money. Moreover, the paper provides a comprehensive description of the current state of the Polish crowdfunding market, as well as suggesting the likely direction for its further development.

The second article, written by Patricia Becsky-Nagy, focuses on the role of venture capital in financing companies which have high risk-return profiles, such as new, innovative and high-growth firms. The article seeks to understand not only what venture capitalists actually do but in particular to reveal the specific mechanisms of their value creating activity. Starting the article with a thorough literature review, the author first describes the theoretical background which identifies the relevant value creating mechanisms. In the second part of the article she examines these mechanisms in Hungary, which has a less developed venture capital market, where the investors' practices have not been thoroughly revealed by the scientific literature. Becsky-Nagy concludes that the government backed venture capital funds have a catalyst effect on the early development of venture capital markets, but in the long run the gradual withdrawal of government from any active role can best energise the industry to mature under its own direction, and to do so faster than when relying on government programmes of support.

In the third article, Robert Golej discusses the possible role of mezzanine funds in financing innovative SME companies. Considering the hybrid feature of mezzanine financing, as it combines features of both debt and equity into a single financing vehicle, it differs from straight debt finance as it implies a greater sharing of risk and reward between the user of the capital and the investor. In the first part of the article the author summarizes the present knowledge on mezzanine finance, reviewing the literature on the possible areas of mezzanine financing as well as the applied practices of mezzanine funds. In the next part of his article Golej presents the results of his recently conducted survey on the level of preparedness for an investment of mezzanine funds and the level of knowledge of entrepreneurs seeking mezzanine finance in Poland. The detailed database of mezzanine transactions conducted in Poland, including a list of the related funds, their invested companies, as well as the size-range of individual investments, represents a very useful contribution to further research. According to the author there is a gradual development of mezzanine finance in Poland, but in practice this type of finance does not represent a real financing possibility for early-stage risky firms, as mezzanine funds prefer rather more mature companies already in a good financial condition.

The next paper, by Folorunsho M. Ajide, focuses on the relationship between financial innovation and sustainable development in the context of West Africa. The theoretical discussion is enriched by a broad literature review embracing the African context followed by an empirical study. Using World Bank data from eight West African countries, the author created and tested a statistical model supporting the hypothesis that an increase in banking efficiency, driven by competition and financial innovation, would improve economic growth and development. Simultaneously pointing out that the growth effect of financial innovation is sensitive to the choice of proxy, it all highlights the importance of appropriate policies supporting competitiveness and efficiency in the banking industry, as well as for financial innovation.

The last paper in the issue is provided by Jacek Gad whose article aims to identify changes in the form of the statement of comprehensive income in companies in the WIG30 and DAX indices. Jacek Gad found that most of the companies studied present their comprehensive income in two statements, with the number of accounting notes regarding comprehensive income presented by companies in their financial statements increasing over the period under study. His study identified four options for the presentation of comprehensive income components with the particular option chosen reflecting increased information transparency. The results show that the practice of reporting in the area of the statement of comprehensive income of the DAX index companies is ahead of that in the WIG30 index.

Lastly, we would like to thank all the authors for their efforts in preparing the articles and their efficient collaboration with the editors and reviewers. We are very grateful for the cooperation of all the reviewers and thank them for their support in assessing the submitted papers and their valuable comments which helped to improve the selected articles. Finally, our special thanks go to Dr Anna Ujwary-Gil, Editor- in-Chief of JEMI, for the chance to cooperate with JEMI and for her support during each phase of work on this special issue.

We hope that this issue will prove to be interesting reading for global scholars and inspire them on to further research, especially in the field of financing innovation.

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Funding Innovation in Poland through Crowdfunding

***Katarzyna Kozioł-Nadolna*[1]**

Abstract

Funding innovative projects is one of the most serious problems faced by business owners in Poland. Therefore, due to the difficulties of obtaining external sources of financing, crowdfunding may constitute a new source of fundraising for innovative ventures. Therefore, crowdfunding – as a way of raising capital for projects – is the subject of the discussion in this article. The research aim of the article is to identify and evaluate crowdfunding platforms as well as the innovative projects carried out by these platforms in Poland in 2014-2016. The first part characterizes crowdfunding as a source of funding innovation and presents the nature of crowdfunding, its characteristics and models. The empirical part is based on inductive-deductive inference, desk research, i.e. the analysis of crowdfunding market in Poland in two research periods and a case study analysis. The article shows the results of the research on the Polish crowdfunding market in 2014-2016. The author also presents a case study of funding innovation on the Kickstarter.com platform by a Polish company Sher.ly.

Keywords: *innovation, crowdfunding, funding innovation, Poland.*

INTRODUCTION

The European Union defines innovation as one of the most important factors which is going to determine the competitiveness of the economy in the coming years. By the term 'innovation', one understands an ability and motivation of entrepreneurs to undertake a permanent search and take advantage of the results of this research, new ideas, concepts and inventions. Moreover, innovation involves improvement and development of production and operating technologies which also refer to services, the application of new solutions in organization and management, progress in the development of infrastructure, and, first and foremost, information, with its gathering, processing accessibility (Janasz & Kozioł, 2007).

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According to the latest theories and practice, innovations are the result of numerous, complex interactions among units, organizations and the environment in which they operate. The development of innovation theories and processes shows further evolution of these phenomena and together with all processes in today's economy it will result in the emergence of more complex and realistic models of innovation process. Extensive changes in the practice of implementing innovations, in their kinds and forms or character, notably observed since the beginning of the 21th century, prompted the OECD to announce *the Innovation Strategy* (Organization for Economic Co-operation and Development [OECD], 2009), a document describing new features of this phenomenon. The following are the characteristics of a contemporary innovation:

- it is created by the participation of a greater number of participants than before,
- it is created by overlapping and fusion of a greater number of areas of knowledge,
- it is created within more diverse mechanisms (open and closed innovations, demand-driven innovations, innovations created within consortia etc.),
- it takes place within an increasingly diversified environment (research consortia, technology transfer centers and technology platforms, new technology companies, venture capital companies, knowledge-intensive business services, clusters, non-profit organizations),
- in an innovation activity a stronger emphasis is put on decentralization of project management, plasticity of an organization, staff autonomy, stimulating creativity, building mutual trust, and on communication and leadership (OECD, 2009),
- customers and users are becoming co-authors of innovations,
- anonymous groups are authors of innovations (Wikipedia, Linux),
- the significance of non-technological innovations is growing steadily,
- one can observe the growing importance of eco-innovations, social innovations and 'modest' innovations,
- an emphasis is put on hybrid value chains – the cooperation aiming to integrate innovations and entrepreneurship of a business sector with that of a social sector,
- growing globalization of research and development.

In 2012 the OECD in its report *Science, Technology and Industry Outlook* (Organization for Economic Co-operation and Development [OECD], 2012) said that innovations, once seen as the domain of developed countries, are now appearing in many emerging countries and their share is constantly increasing. Even the implementation of new technologies from abroad requires some adaptation and adjustment, which can already be considered innovation. The report emphasizes that the concept of innovation goes far

beyond the advanced technology as it also covers technology at a lower level, the service sector and social innovations. A world-class scientific database is not a necessary prerequisite for innovation. Innovation can help in reducing poverty (which is a priority for many countries, in particular developing ones). Modest innovations exert a more direct impact as they make new products more readily available to households with low and middle-income, and poor people can modernize their businesses, often those "informal" ones and with a low level of productivity.

Due to the newly appearing types and forms of contemporary innovation and a shift of paradigm from closed to open, in addition to traditional sources of funding innovation projects, there are new ones appearing. Innovation can be financed from different sources, e.g. own resources of organizations, external resources, or funding obtained from the web community (crowdfunding). Crowdfunding has been growing rapidly in the past few years as advancements in technology and the growth of social media has made it far easier for entrepreneurs to reach large numbers of people at far less cost (Pierrakis & Collins, 2013).

Funding innovative projects is one of the most serious problems dealt with by business owners in Poland. The lack of capital for the realization of innovative projects can translate into a deterioration of a company's competitive position. Thus, capital is the basis for the development of innovative enterprises.

Access to financial resources is also one of the most urgent problems for European SMEs (European Commission [EC], 2013). For many projects, financing needs are not met by existing sources of financing, which is defined as the funding gap.

Crowdfunding may prove to be a support for entrepreneurship both in terms of improving access to funding and in the context of additional market research and marketing tools that can help entrepreneurs obtain comprehensive knowledge of their customers and promotion in the media (European Commission [EC], 2014, p. 5).

The abovementioned research problem indicates that crowdfunding as a way, or an alternative source, of funding a variety of innovations is the subject of the discussion. The research aim of the article is to identify and evaluate crowdfunding platforms as well as the innovative projects carried out by these platforms in Poland in 2014-2016. The thematic scope of the article and its aim determine the applied research approach. The theoretical part was grounded on deductive inference and comparative analysis on the basis of subject literature analysis, whilst the empirical part was based on inductive-deductive reasoning, a desk research, i.e. the analysis of crowdfunding market in Poland in two research periods and a case study analysis.

LITERATURE REVIEW

Innovation processes, open innovation and crowdfunding

In defining an innovation process we can distinguish two definitions. According to Schumpeter (1960) the innovation process is a certain sequence of events: starting from an idea (invention), through implementation (innovation) and dissemination (imitation). Janasz and Kozioł-Nadolna (2011) define an innovation process as generating an innovation idea (regardless of what the idea is about or what area of innovation activity it is created on), then creating, designing and the first implementation. The main event in this kind of process is the implementation of a new product or solution. The innovation process, as the definition says, consists of phases, stages connected to each other by different interactions.

We can look at innovation processes from different perspectives: economy, enterprise or a separate innovation. No matter which analysis we use, an innovation process generally consists of two phases: the creation of an innovation and its dissemination.

Innovation models have evolved from simple linear models. Good examples are: the technology-push model (up to the second half of the 1960s) and the market-pull model (in the 1970s). More recent innovation models try to build more complexity and interaction into the framework and explicitly stress the need for openness towards external partners in innovation and R&D. The "third-generation" innovation model combines the technology-push and need-pull models by stressing linkages and feedback loops between R&D and marketing. The subsequent integrated model of the 1980s ("fourth-generation") emphasised innovation as a broadly parallel process with cross-functional integration and parallel development within the company and with external collaborators. Rothwell (1992) claimed at the beginning of the 1990s that there were five generations of innovation models. His last 'fifth-generation' model combines integration networking with information technology, based on networking of marketing, R&D, production and customers.

Can we already start talking about the "sixth-generation" innovation model? The answer seems to be positive (Nobelius, 2004, pp. 369-375; Ahmed, 2000, pp. 112-114; Baruk, 2006, p. 122). The end of the 1990s and the first decade of the 21st century brought new solutions, structures and, finally, a new approach towards development. Thus, the 'sixth-generation' model is an answer to the changes in the global environment and its influence on enterprises. Moreover, the enterprises themselves have changed: their structure, ties (so networking enterprise emerged), an emphasis on

cooperation. In this model attention is paid to knowledge as a separate category and the processes managing the knowledge as well as learning processes. Innovation processes should be planned in a way to enable the following: creating new knowledge, managing existing knowledge, storing up knowledge, transfer of knowledge, or using it again. Different kinds of boundaries are crossed: between enterprises, between sectors participating in innovation processes, in taking advantage of the experience of many organizations and their employees. Finally, new problems have emerged, e.g. the protection of intellectual property and regulations in an innovation chain.

The 21st century strengthened the substantial changes in the market, which made enterprises change their innovation models. The innovation process is becoming more expensive and risky due to global competition, a short product cycle, and technological progress. As a consequence, enterprises start to share the risk by doing research with other enterprises and organizations, applying the open innovation model and entering enterprise networks.

In the open strategy of innovations the following rule is the most basic: the maximization of values coming from different ideas (both the company's ideas as well as the external ones). This approach means that the formal framework of organization is just symbolic and does not stop the flow of knowledge between the organization and its environment. Companies that adopt the open innovation strategy both enthusiastically develop ideas which were created by others, as well as making their own ideas available to other organizations which find them more interesting. Sometimes a company's own ideas are transferred to other enterprises deliberately (e.g. start-ups) in order for them to be developed without the influence of the company's own internal powers (Chesbrough, 2003).

The novelty of Chesbrough's concept was based on the fact that the process of open innovation became an integral part of the innovation strategy of an enterprise and its business model. In the first decades of the 20th century industrial enterprises in the USA cooperated and ordered solutions from external R&D laboratories. We can say that they used the open innovation model (Teece, 1988). However, the situation changed drastically after the Second World War. In the 1950s and 1960s the first generation model of the innovation process (described in the previous chapter) with its closed approach was in the lead. The new open innovation model contrasts with this approach.

In the closed approach, organizations do not share their knowledge and, moreover, their ideas stay inside an enterprise, being assessed at various times. A lot of ideas are rejected and never used. On top of that, they are

eliminated, not by the market or consumers, but by employees of the enterprise who find the ideas irrelevant or useless at the time.

In this model, enterprises finance innovation processes only from their own resources, which are often very meagre, as the R&D activity is risky. And therefore, enterprises will often tend to purchase ready-made material technology. On the market there is free capital, which may be intended for the development of innovation projects (e.g. through strategic alliances, cooperation agreements, venture capital, business angels' activity). However, this requires a radical change in thinking about innovation. One of the ways out of this situation is to be open to the environment, e.g. customers, suppliers, and institutions such as universities, by making them deeply involved in their innovation processes.

Therefore, it can be concluded that one of the elements of openness of an innovation process is "opening" oneself to resources from outside the organization – i.e. alternative resources to traditional ways of financing. Such a solution is crowdfunding. In the open innovation model crowdfunding seems to be a good source of raising capital. It is the optimal choice for young entrepreneurs with attractive business ideas. Apart from the financial dimension, the advantages of raising capital within the open innovation model are (Malinowski, 2016):

- brand promotion and publicity,
- co-creation of products or services by Internet users,
- validation of a project in the eyes of professional investors,
- a chance to bring communities and brand ambassadors together,
- building a network of contacts.

Among the disadvantages of this method of raising capital are:

- the necessity to split shares and a potential loss of full control over the company,
- lack of marketing support, which is frequently obtained as an investment package from professional institutions,
- lack of know-how transfer.

The nature and characteristics of crowdfunding

The phenomenon of crowdfunding is part of a broader concept called crowdsourcing, i.e. treating a crowd or, in other words, a community as a source of various resources. In 2006, the term crowdsourcing was first used by Jeff Howe in Wired Magazine – Howe defined crowdsourcing and also provided examples of its variations and identified the following (2006):

- Crowd Creation – a form of community involvement to look for new solutions, it is a genuine talent demonstrated by people in the crowd – together or separately. Its effect is the creation of Linux, Wikipedia,

iStockphoto, Innocentive, TopCoder and many other projects or companies.
- Crowd Voting, the most popular form of crowdsourcing involving many participants, e.g. in a vote on a new name of a drink, a brand of a car, the choice of participants in a music program.
- Crowd Wisdom, 'wisdom of the crowd', is an attempt to collect and compile many individual judgments and opinions in order to solve a problem, prepare a prognosis and outline a corporate strategy.
- Crowd Funding, seen as a modification of crowdsourcing.

Currently, crowdfunding is seen as an independent phenomenon. It means financing various projects by a crowd (a digital crowd), including innovation projects, those from the sphere of business, culture, arts, sports, media, etc. The term crowdfunding is said to have been coined by M. Sullivan who used it on a blog fundavlog in 2006 (Burkett, 2011). When defining crowdfunding one should bear in mind that this phenomenon is shaping now, right in front of our eyes, and in addition to its main goal, i.e. financing projects, it is creating a new trend in business. Król (2013, p. 13) defines crowdfunding as follows: "a type of collection and allocation of capital transferred for the development of a particular project in exchange for a particular return benefit, encouraging a wide range of lenders, also characterized by the use of ICT, a lower barrier to entry and better conditions of transactions than those available on a public market."

Schwienbacher and Larralde (2010, p. 4) define crowdfunding as "an open call, essentially through the Internet, for the provision of financial resources either in the form of a donation or in exchange for some form of a reward and/or voting rights in order to support initiatives for specific purposes." The funds are obtained from Internet users. The idea and the advantage of this mechanism is that it is based on micropayments from a community. An innovation project is financed by a large number of small, one-time payments made by people interested in a project. What prompts them to do so? First and foremost it is a good idea, has creativity, credibility, transparency and a well-told story. It should be added that a project must be completed before a deadline expires, otherwise the auction is closed and all payments are returned.

Crowdfunding as a new mechanism for fundraising stands out due to certain characteristics that allow it to be distinguished from public collections, donations and other traditional forms. The first characteristic feature of crowdfunding is giving cash, almost always in a dematerialized form. There is no possibility of providing support in other forms, e.g. in the form of tangible assets or others. The whole process of capital accumulation takes place by using ICT solutions. The aim of a project being financed by

crowdfunding, the allocation of resources and the effects of their spending are clearly defined. Crowdfunding does not require any consent from any state body, and can be carried out for personal, business or public reasons. Terms and conditions for raising capital within crowdfunding are better and more favorable than public market conditions. Another characteristic is a wider group of recipients – information about a project is available to a very large group of people, which entails another characteristic, i.e. no restrictions on the access to support a project. The ability to support a project is openly presented, addressed to an unspecified addressee. The last very important and distinguishing characteristic of crowdfunding is a return benefit received for providing financial support (Król, 2013).

Crowdfunding as a source of funding innovation

Capital is the basis for the development of innovative projects. Polish entrepreneurs indicate that the lack of opportunity for funding innovations, both from internal and external sources, is one of the most significant barriers to innovation – it is confirmed by one in four industrial enterprises and one in five services sector enterprises (Central Statistical Office [CSO], 2015, p. 120). Financial barriers are primarily manifested in the limited access to funds. It notably pertains to micro-enterprises and start-ups. This is due to the low degree of involvement of the banking sector in financing the development of small and medium-sized enterprises. There is also limited access to non-banking sources of financing, such as venture capital.

Therefore, in view of the difficulties with obtaining the abovementioned external sources of financing, crowdfunding is a new source of fundraising for innovative ventures. As described in the introduction to the article, the current innovation is more frequently co-created by customers or users in the open innovation model, which fits in perfectly with the concept of crowdfunding. A comparison of crowdfunding and other sources of raising capital are presented in Table 1.

From the perspective of investors, the new form of financing allows a direct choice in terms of funds allocation and gives a sense of commitment to the implementation of the project. People involved in community financing can take another look at entrepreneurs and come into direct contact with them, which can further promote the culture of entrepreneurship. Entities funding projects often also form a kind of community to support the funded project or may provide non-financial resources in the form of social knowledge (EC, 2014).

Table 1. A comparison of crowdfunding and other sources of funding for small venture projects

	Crowdfunding	Venture capital and private equity funds	Business angels	Stock exchanges and trading platforms	Bank loans	Leasing finance/ trade credit
Enabler organization	x			x		x
Direct interaction	x	x	x		x	
Affiliation of investor/ investee	x			x		x

Source: Giudici, Nava, Rossi & Verecondo (2012).

From the perspective of the company, in addition to funds received, help in obtaining other forms of co-financing is also of crucial importance. In many cases, project initiators are looking for the means to complete only a part of the project. In this situation, obtaining the expected amount on the crowdfunding platform facilitates subsequent financial negotiations with other investors or banks.

Crowdfunding enables companies to not only obtain funding for the project but also to create an engaged community around it and, moreover, it facilitates its promotion. Crowdfunding allows one to verify an idea, check the reaction of potential consumers, and open doors for further refinement of the product, which is especially important for innovation. Crowdfunding can also bring potential benefits for innovation and research and development. It can also contribute to economic growth, community development and job creation with simultaneous financing of innovative projects that do not have the degree of advancement required by traditional financial market sources.

Models of crowdfunding platforms

Funding obtained from an Internet community can take different forms. Below is presented the classification of crowdfunding according to a type of funding and a form of rewards offered in return for support (Dziuba, 2012, pp. 86-87; UK Interactive Entertainment [UKIE], 2012):

1) Donation model, also known as a charity model, is the most common model where internet users financially support a project, with a specific, philanthropic purpose. In the traditional donation model funders are not rewarded, whilst in a modified model (a sponsorship model), in return for their support, they receive something, e.g. CDs, books, concert tickets, etc.
2) Reward-based model, also called a sponsorship model.

3) Lending model in which a community offers funds in the form of a direct loan, bypassing banks or other organizations involved in lending; there are two types of this model:
   a) microfinance loans' model based on financial aid to the poorest where small amounts are shared;
   b) social lending model characterized by large amounts of financial resources; funds are collected and then lent out under certain conditions; loans can be granted for consumption or business purposes;
4) Investment-based model where Internet users on investment platforms invest their own resources in specific projects and ventures in anticipation of specific financial gains; this is a common way of funding start-ups. There are three types of this model:
   a) collective investment model involving different groups of people, including business angels, who invest relatively small amounts in the development of a project;
   b) investment fund model is based on collective allocation of funds and joint investment; there may be cases where a platform is organized as an investment fund (i.e. venture capital funds); in this model, in exchange for investing in a project funders expect to share profits, e.g. shares, securities.
   c) investment model, i.e. equity model (securities model), is based on selling shares and transferring ownership rights to online investors; invested funds are usually high.
5) Mixed Model (mixed solutions) is based on a combination of the abovementioned models.

Due to the nature of a project we can distinguish the following: a not-for-profit model aiming to achieve social objectives, and a for-profit model where the aim is a commercial use of a completed project.

Literature on crowdfunding. Chosen empirical findings about crowdfunding

Crowdfunding is a relatively new phenomenon. The subject literature can be divided into three groups (Moritz & Block, 2014):

- crowdfunding literature with a focus on capital seekers,
- crowdfunding literature with a focus on capital providers,
- crowdfunding literature with a focus on intermediaries.

Literature focusing on the capital-seeking party is predominantly concerned with the motivations for crowdfunding, the determinants of success, and the legal restrictions of equity-based crowdfunding.

Belleflamme, Lambert and Schwienbacher (2013a, p. 1) compare two forms of crowdfunding: entrepreneurs solicit individuals either to pre-order the product or to advance a fixed amount of money in exchange for a share of future

profits (or equity). Using a unified model, they show that the entrepreneur prefers pre-ordering if the initial capital requirement is relatively small compared with market size but prefers profit sharing otherwise. In another article Belleflamme, Lambert and Schwienbacher (2013b) identify in their interviews with crowdfunding-experienced entrepreneurs three main reasons for choosing crowdfunding to finance their projects. The collection of funds was stated by all of the respondents as the main reason for using crowdfunding. Other motives mentioned were the attainment of public attention and receiving feedback for their products or services. Gerber, Hui and Kuo (2012) have deepened the analysis by identifying five categories of motivation: fundraising, establishing relationships, receiving legitimacy, replicating successful experiences, increasing awareness about crowdfunders' work through social media. Mollick (2014) examines the geography of crowdfunding using data from Kickstarter to examine the determinants of success in crowdfunding ventures. Mollick uncovers a strong geographic component to the nature of projects, with founders proposing projects that reflect the underlying cultural products of their geographic area. Hemer, Schneider, Dornbusch and Frey (2011) show theoretical and practical analysis of crowdfunding as an alternative to early-stage financing of startups. For this purpose, the authors use interviews and case studies.

Other researchers show that funding success is significantly related to project quality signals such as preparedness, narrative, and others' contribution decisions, as well as individual quality signals like personal characteristics (including gender and race), creditworthiness, and social networks (Kuppuswamy & Bayus, 2015). Crowdfunding literature focusing on the capital providers is concerned with the motives of capital providers for participating in crowdfunding and the factors that influence the investment decision. Kuppuswamy and Bayus (2013) examine funded projects listed on Kickstarter and show that social information (i.e., other crowdfunders' funding decisions) plays a key role in the success of a project. Brem and Wassong (2014) carried out an analysis of the factors determining the investment decision of individual investors in crowdfunding. The results show that the product plays an important role in investment decisions, especially when it comes to gender differences. Moreover, personal relationships to the start-up positively influence the investment decision.

Capital providers in crowdfunding are not just financially motivated. Social reputation and intrinsic motives play a significant role Allison, Davis, Short & Webb, 2014). So far, there have been only a few research studies on crowdfunding platforms as an intermediary in crowdfunding transactions. For instance, such a study concerning the review of crowdfunding platforms was carried out in Italy by Giudici, Nava, Rossi and Verecondo (2012). The authors used case studies to achieve this aim. Belleflamme and Lambert (2014) in

their article, discuss the roles and strategies of crowdfunding platforms, which intermediate between entrepreneurs and contributors and they describe the price and non-price strategies that these platforms implement.

RESEARCH PROBLEM AND HYPOTHESES

Funding innovative projects is one of the most serious problems dealt with by business owners in Poland. The lack of capital for the realization of innovative projects can translate into a deterioration of a company's competitive position. Thus, capital is the basis for the development of innovative enterprises. Polish entrepreneurs indicate that the lack of opportunity for funding innovations, both from internal and external sources, is one of the most significant barriers to innovation – it is confirmed by one in four industrial enterprises and one in five services sector enterprises (CSO, 2015, p. 120). Access to financial resources is also one of the most urgent problems for European SMEs (EC, 2013). For many projects, financing needs are not met by existing sources of financing, which is defined as the funding gap.

Crowdfunding may prove to be a support for entrepreneurship both in terms of improving access to funding and in the context of additional market research and marketing tools that can help entrepreneurs obtain comprehensive knowledge of their customers and promotion in the media (EC, 2014, p. 5). Decisions made in order to choose the sources of financing ventures are strategic ones from the point of view of the company. Making financial decisions is a complex problem. Given the foregoing, the following hypotheses can be formulated:

Hypothesis 1: Polish enterprises finance their innovative projects through crowdfunding platforms in Poland to a small extent.

Hypothesis 2: Polish enterprises are looking to finance their innovative projects on crowdfunding platforms outside Poland.

RESEARCH METHODS

In order to verify the hypotheses, the author used inductive-deductive inference, desk research analysis and case studies. Desk research method is based on the use of existing secondary data (Makowska, 2013, p. 82). In a thorough and comprehensive desk research many analyses are used, e.g., content analysis (at the stage of seeking sources), the existing statistical data, and also comprehensive analyses and comparisons of historical data, i.e., data collected from websites, balance sheets and financial statements of companies, commercial offers, legal documents, articles, etc.

The choice of this test method was dictated by a limited possibility to use other research methods and by easy access to data. Such an analysis is also cheaper than doing research or generating reactive data (Hofferth, 2008). Another crucial fact is that in a desk research method an investigator has no effect on the research subject. The same method was employed by Giudici et al. (2012) in their analysis of crowdfunding platforms in Italy.

The study investigated all crowdfunding platforms operating in Poland (both Polish and foreign platforms). This resulted from the aim of the study, which was to identify and evaluate crowdfunding platforms and innovative projects realized on these platforms in Poland. The research covered the years 2014, 2015 and the first half of 2016. The study of the crowdfunding market in Poland and of the opportunities for funding innovations was carried out in two periods: 15 January 2015 (data for 2014) (Kozioł-Nadolna, 2015) and 7 July 2016 (data for 2015 and 2016). The evaluation of the websites of the crowdfunding platforms in Poland was carried out in order to estimate the number of platforms operating in the study period, to define crowdfunding models used by the platforms, the types of projects receiving funding, and the number of innovative projects financed on the platforms.

As a result, the study revealed platforms supporting innovation business projects in the field of engineering and technology. The analysis focused only on donation and investment platforms excluding a lending model.

The case study analysis was another research method used in the article. A case study is a type of research whose aim is to provide an in-depth analysis and explanation of a problem or phenomena of an individual case (Wojcik, 2013; Silverman, 2010). The choice of this method resulted from the nature of the formulated research hypothesis. A case study, in comparison with other research methods, offers the widest range of techniques and tools for data collection and analysis. Another reason justifying the choice of this method is that a single case study is regarded by the author as a pilot study whose aim was to develop preliminary theoretical assumptions paving the way for future research. The example of Sher.ly Inc., was used as a case study of financing an innovative project on the largest crowdfunding platform in the world, namely on Kickstarter.com. The data source was the website of the company, the website of Kickstarter.com and newspaper articles.

RESEARCH RESULTS

Crowdfunding market in Poland in the years 2014–2016

The research aim of the article is to identify and evaluate crowdfunding platforms as well as the innovative projects carried out by these platforms

in Poland in 2014 and 2016. The author used inductive-deductive inference, desk research i.e. the analysis of crowdfunding market in Poland in two research periods and a case study.

The history of the Polish market of crowdfunding, like that of the world's market, is quite short. In 2008, the first social lending platforms such as Kokos.pl appeared. The oldest operating platform of the donation type is Megatotal.pl established in 2007 (financing music, movies and software). Most platforms were created in the years 2010-2013. Crowdfunding platforms based on the investment model tend to operate for a short period of time.

According to the report, "Moving mainstream – The European Alternative Finance Benchmarking Survey" (2015), the value of the Polish crowdfunding market amounted to 4 million euro. The study covered 11 Polish platforms and identified three factors of dynamic development in the sector; a weakening of the position of traditional financial institutions, technological development, and social and economic changes.

Table 2. An overview of crowdfunding platforms in Poland in 2014–2016 according to their number and the model

	2014	2015	2016
Number of crowdfunding platforms	18	14	14
Crowdfunding models			
– Investment model	6	4	4
– Donation model	12	10	10

Based on own research, it can be stated that the number of crowdfunding platforms in Poland decreased. In 2016 there were 14 platforms on the market, whereas in 2014 there were 18 (see Table 2). One can distinguish two models of crowdfunding – a donation and investment model. The number of platforms operating within the two models dropped: in 2014, six platforms operated within the investment model, and 12 within the donation model, whereas in 2015 and 2016 their number dropped to four within the investment model and 10 in the donation model (a sponsorship model). In 2014 and 2015, 10 platforms supported business projects, including innovation projects, whereas in 2016 only 8 platforms did (See Table 3). In 2016 crowdcube platform was inactive. Myseed.pl has still not funded any innovation business projects.

The results of the research on financing innovations through crowdfunding reveal that they are a minority, e.g. in 2014 on PolakPotrafi.pl out of 491 successful projects only 20 concerned technology and design (4%), whilst in 2015 and 2016 there were over 30. Polakpotrafi.pl is the

largest Polish platform established in 2011 (Polakpotrafi, 2016). It operates within the donation model (a sponsorship model). This is an "all or nothing" type of funding. Interesting and successful innovation projects completed on the platform PolakPotrafi.pl (2016) are, among others, the following: sheathing for a race car (the students of Rzeszów University of Technology won more than 8000 zł), New Warsaw – the creation of the body of the car (299 supporters raised 12114.05 zł), Cohabitat MAKE (808 supporters and 86291.69 zł), a project to convert combustion vehicles to electric vehicles (the inventor was supported by 85 people and raised 4639 zł), a project for mobile application used to check food additives (430 supporters, 17251 zł).

Table 3. An overview of crowdfunding platforms financing business projects in Poland in 2014-2016

	2014	2015	2016
www.beesfund.com	+	+	+
www.crowdangels.pl	+	+	+
www.crowdcube.pl	+	+	-
www.ideowi.pl	+	+	+
www.myseed.pl	+	+	+
www.odpalprojekt.pl	+	+	+
www.polakpotrafi.pl	+	+	+
www.wspieram.to	+	+	+
www.wspolnyprojekt.pl	+	+	-
www.wspolnicy.pl	+	+	+

On the second most popular platform in Poland Wspieram.to, in 2014 only three projects were related to technology and three start-ups (Wspieram.to, 2016). The analysis indicates that in 2014 three platforms did not finance any innovation project in the field of engineering and technology (crowdcube.pl) – 6 completed projects, none concerned technology; myseed.pl (2015) 11 projects, none concerned technology; wspólnyprojekt.pl (2015) 14 completed projects, none concerned technology). Other platforms carried out several (approx. 16) projects of an innovative character.

Beesfund.com (Beesfund.com, 2016) is a platform supporting only innovation business projects and it operates within the investment model. So far, the platform, apart from its own project, has successfully completed two projects: an asset and a payment system Bitcoin (5000 shares amounting to 200000 zł), and a brewery project (10000 shares amount to 400000 zł). So far, 5 projects have applied for funding. In the near future, the platform is planning two editions. The results obtained from the study positively verify

the first research hypothesis that Polish enterprises finance their innovative projects through crowdfunding platforms in Poland to a small extent.

The research carried out in Poland indicates that platforms operating within the donation model record the highest activity. Siepomaga.pl, supporting initiatives primarily related to medical treatment, raised almost 84 million zł in more than 3600 auctions. Among the platforms operating within the sponsorship model one can distinguish those specializing in raising funds for specific types of projects, or the so-called supermarkets (wide variety of projects). The second part of the analysis, based on the abovementioned conclusions, allows us to present the example of a Polish company Sher.ly, which successfully raised funds on the American platform called Kickstarter.com.

Funding innovation on Kickstarter.com – a case study of Sher.ly

About the company and its innovation

Sher.ly Inc. (sher.ly, 2016) was founded in 2009 in Krakow, Poland by two visionaries: Marek Cieśla and Błażej Marciniak – both experienced development entrepreneurs in IT solutions. Sher.ly is based in Palo Alto, Calif. and in Krakow, Poland. Sher.ly is a private cloud solution designed for security conscious businesses looking to take back control of their sensitive data. Sher.ly stop valuable information from leaving an organization and help control access to data with a security focused solution that offers robust reporting, simple access management controls, and easy to use auditing tools. Unlike other file sharing solutions, Sher.ly does not distribute copies of the data but grants access to it instead.

Funding Sherlybox on Kickstarter.com and its objectives

In 2014, a start-up Sher.ly (2016) prepared a new version of Sherlybox. Its production was financed by a fund-raiser announced in 2014 on Kickstarter.com (2016). Since the launch of Kickstarter, on 28 April 2009, 11 million people have backed its projects, $2.5 billion has been obtained, and 108687 projects have been successfully funded. The company collected USD 154106, which was 223% of the assumed amount. The Polish team succeeded as, after six days, it had collected all the resources needed for the project – 69 thousand dollars. The project was supported by 896 people. The most frequently chosen form of support was to transfer USD 199 to the creators' account in exchange for a reward, i.e. one's own Sherlybox equipped with a 1 TB hard disc drive (HDD).

According to the authors, the project's main goal was not raising money for innovation. The aim was to present Sher.ly's software to a wider

and more conscious group of users. Additionally, it was launched to gain publicity intended to generate investment. Kickstarter, above all, is a great platform for PR and an objective test checker to see if a product satisfies the needs of a target group of customers. The choice of a crowdfunding platform largely depends on the type of product. If your product or service solves a local problem or satisfies a local need, a local crowdfunding platform would be a better choice. For Sher.ly, the choice of Kickstarter.com was very important and not accidental. Although Indiegogo had been on the market longer, Kickstarter was perceived as more popular due to, among others, the remarkable success of projects such as Pebble – a smartwatch. Indiegogo was not so popular and it had fewer supporters than Kickstarter.com. Based on the case study of Sher.ly Inc., the second research hypothesis, which assumes that Polish companies are looking to finance their innovative projects on crowdfunding platforms outside Poland, was positively verified.

DISCUSSION

In May 2016, the European Commission published a report Crowdfunding in the EU Capital Markets Union (European Commission [EC], 2016). The report identified 510 live platforms as active in the EU as at 31 December 2014. Of these, 502 platforms were located in 22 Member States, while 8 platforms were located in other countries (Australia, Canada, China, New Zealand and the United States). Most platforms were located in the United Kingdom (143), followed by France (77) and Germany (65). The majority of platforms were involved in reward-based crowdfunding (30%), followed by platforms involved in equity crowdfunding (23%) and loan-based crowdfunding (21%).

Crowdfunding has been developing rapidly in some Member States. It is estimated that €4.2 billion were successfully raised through crowdfunding platforms in 2015 across the EU, of which €4.1 billion were raised through crowdfunding models entailing a financial return. Project data from the platforms covered by the study showed a total of €2.3 billion successfully raised in 2013-2014. The largest single projects raised €6.1 million (equity) and €5.0 million (loan). Across the EU, between 2013 and 2014, amounts raised through equity crowdfunding platforms grew by 167%, and amounts raised through loan crowdfunding platforms grew by 112%. According to the report, one of the most promising forms of financing innovative entrepreneurs and start-ups is equity crowdfunding. In the European Union, in 2015, there were 60 platforms of this type that, altogether, conducted 836 campaigns and raised more than €420 million.

In Poland, the equity crowdfunding market is still relatively small. According to Crowdsurfer.com (Crowdsurfer.com, 2016), in 2015 the value

of investments amounted to only €216000, with an average investment value of approximately €17000. Having performed an analysis of the Polish crowdfunding market in the period between 2014–2016 similar conclusions can be drawn. There are four actively operating platforms within the equity model. However, they are characterized by a small number of completed projects (a dozen or so). This model of crowdfunding seems to be the best to financially support companies with innovative solutions. The Polish market compared to the world market seems to be in the early stages of development.

However, each year the number of projects, payments and the amounts paid in on donation platforms in Poland are increasing. The two platforms, Polakpotrafi.pl and Wspieramto.pl, are developing rapidly (2016). The results obtained from the study positively verify the first research hypothesis that Polish enterprises finance their innovative projects through crowdfunding platforms in Poland to a small extent. There are various reasons underlying this situation. One of these may be entrepreneurs' unfamiliarity with this tool and the lack of knowledge of its benefits. The second reason may be the reluctance to prepare a professional business offer. It is not enough to register on a website and submit an application. Preparation of an offer requires great commitment on the part of its authors and a lot of promotional activities. Moreover, another reason may be an unfavorable legal environment, especially in the case of the investment model, i.e. equity or securities model. The vagueness of the law and the lack of tax benefits may also lead to the discouragement of investors.

The article presents the example of a Polish start-up enterprise, which was successful in searching for funds not on Polish platforms, but on the world's largest platform Kickstarter.com. The second research hypothesis, which assumes that Polish companies are looking to finance their innovative projects on crowdfunding platforms outside Poland, was positively verified. The creators of the innovation called Sherlybox wanted to introduce their product onto the world market, and that was one of the reasons why they chose Kickstarter – a leader of crowdfunding in the world. The choice of this solution is confirmed by the creators of the platforms Polakpotrafi.pl and Wspieramto.pl. They believe it is difficult to obtain business funding on Polish crowdfunding platforms. It is better to look for it on such global platforms as Kickstarter and Indiegogo. When it comes to a business project or a start-up, they say it is well worth raising funds within the equity crowdfunding. The biggest problem, however, is a lack of interest on the part of the Poles.

CONCLUSION

The crowdfunding market in Poland is growing. Most social funding platforms in Poland were established after 2010. Based on the analysis, it can be stated

that the Polish market of crowdfunding can be divided into two streams consistent with crowdfunding models. First is the donation crowdfunding, which is a rapidly growing form of obtaining capital for planned projects, primarily in the field of music, games or sports. This is a popular way to fulfill different passions and to make one's dreams come true. The other stream is investment crowdfunding, which can be seen as an alternative source of finance; however Polish platforms are still not popular.

Based on the research, it can be stated that both hypotheses formulated in this article were positively verified, which means that Polish enterprises finance their innovative projects through crowdfunding platforms in Poland to a small extent and that Polish enterprises are looking to finance their innovative projects on crowdfunding platforms outside Poland. It should be noted, however, that Polish companies, in spite of having problems with raising capital for projects, show little interest in the alternative sources of financing, such as crowdfunding. It can be noticed that Polish innovation projects are looking for financing on global platforms (such as Kickstarter). It is too early to discuss the great importance of crowdfunding for the Polish financial market. From a theoretical and scientific perspective it would be interesting to research further the possibilities of crowdfunding.

Decisions made, in order to choose the sources of financing ventures, are strategic ones from the point of view of the company. Making financial decisions is a complex problem. There still remains an open question of what factors influence the decision about funding projects through crowdfunding, and what factors imply the adoption of a different model of a capital structure. Further studies on the reasons why Polish companies seek capital on international crowdfunding platforms will be of interest. Thus, it seems that in the face of the dynamic development of crowdfunding in the world, this process in Poland will continue to be an important and interesting research problem paving the way for future studies and further evaluation.

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Abstract (in Polish)

Finansowanie projektów innowacyjnych jest jednym z najpoważniejszych problemów, z jakimi mają do czynienia właściciele przedsiębiorstw w Polsce. Dlatego w związku z trudnościami z pozyskiwaniem zewnętrznych źródeł finansowania, crowdfunding stanowić może nowe źródło pozyskiwania środków na przedsięwzięcia innowacyjne. Przedmiotem rozważań w artykule jest zatem crowdfunding jako sposób na pozyskanie kapitału na realizację projektów. Celem badawczym artykułu jest identyfikacja i ocena platform crowdfundingowych i realizowanych na nich projektów innowacyjnych w Polsce w latach 2014–2016. W pierwszej części przedstawiono istotę crowdfundingu, cechy charakterystyczne, modele jego działania. Scharakteryzowano crowdfunding jako źródło finansowania innowacji. W części empirycznej posłużono się wnioskowaniem indukcyjno-dedukcyjnym, analizą desk research (analiza rynku crowdfundingu w Polsce w dwóch okresach badawczych) i analizą studium przypadku. Przedstawiono wyniki badań dotyczących polskiego rynku crowdfundingu w latach 2014-2016 (oszacowano ilość funkcjonujących platform w danym okresie badawczym, model crowdundingu stosowanego przez platformę, rodzaj projektów uzyskujących finansowanie i liczbę projektów innowacyjnych finansowanych na platformach. Przedstawiono także analizę przypadku finansowania innowacji na platformie Kickstarter.com przez polską firmę Sher.ly.

Keywords: *innowacje, crowdfunding, finansowanie innowacji, Polska.*

Biographical note

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The Special Aspects of Venture Capital's Value Creating Mechanisms in Hungary

***Patrícia Becsky-Nagy*[1]**

Abstract

The current article focuses on the special aspects of venture capital's value creation methods, summarizing the author's researches in this field. This article puts special emphasis on the scrutiny of the Hungarian market as the value creation practices on the domestic market have not been revealed thoroughly in the literature yet. The article attempts to examine the performance of venture capital, especially the JEREMIE funds, according to the limited available secondary data of the companies involved, which helps to assess the role of the government in bridging the financial gap and solving the problems in the venture capital market in Hungary. In this field reliable statistical data is not available, but there is an ongoing primer research led by the author, producing new information soon. The article presents the special investment and value creating methods of venture capitalists. In the first part of the article the theoretical background is presented, and in the second part of the article the author's research results are demonstrated following the same order.

Keywords: *venture capital, value creation, governmental role.*

INTRODUCTION

The main question of the article is how venture capitalists create value, what the special aspects of their value creating mechanism are, and how it works in Hungary. The relevance of the topic is, that the JEREMIE program launched by the European Union spurred the venture capital market of the Central and Eastern European region that made research in the field topical as previously unprecedented number of investments were made in the region. The great majority of the investments made by JEREMIE funds are currently active therefore bringing a verdict about the performance of the program would be premature therefore making certain conclusions about the program are limited. The exit performance and the return on investment can only be evaluated after the closure of the funds, but as the information about exits is usually confidential the evaluation in this field of venture capital funding is

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limited. Nonetheless the program is in the early stages and only at the end of its investment period can the scope of the portfolio companies be outlined and some conclusions reached about the state of the demand and supply side of the market.

The contribution of the article to the topic is that it puts special emphasis on the scrutiny of the Hungarian market, as the value creation practices on the domestic market have not been thoroughly revealed in the literature yet. The article attempts to examine the performance of venture capital, especially the JEREMIE funds, based on the limited available data of the companies involved, which helps to assess the role of the government in bridging the financial gap and solving the problems in the venture capital market in Hungary.

In the literature review the article introduces the theoretical framework of the analysis and the most important economic theories that are connected to venture capital funding. The literature review discusses the effects of imperfections in the venture capital market, the two-level principal-agent relationship that evolves in venture capital financing, the problem of funding gaps, the specialties of young and innovative companies' capital structure, and the relevance and methods of active and passive roles of state.

LITERATURE REVIEW

The following section will describe the theoretical background of the special aspects of venture capital's value creating mechanisms based on the literature. There is an enhanced information asymmetry in the venture capital market that results in an increased uncertainty in the industry but, on the other hand, by selecting companies with huge growth potential and providing them value added services, the investors can benefit from the increasing value of these companies. Hence, there is the possibility of realizing extremely high returns on their investments. The inefficiencies of the venture capital market can be alleviated by informal venture capital investors and by the public sector's direct and indirect involvement.

Imperfections in the venture capital market

Venture capitalists are financial intermediaries who collect capital from individuals and institutional investors then manage and invest the accumulated capital. They make their investments into private companies, not listed on the stock exchange, for equity in the company and/or optional rights for gaining further ownership. Venture capital investments are long term cooperation between investors and entrepreneurs in order to alleviate the increase of the firm's value and benefit from this growth by selling their

shares for a high profit. Venture capitalists take part in the control of the invested companies and usually they not receive dividends but reinvest the profits into the companies in order to enhance further growth. Traditional venture capital investors mainly focus on the early stages of the companies while buyout funds are for larger scale investments where the focus is more on the matured stages of the companies (Prowse, 1998, p. 22; Karsai, 1997, p. 168; Becskyné Nagy, 2008).

There is an increased information asymmetry in the venture capital market and the problem of adverse selection arises with a higher chance in the case of companies that are the focus of these investments (Hall, 2002; Becsky-Nagy & Fazekas, 2015a). The economic models that are based on the concept of information asymmetry provide a theoretical framework for understanding the inefficiencies that evolve in the market of the young and innovative enterprises and for exploring the methods that could alleviate the funding and knowledge gaps. In an imperfect informational environment the market cannot reach its optimal efficiency. Leland and Pyle (1977) describes the 'missing market' problem which says, that in markets where enhanced information asymmetry occurs the supply of capital will disappear if on the demand side the number of those companies that are not suitable for obtaining capital is too high. In order to bring suitable investment opportunities to the surface the bridging of the information gap via the transfer of relevant information is necessary. According to Hall (2002) venture capitalists are able to bridge this information gap, but in case of the Hungarian market the investors could not fulfill this role. Furthermore, government involvement was necessary in order to provide information for the venture capitalists.

In connection with the concept of information asymmetry, the pecking order theory is also a relevant economic theory that describes the hierarchy of the different capital sources (Myers, 1984, 2001; Myers & Majluf, 1984). Based on this theory, entrepreneurs have an information advantage about their companies and their goal is not in finding the optimal proportion of the different funding sources, but instead entrepreneurs have preferences towards the funding sources and they try to obtain the most preferred funding sources if they are available. In venture capital funding the general partners become owners of the companies with voting rights and they have insight into the operation of the companies that decreases the informational advantage of the entrepreneurs. In addition to this, as a result of its high profit expectations, venture capital can be the most expensive form of funding. Based on the findings of Zoppa and McMahon (2002) small and medium-sized enterprises are less willing to dilute the ownership structure, hence they prefer internal financing like retained earnings, depreciation and amortization and also debt financing, rather than external equity financing.

However, the innovative companies are unable to obtain debt financing as they are about to enter new markets, their products are usually in the development stage and they do not have collateral (Philott, 1994; Gompers, 1995; Hall, 2002). In addition to this, the information gap that occurs in the case of these companies imposes further limits on the available funding forms (Mason & Harrison, 1998).

The principal-agent theory is in close connection with capital structure theories that are focusing on the wealth maximization of the owners. Sahlman (1990) was the first who presented the two-level principal-agent relationship that evolves in venture capital financing, where the venture capitalists are the principals in terms of their relationship with the portfolio companies. But on the other hand, in managing the funds they also act as agents for those investors who provide the capital to the venture capital funds in order to gain profit via the successful investment activity of the venture capitalists. Therefore, in managing the problems that derive from information asymmetry and the principal-agent relationship, such as adverse selection and moral hazard issues, the venture capitalists play a crucial role in the success of these investments, so venture capital contracts include various clauses in order to solve these problems. However, as a result of the 'noise' in the information the uncertainties deriving from the informational problems cannot be eliminated (Reid, 1999; Becsky-Nagy & Fazekas, 2015a).

The special expertise and business experience of venture capitalists enables them to get the companies through the early stages of their life when the uncertainty is very high hence they are able to exploit the growth potential of these companies. The competence of venture capitalists can be harnessed via the cooperation of the entrepreneurs and investors so the personnel contribution of venture capitalists is indispensable for enhancing the growth of these companies (Becskyné-Nagy, 2008).

The real options approach of venture capital shows how venture capital is able and willing to manage efficiently the high uncertainty of these companies that derives from the business risks, information asymmetries and moral hazard issues. Based on the real options approach of venture capital these investments are projects with high flexibility and managers can create options and gain profit by benefiting from the positive outcomes and mitigating the downside risks (Kogut & Kulatilaka, 2001; Kaplan, Sensoy & Strömberg, 2009; Copeland & Keenan, 1998). In this sense venture capital funds are portfolios created from real options and the managers of the funds can influence the value of these options. From an option valuation perspective, the increased uncertainty increases the value of these investments as a result of the inherent options, contrary to the traditional valuation approaches where risks decrease the utility of investors. Real options' reasoning relies on the

special expertise of venture capital investors and describes, from a valuation point of view, why venture capitalists are willing to fund these enterprises. In this sense the valuation itself is a special area of venture capital where value creation appears.

Venture capitalists use various tools and methods in order to manage the high risks of their investments, like; high profit expectations, screening, the use of special contract stipulations and syndicate agreements, the use of convertibles and preference shares, the monitoring of investments, multi-staged financing of companies, diversification and the integration of portfolio-companies into networks. The role of high profit expectations is to compensate the investors for the risks of the investments. Screening and due diligence can ensure the quality of the investments and via these activities venture capitalists can select companies for their portfolios that could be viable on the market and have the greatest growth potential. After the process of selection an investment contract is drawn up with various clauses built into it in order to eliminate special risks. The use of different financial instruments, like preference shares and convertible securities are also very widespread in these contracts that could protect the investors from downside risks while maintaining the chance of achieving high returns. The opportunity to revise the investments at certain stages is provided by the multi-staged funding, where additional investments are often bound to the condition of reaching given milestones. This method enables the investors to create options in the investments that could mitigate the downside risks hence the risk-return characteristics are favorable compared to straightforward funding. The investment decision is followed by the monitoring of the invested companies as a part of the cooperation of venture capitalists and entrepreneurs. One purpose of the monitoring is to reduce the information asymmetry, hence the possible negative effects that could arise from the principal-agent relationship while, on the other hand, through their special expertise they can improve the performance and increase the value of the companies. Especially in larger portfolios the effect of diversification leads to more favorable risk-return characteristics (Becsky-Nagy & Fazekas, 2015a).

The selection criteria of venture capital

As selection is the first and crucial step in the process of the value creation in venture capital funding prior to the investment decision itself, it is very important to collect the most important selection criteria of venture capitalists from the literature. Only a few enterprises are able to meet the standards and criteria imposed by the venture capitalists. Only companies with high profit expectations and great growth potential are able to obtain

venture capital, around 90% of the companies that seek venture capital funding are rejected by the investors (Petty & Gruber, 2011). As selection is an essential momentum in the value creation there is an extensive literature that discusses the topic.

The first step of the selection process is the screening. According to the early study of Tyebjee and Bruno (1984) the companies are evaluated at the beginning of the screening based on the size of the investment, the industry and the applied technology, geographical location and the lifecycle stage of the companies. The business plans usually cover the mentioned criteria therefore the submission of the business plan is usually the first milestone in the selection process (Hudson & Evans, 2005). Companies in a very early stage of their life with lower capital needs are usually out of the target of venture capital. As a result of the costs of the investment process, especially the cost of due diligence, for institutional venture capitalists, investing under a certain amount of capital is not economical (Osman, 2008). For companies with lower capital needs, government funds, R&D tenders or angel investors can provide funding. The importance of geographical location is in connection with the personnel involvement of the venture capitalists (Tyebjee & Bruno, 1984). In the seed, early and early expansion stages the companies are in an imperfect information environment, with regards to the market and technology that decreases their chance of obtaining venture capital (Norton & Tannenbaum, 1993).

The first stage of the screening is followed by the scrutiny of the entrepreneur and the management, the product, the market characteristics and the financial aspects. The entrepreneur's expertise, managerial and professional competences, personality and commitment all play a crucial role in the investment decision, as the cooperation of the entrepreneurs and venture capitalists is a key factor in the fate of the investments and a detailed analysis of the management can reduce the risks of principal-agent relationship (Becskyné Nagy, 2008; Becsky-Nagy, 2016; Dubini, 1989; Franke, Gruber, Harhoff & Henkel, 2008; Hall & Hofer, 1993). The technical uncertainty that arise in connection with new products and services is another important factor in the selection of companies as technically feasible products and services that are often protected by patent can lead to a rapid growth in sales. The level of competition in the market and the threat of new entrants are also an important factor as in saturated markets the growth's opportunities are usually lower. The high initial costs of creating the prototype and also the cost of applied technology can only be compensated by high selling prices (Silva, 2004; Halaska, 2012; Petty & Gruber, 2011). Concerning market conditions, the industry, the potential size of the market, the probability of entering international markets, the chance of gaining permanent competitive

advantage, the threat of substitute products and the volatility of the market are the most important factors that affect the growth potential of the invested companies. The exit opportunities, the time and possible method of the exit and the expected return are also taken into consideration in the investment decision (Becskyné & Biczók, 2006). Not just the individual characteristics of the companies have a role in the selection but also their contribution to the overall risk of the venture capitalists portfolio is important.

According to Shepard, Zacharakis and Baron (2003) the experience of the venture capitalists is in correlation with the success of their decisions. The more experienced venture capitalists are more successful in their investments as well, but on the other hand an overly long investment record leads to automatic decisions and by neglecting the unique aspects of each investment the chances of success may decrease.

Venture capital in the capital structure of companies

After the selection, according to the investment process, the venture capital's position in the capital structure is crucial, as voting rights, control over the portfolio company and also the level of risk taking depends on the given financial instrument conditions. Based on many studies the convertible preference share is the optimal financial instrument for providing capital in venture capital funding (Berglöf, 1994; Casamatta, 2003; Cestone, 2000; Cornelli & Yosha, 2003; Marx, 1998; Schmidt, 2003; Trester, 1998) and this theory was confirmed by empirical studies as well (Kaplan & Strömberg, 2003; Bergemann & Hege, 1998). The special rights incorporated into preference shares can entitle venture capitalists to take control of the firm if the manager's performance hinders the success off the investment. In extreme cases of the principal-agent problem, these instruments provide an opportunity for venture capitalists to solve the conflict of investors and managers (Becsky-Nagy & Fazekas, 2015a). This instrument also has a favorable effect on the position of investors in case of liquidation. According to Cumming (2005), in the case of the US, the tax benefits of convertible preference shares are an additional advantage of this financial instrument, but based on his research focusing on the Canadian market, he stated after analyzing 3000 companies, that there is not a prevailing method that could describe in a general way the funding practice of venture capitalists. Based on his research the form of common equity was the most widespread followed by debt financing and convertible bonds and convertible preference share was the fourth in this rank, but also a combination of the previous methods was observed. Furthermore he found a connection between the form of funding and the type of firm and, based on his results in the case of younger enterprises,

the use of convertible preference shares is more frequent because in these companies the principal-agent problem evolves with higher probability. In early stage investments, venture capitalists do not favor debt, convertible bonds or the combination of equity and debt as a funding form, because these methods cannot provide the required control rights (Becsky-Nagy & Karászi, 2015).

The personnel contribution of venture capitalists

After the investment decision and contracts, the next step in the venture capitalists value creating process is the managerial support of the company. In their early stages the invested companies usually do not possess the decisive information and knowledge to formulate a strategy for their company and to manage it successfully (Rasila, Seppa & Hannula, 2002). The founders of young, innovative companies are usually experts with high qualifications but they do not have the necessary managerial and business experience (Vohor, Wright & Lockett, 2004). A special segment of the potential investments is the group of spin-off companies that commercialize technology and research with university origin, where the lack of managerial expertise is especially prevalent (Becsky-Nagy, 2013; Becsky-Nagy, Papp & Tóth, 2014).

One unique feature of venture capitalists is that, in addition to the capital, they also offer managerial assistance and can provide the necessary knowledge to run the company (Wright, Lockett, Clarysse & Binks, 2006). Through their personal contribution and knowledge transfer, venture capitalists are able to bridge not only the funding gaps that occur in case of young and innovative companies, but they also play an important role in the alleviation of the information and knowledge gap. The sources of the missing information and knowledge are a lack of managerial skills, market experience, engineering and professional skills. The other reason for the information gap is the uncertainty that derives from new technologies and new products that are introduced on previously non-existing markets with uncharted customer needs. The product itself often exists only as an idea and the companies shall deliver these plans to the market with the purpose of achieving a permanent competitive market advantage. Via the cooperation of investors and entrepreneurs, the venture capitalists are able to provide the necessary knowledge and information and also access to their extensive business networks. In order to reduce the risks of principal-agent relationship and to provide the non-financial value added services, the personnel contribution of the investors is necessary, therefore venture capitalists usually delegate members onto the supervisory board and appoint the chief executive of the firm. The presence of venture capitalists in the management team gives an

insight into the operation of the invested companies and strengthens the functions of monitoring, control and governance, thereby reducing the risks of the investors (Wright, Hoskisson, Busenitz & Dial, 2001; Becsky-Nagy, 2016). However, the founders of small companies are not willing to share their innovative idea with the investors prior to investment because they fear that if the investment negotiations fail than the investors will implement and gain profit from their ideas. Another problem is that the founders are often biased towards their own ideas and they are not willing to take the advice and guidance of investors that may lead to compromises and the restricted freedom of their decisions.

The dynamic three-factor model (3C model) of value creation demonstrates the main sources of venture capital's value creation that are capital, competence and cooperation (Becskyné- Nagy, 2008). The structural factors of venture capital are the size of the funds, the size of the deals, and the industrial and geographical extension. The model says that the value creation mechanism of venture capital is a self-feeding process where the sources and the structural factors become more and more extensive in time.

Alongside the provided knowledge and capital, there is also a great emphasis placed on cooperation, as a deteriorating relationship between investors and entrepreneurs, a conflict of interests or excessive control over the entrepreneurs, could lead to the failure of the investment. Cooperation, fair compromises and mutual trust is vital in order to create a well-functioning company.

The role of state in the venture capital market

Despite the fact that venture capitalists can create value in an investment process, there are insufficient market situations, when as a result of the information gap or the funding gap the supply side and the demand side of the venture capital market are not in the equilibrium. In these situations the state can help to shift the supply or the demand of venture capital.

Venture capital is a funding method that is able to alleviate the early stage funding problems of innovative firms with huge growth potential, but at the same time, because of the market inefficiencies that lead to funding gaps in the market of these companies, the question arises whether the active or passive role of the public sector is necessary to solve the funding problems of these enterprises. Table 1 contains the types of passive and active government participation in the venture capital industry. The active role of government on the venture capital market means that the state increases the supply of capital by providing funds in order to bridge the information gap or because of the absence of institutional investors' interest. The primary goal of

an active state role is to provide funding for those early stage companies that have huge growth potential, but for market investors, making investments in these companies is not economical because of the high transaction costs of selection and due diligence. Based on Hungarian and international evidence, direct state involvement does not lead to general success in the venture capital market. Government interventions have had a distorting effect on the market. One of the most important value creating factors of venture capital is the competence and managerial assistance of investors but in the absence of market investors this value enhancing effect cannot prevail. The public sector investors' contribution to the development of companies is mainly confined to the capital provided but the other resources of venture capital, like competence and business networks do not occur in the case of public investments. Therefore, the public venture capital backed companies could not achieve such growth as the private venture capital backed companies do (Bottazzi & Darin, 2002; Schilder, 2006f; Luukkonen, Deschryvere & Bertoni, 2013; Grilli & Murtinu, 2014; Becsky-Nagy & Fazekas, 2015b; Fazekas, 2014).

Table 1. Passive and active government participation in the venture capital industry

Passive government participation in the venture capital industry		**Active government participation in the venture capital industry**
Passive government participation in the funding of technology-driven small enterprises	**Active government participation in the funding of technology-driven small enterprises**	
Stable economic environment Stable political environment Mitigation of country risks High GDP High public R&D expenditure Environment favourable for innovation Environment incentivising entrepreneurial activities Institutional and statutory conditions Support by business angels Support by incubators Facilitating the development of the capital market Tax allowance for investors Government loan and capital guarantees Training, education Improvement of entrepreneurial culture Promotion of information flow	Non-reimbursable government grants for innovation and research and development Tax allowances for innovation and research and development activities Subsidised loans for the implementation of innovative research and development activities	Investment of budget resources in venture capital funds Management of venture capital funds created from budget resources

Source: Becsky-Nagy & Fazekas (2015b)

The primary goal of a passive state role is to promote a stable economic and political environment that is able to create and sustain an efficient venture capital market. Incentivizing the market to evolve an innovative entrepreneurial environment contributes to the development of the demand side of the market that leads to an increasing number of technology-oriented, innovative enterprises via improving the entrepreneurial spirit. By ensuring a stable economic, political and legal environment and mitigating the regional and national risk, investment activity can be spurred into action that leads to the expansion of the capital's supply. The role of the state is also pivotal in spurring the development and efficiency of the primary and secondary capital markets (Ludányi, 2002; Lerner, 1996). Table 1 contains the possible methods of active and passive state roles.

RESEARCH METHODS

As venture capitalists confidentially handle the information about their investments we do not have perfect information with regards to this funding form, especially about its return characteristics. The organizations that collect data about the returns on venture capital have to face various problems. The data is provided on a voluntary basis by the funds and, furthermore, the different databases use different methodologies. Although the latter research and databases provide more reliable results, we have to be aware of the fact that, in the interpretation of the results, there might be biases. In addition to the lack of data the analysis of return characteristics has methodological problems as well. The article attempts to collect the results of the Hungarian research based on the relevant secondary and primary sources.

The most commonly used secondary source of the return measure is IRR (Internal Rate of Return) that measures all returns based on the period's cash flows, so as to make the investments comparable with other venture capital investments, or other type of investments. Horizontal IRR takes the net asset value at the beginning of the period as a negative cash flow, and the cash inflows within the period and the net asset value at the end of the period are positive cash flows and then IRR is calculated based on these cash flows. Horizontal IRR is able to show the industry trends. Net asset value is the residual value of the venture capitalists investments at the end of the period, in other words it shows the value of the still active investments. Rolling IRR shows the change of horizontal IRR in every year retrospectively. Pooled IRR shows the aggregated industry returns on the basis of the cash flows within the period modified by the residual values of the investments at the end of the given period. One drawback of using this measure is that IRR

assumes the reinvestment of cash flows, which is rarely possible in the case of venture capital funds. Therefore, IRR can overestimate the actual return on funds invested, as there is a negative correlation between the return and the length of the investment. In addition to this, venture capitalists are more willing to only provide information about their successful investments which leads to an upward bias in the results (Becsky-Nagy & Fazekas, 2014).

The primary sources of data collection in the case of Hungarian investments are the business journals, internet portals and data provided by the investors. After the investments are identified, the financial reports of the invested companies provide further information about the parameters of their investments including the size of investment, change in sales and income etc. The databases of the European Venture Capital Association and the Hungarian Venture Capital Association provide data about the accumulated capital, the committed capital and about exit events. The main method of the industry's scrutiny is still in the form of a case study as a result of the scarce information that limits the possibility of drawing more general conclusions.

Questionnaires come up against difficulties as the parties to investments are not willing to answer special key questions because of the confidentiality clauses in investment contracts and they consider this information to be a business secret (Glavanits, 2015).

In my previous research, in order to investigate the unique aspects of Hungarian venture capital investments, I compiled several case studies. Although more general conclusions cannot be drawn from these case studies, they did highlight the special moving forces and key factors of the industry (Becskyné-Nagy, 2008).

In connection with the selection criteria of the venture capitalists, we created a questionnaire based on the findings of the international literature, and asked all the Hungarian venture capital fund manager firms about their opinion (Dávid & Becsky-Nagy, 2016).

In 2012, I took part in research that focused on spin-offs in the capital and rural towns of Hungary. Spin-offs are a special field of venture capital investments, where the value creating contribution of the venture capitalists is similar to the general venture capital investments. In this research, I investigated the financing prospects of these companies. We observed 80 spin-offs and 38 of these companies were included in the research. Although the funding problems of spin-offs do not entirely cover the problems of venture capital's potential investment targets, and are just a segment of it, it is assumable that their problems are similar to those companies that do not stem from universities (Becsky-Nagy, 2013).

ANALYSIS/STUDY

The following section describes the findings of research into the venture capital value creating process based on the literature review and on the empirical research made by the author herself or as a member of a research group. The deductions of the research are not mentioned here, as those are written down in the referred publications. In this part, I follow the structure of the theoretical background where the following propositions were described.

Selection criteria

As a first step of the value creating mechanism of the venture capitalists, we examined the selection criteria of the potential portfolio companies. Through the synthesis and comparative analysis of the literature review in the field of the selection process of venture capital, they show that the most important criteria for venture capitalists, in order, are:

- return on investment,
- managerial skills of the entrepreneurs,
- growth potential of the market,
- professional experience of the founder,
- exit prospects,
- track record of the CEO (Dávid & Becsky-Nagy, 2016).

This ranking reflects the priorities of Hungarian investors towards the factors that are mentioned in the literature. The most important difference between Hungarian and international investors is that, in the opinion of international investors managerial skills play the most important role, while in the ranking of Hungarian investors the possible return has first place. At the same time, it is a common characteristic that investors put much emphasis on the skills, competence and experience of the executives in their investment decisions.

Venture capital in the capital structure of companies

In the venture capital market of the Central and Eastern European region, around 50% of the accumulated capital was provided by government funds. In the background of this dominance is the JEREMIE Program, where the capital of the funds is provided by the public and the private sector together and managed by market backed investors. Within the framework of this program, investments have been made in Hungary since 2010.

After the appearance of JEREMIE funds in 2010 they have become dominant in the Hungarian market. In 25% of the companies that received funding via JEREMIE, the investors used some form of preference shares to provide capital, in order to ensure adequate control over their companies

(Becsky-Nagy & Fazekas, 2015b). In the case of the other companies, the investors became majority shareholders hence the additional rights provided by preference shares were unnecessary. Syndicated investments, in which the risks are shared between the investors, could also be observed. In other cases the mixed use of debt and equity financing could be observed as well.

There is no optimal and generally accepted practice as to how the capital provided by the venture capitalists should appear in the capital structure of the invested companies. The nature of the company, the stage in their lifecycle and other unique features of the companies, influence the ideal financial instruments that facilitate the growth of these companies the most, and hence increase their chances of a funding contract. Preference shares, convertible preference shares, convertible bonds, common shares and the combination of equity and debt financing, are widespread in Hungary as well as in the more developed countries, but compared to the market in the US convertible preference shares are not the most dominant instruments in Hungary.

Returns of venture capital

The returns on venture capital can be a measure of the venture capitalists' value creation, though it is impossible to separate the venture capitalists contribution to the success, from the contribution of other parties. But the question was whether the venture capital backed companies can provide higher yields than others. In the case of venture capital investment returns, examined through IRR, this can be realized via exiting the invested companies, so the return characteristics of venture capital reflects how the value of the acquired shares increased within the investment period (Becsky-Nagy & Fazekas, 2014). By analyzing the returns in the markets of the US and Europe it is clear, that on average, the returns of the buyout funds that invest larger sums into more matured companies, were higher than the returns of the traditional venture capital investments. On the basis of risk-return trade-off, buyout funds outperformed venture capital funds as well. In terms of geographical differences, the returns of the US venture capital market were higher than the returns of the European funds, which can be explained by the more developed stage of the US market. Figure 1 also shows that the return on venture capital investments were very sensitive to business cycles and current changes in returns show that the market is in recovery after the economic recession of 2008.

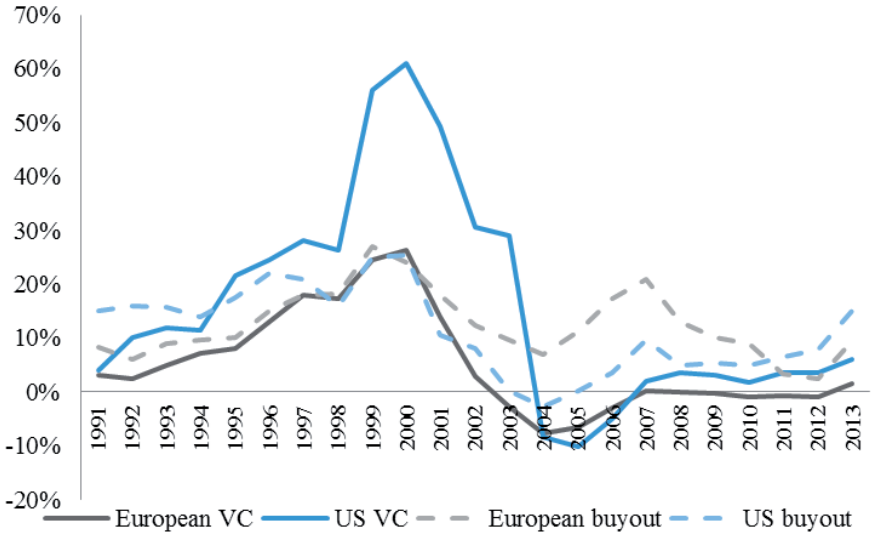

Figure 1. The 5-year rolling horizon IRRs of BO and VC funds in Europe and in the US from 1991 to 2013

Source: EVCA (2014)

Within the private equity industry, the focus has shifted away from its traditional function of funding young and innovative companies that have smaller capital needs, towards the financing of more matured companies with larger capital needs. One reason of this change is the high cost of screening and due diligence of the deals that are proportionately more favorable in case of buyouts, but by analyzing the return characteristics of the investments it is also clear, that buyout funds outperform the venture capital funds based on the average risk-return trade-off as well.

The yearly returns of the Hungarian market are influenced and biased by a few larger scale exit events as a result of the low sized market. In the coming years the investments of the government backed venture capital funds will approach exit time, so a record number of exits are expected by the closure of JEREMIE funds. On the other hand, while analyzing the exit activity of these funds, we have to be aware of the fact that, alongside the successful and highly profitable investments, there will be an increasing number of poor quality investments and low returns, as a result of the distorting effect of the temporary oversupply of capital induced by the government's involvement.

The role of the state in the venture capital market

In an insufficient market the state can help in finding the new equilibrium point. Prior to the economic recession in 2008, the venture capital market

in the Central and Eastern European showed signs of prosperity but its development still lags behind the developed Anglo-Saxon countries' markets. This realization led to a more intensive active and passive role of the state and, therefore, the traditional venture capital markets shifted towards the government backed investments (Karsai, 2014; Karsai, 2015).

In the venture capital market of the Central and Eastern European region around 50% of the accumulated capital was provided by government funds. In the background of this dominance is the JEREMIE Program where the capital for the funds is provided by the public and the private sector together and managed by market backed investors. Within the framework of this program investments have been made in Hungary since 2010. There are several incentives built into this program with the aim of attracting private investors. These include the partial taking over of losses and a profit ceiling on the public funds, which create favorable leverage and improve the risk-return characteristics of the investments for private investors. But, on the other hand, these incentives may implicate a threat of excessive risk taking. The funds were committed to invest 80% of the capital and that may lead to adverse selection in terms of the invested companies. On the other hand the increased investment activity increases the available information concerning the potential investments and the mechanisms of venture capital funding and hence the JEREMIE funds play an important role in alleviating the information asymmetries between the actual and potential demand and supply of venture capital. In the framework of JEREMIE, 28 venture capital funds made around 310 investments, which prove that the great amount of available capital on the market helped those companies obtain capital that otherwise, in the absence of collateral, would not have been able to obtain outside funding. The invested companies were mainly technology and IT-oriented, but companies in the field of life sciences and biotechnology were also able to obtain capital. The majority of the investments is currently active and awaits an exit, therefore the success of the investments, and with it the overall performance of the program itself, cannot be judged yet. However, the increased number of investments has already contributed to industry level knowledge and hence to the development of the venture capital market (Becsky-Nagy & Fazekas, 2015b).

Figure 2 shows the actual capital disbursement of JEREMIE funds. JEREMIE funds were founded in four consecutive rounds but the progress of capital disbursement was low because of the complicated selection process. The slow progress of disbursement could be a sign of the low number of viable companies that are ready for investment as well. For the funds that were founded in the first round of the program, a wider range of investment opportunities had been available but because of the oversupply of capital and

the high number of deals, in the later periods of the program less and less companies could be found that had the potential to meet the selection criteria of the venture capitalists. Because the different rounds of the program were implemented within a short time period with overlap, the demand side of the market could not regenerate the companies that are able to obtain venture capital. But on the other hand the funds had been committed to invest 80% of the managed capital that might lead to lower quality investments which decreases the chance of successful and profitable exits on average.

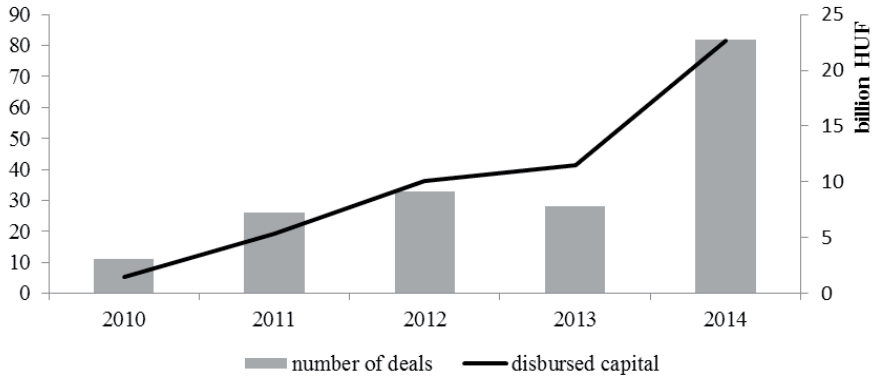

Figure 2. The number of deals and the amount* of capital disbursed by JEREMIE funds (in HUF billion) in 2010–2014

* The disbursed amounts contain the growth in the subscribed capital and capital reserve of the portfolio companies as in the balance sheet. Consequently, the data disclosed for the disbursed amount may exceed the actual amount of the disbursement.

Source: Author's own editing based on the data of the financial statements of the portfolio companies

The venture capital's contribution to the spin-off companies, a special field of venture capital value creation

Based on 2012 research that was focusing on Hungarian university spin-offs, the most important barriers to institutional venture capital investments in Hungary are the following:

- venture capitalists are not conversant with the technology of the firm (4.0)
- venture capitalists are not willing to make smaller-scale investments (3.7)
- high return expectations of venture capitalists (3.6)
- the involvement of venture capitalists limits the authority of the chief executives in the operation of the company (3.5)

- venture capital investors are averse to funding seed, early and early expansion stages (3.2)
- low quality of the business plan (2.9)
- lack of necessary business and managerial skills of the founders (2.8)
- inadequate support of venture capital by the economic policy (2.7)
- insufficient information about venture capitalists (2.6)
- unfavorable exit prospects (2.6) (Becsky-Nagy, 2013)

JEREMIE, launched by the European Union in 2005, started its investment activity in 2010 and was implemented as part of the EU cohesion policy with the objective of alleviating the regional, social and economic differences by enhancing the financing prospects of innovative SMEs through structural funds that provide financial engineering instruments. The result of the program is that a great amount of capital has flown into the Central and Eastern European region's venture capital market that has mainly been invested into technology-oriented SMEs and this has improved the competitiveness of the companies and the region as well. The program was implemented with very similar conditions in the different countries of the region but their success can only be evaluated after the closure of the funds (Farkas, Gyallai & Becsky-Nagy, 2016).

The hybrid venture capital funds combine the methods of active and passive state involvement, as in this form, private investors with market experience manage mixed private and public capital, and the investment decisions are made by the private investors. The involvement of private investors strengthens the market perspective in the selection of possible investments, the "hands on" nature of the investments and the value added by the cooperation of investors and companies. The hybrid funds play a catalyst role in the development of the venture capital market. As a result of the increased investment activity, the private participants are able to gain experience and knowledge. At the same time, the venture capital awareness of the capital seeking firms' increases as well, and this way hybrid funds enhance the actual development of the demand and supply of venture capital. On the other hand, the pressure of investing government funds raises the threat of adverse selection, as companies may receive funding that otherwise, under purely market conditions, they would not be able to meet the requirements of private investors. The soft requirements of hybrid funds distort the market and crowds out or bias the behavior of the few market participants that are willing to appear in the market. Such participants are mainly the angel investors.

In the long run, the withdrawal of the active role of the government's funding and the increased role of passive participation in the market,

contributes the most to the efficiency of the venture capital market with the support of the start-up ecosystem. The passive role of the state is fundamental, not just temporarily as a catalyst in the venture capital market, but also in the long run in order to spur entrepreneurship via developing a stable economic, political, legal and capital market environment. The information asymmetries are prevailing especially in the case of rural regions and in order to support the innovative enterprises in these areas the mitigation of regional differences and the enhancement of regional environments is necessary.

DISCUSSION

The article described the special aspects of venture capital's value creation methods in the face of the unique characteristics of the Hungarian venture capital market compared to the developed countries' market. The first part of the article gives the general theoretical background of the venture capital funding with special regard to the specific risks of these investments and the various risk management methods used by the investors. The next part discusses the active and passive state role and its necessity in the venture capital market in the face of the partial results of the currently running JEREMIE program's investments.

The article also discusses how venture capital appears in the capital structure of the invested companies.

The selection of suitable companies is fundamental to the success of the investments; therefore the selection process of the venture capitalist is the basic pillar of the value creation itself. Alongside the high return expectations a great proportion of the major selection criteria are connected to the management of the companies.

The article describes how the value creation mechanisms appear in the return characteristics of venture capital investments in the US and Europe and attempts to evaluate the returns of the Hungarian market as well.

The section that discusses the financing background and prospects of university backed Hungarian spin-off companies reveals the problems and hindrances of venture capital financing in the case of these companies. In spite of the fact that spin-off companies cover just a segment of the potential targets of venture capitalists, based on their funding problems we can make some conclusions about the general problems of the industry.

CONCLUSION

My conclusion is that the government backed hybrid funds have a catalyst effect on the developing venture capital markets but in the long run the withdrawal of active involvement and an increasingly passive role can spur

the industry on in the most effective way. The venture capital industry is able to contribute to economic growth and employment (via its value creation mechanisms) the most, if the venture capitalists operate under market conditions. Based on the comparison of Central and Eastern European countries the JEREMIE Program had similar effects on the region's markets.

There is not a prevailing and generally used financial instrument that supports value creation the most, instead the ideal form depends on the characteristics of the deals and the companies.

As was described in the discussion of the limited managerial decisions, the managerial assistance of the investors creates additional value only if the investors are capable of cooperating with the management of the company. Therefore, besides capital and competence, cooperation is also a determinant of venture capital's value creation and that is the reason why the personnel traits of the companies' management play a crucial role in the selection process.

The most important problems of the Hungarian venture capital market identified in the research based on the Hungarian spin-off companies, were targeted and tried to be solved through the JEREMIE Program.

The examination of the demand side of the venture capital market can be a further research topic, in order to find the reasons of the insufficiency caused by the demand side. Another topic is to find a way in which the government could withdraw from the market in the long run to allow the market mechanisms to work independently.

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Abstract (in Polish)

Artykuł stanowi podsumowanie obszernych badań autorki i skupia się na metodach kreowania wartości przez fundusze venture capital. Rozpoczyna się przeglądem literatury, w którym opisano podstawy teoretyczne kreowania wartości. W drugiej części artykułu przedstawiono badania empiryczne na rynku węgierskim, dla którego praktyki inwestorów w zakresie kreowania wartości nie zostały dostatecznie opisane w literaturze przedmiotu. W związku z tym, że w krajach europejskich państwo jest obecnie jednym z największych inwestorów w fundusze VC wspierającym projekty we wczesnej fazie rozwoju, w artykule zwrócono szczególną uwagę na rolę państwa na rynku VC. W tym kontekście wybór rynku węgierskiego jest uzasadniony, z tego względu, że rząd tego kraju dysponował największą pulą środków w Europie Środkowo-Wschodniej pochodzącą z Inicjatywy JEREMIE, którą ulokował w funduszach hybrydowych podwyższonego ryzyka. Wnioski z zaprezentowanych badań są następujące: podczas gdy wsparte przez rząd fundusze VC wywierają efekt stymulujący na rozwój rynku VC, to wycofanie się państwa w długim okresie z aktywnego zaangażowania i przyjęcie pasywnej postawy może być bardziej skuteczne w pobudzaniu efektywności rynku VC.

Słowa kluczowe: *venture capital, kreowanie wartości, rola rządu.*

Biographical note

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Selected Determinants of Mezzanine Financing in Poland

Robert Golej[1]

Abstract

A very significant form of company activity determining its development and even survival is innovation activity. Raising capital for the implementation of innovation is an important but not the only factor in the introduction of innovation. Characteristics of innovation, and in particular the risk of failure, make for a significant difficulty in obtaining external financing, particularly from third parties, which is an obstacle to their development and implementation. The subject of discussion in the article is the hybrid formula mezzanine type of financing innovative projects implemented both in start-up companies and in already well established companies. The purpose of the article is to discuss the possibilities and to perform an analysis of the practices followed by mezzanine funds in Poland in respect to the innovation activities of Polish companies. Research presented in the article was conducted on the basis of information on investments performed by mezzanine funds in Poland.

Of particular importance for the innovativeness of the economy is to have companies from the SME sector, and therefore we also carried out research in this group. Innovations are often initiated in special purpose companies, start-up, etc., that operate in the SME sector. Therefore, the financing of innovation cannot be ignored as a thread of innovation in SMEs. The study involved interviews in several companies in the sector. The study concerned the possibilities of financing innovation involving mezzanine, knowledge of hybrid forms of financing, preparedness for hybrid financing. Studies are not representative, but are rather sounding a view to clarify any further research. Hypothesis: mezzanine financing, utilizing its specific benefits, is increasingly used to finance the gap in the financing of innovation, in particular special purpose companies in the SME sector. So the hypothesis raises two strands of research. The first concerned the financing of innovation as seen from the mezzanine fund. The second concerns the willingness of enterprises to use this form of financing. The first part of the article is devoted to the embeddedness of mezzanine financing. For that purpose, the specific innovation feature decisive to the possibility of external financing was indicated. Various investment strategies of Private Equity Funds on a global scale were presented in a way intended to highlight the meaning and characteristics of mezzanine financing. Also, on the basis of statistical data, the

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potential market for innovation financing in Poland was indicated. Subsequently the essence of mezzanine type financing and its potential to support development and innovation was presented. Upon this background, an analysis of the possibilities for financing innovation in startups and established companies was conducted. Also, examples of mezzanine financing that took place in Poland in recent years were presented. The article, therefore, is constructed in the form of deductive-inductive analysis.

The conducted research leads to the conclusion that there is a gradual development of mezzanine financing in Poland. The transactions are also diverse as to the industry sector and the size of the investment. There is also a noticeable lowering of the minimum quota of individual investments, which means that the popularity of this form of financing could increase. What needs to be noticed, however, is that mezzanine funds focus their activity on companies in good financial condition, which do not have the credit capacity for the implementation of all their development projects. They have the characteristics of a mature organization. So they have: a strategy, experienced management, good cash flow, good market position and growth potential.

Keywords*: innovation, mezzanine, funding innovation, Poland.*

INTRODUCTION

The problem of financing economic activity is accompanying entrepreneurs at every stage of their operation. Enterprises, in order to survive in the market, obtain a competitive position and make a profit, use capital from different sources, and are different in many aspects. For optimal use of capital, it is necessary to determine the current and future financial needs of the company and its availability to the company. Restrictions in its acquisition are the result of internal factors (legal form of the company, its size, financial situation, reputation) and external factors (market access to specific sources of financing) (Kusak, 2006, p. 2). A special form of activities of a company, which determines development and even survival, is innovation activities. The term innovative activities should be understood as a wide range of activities and efforts undertaken in the enterprise in order to improve the current situation. The subject of innovative projects are the products, services, manufacturing technologies, as well as methods of business management and marketing activities, which have not yet been verified by the market (OECD, 2005). This indicates a very high level of investment risk, which in the context of difficulties in raising capital is an important constraint for the development of innovation in enterprises. Thus, the development of the company depends on innovation, and the development and implementation of innovation depends largely on financing options. Of the many ways to finance innovative projects this article attempts to assess the possibility of filling the equity gap, especially in newly established enterprises (start-up), using mezzanine financing. Equity gap

(Prędkiewicz, 2012) is the difference between the amount of capital available at commencement of the undertaking and the amount of funds needed to implement the project. The purpose of this article is to conduct a discussion on the possibilities and to analyze the practices of mezzanine funds in Poland towards the innovation activities of enterprises. Research presented in the article was conducted on the basis of information on investments made by mezzanine funds in Poland.

In the context of the discussion presented in the article we will limit the scope of innovation to those which require the greatest financial support. Through deductive analysis we will determine possible areas of financing through mezzanine funds, and through induction we will indicate the practices of these funds towards innovative activities of the company. In this way, the purpose of the article will be fulfilled. Gaps in the literature concern the feasibility of financing innovation in the broad sense and the funds mezzanine. The anticipated contribution of this article is to define the main research topics for further research on the financing of innovation through mezzanine funds. The article is intended to determine the level of preparedness of mezzanine funds in Poland to invest in innovative projects and the pre-determined level of knowledge of entrepreneurs on the financing of mezzanine. Section 1 develops the conceptual framework on access to mezzanine finance for innovations in SME for newly started companies in a stable position. Section 2 describes the data, research methodology and basic descriptive statistics, in Section 3 the main empirical results are presented, while Section 4 concludes with a discussion and a conclusion with implications for research.

THEORETICAL FRAMEWORK

Nature of innovation

Innovation, or rather the process of transformation of an idea, discovery or invention of a new useful product/service, has characteristics which determine whether the use of funding is possible (Janasz, Janasz, Prozorowicz, Świadek & Wiśniewska, 2002, p. 31):

- A long and complex life cycle of innovation is difficult to predict beforehand, which results in the fact that its length becomes an individual attribute of each innovative project, and so it is difficult to capture into a standardized framework; This is also due to the rapid progress of knowledge and changing needs of the market,
- Innovative activity is expensive and risky, which results from the nature of the innovation process. Demand for capital increases along

the development path of the innovation project; and the risk is greater with breakthrough innovations.

The article assumes that the development process consists of seven phases, these are (Cooper, 1993): the creation of ideas; preliminary analysis; analysis of business opportunities; design (prototype); testing; full production; entrance to the market; post-launch analysis. Each of these stages has inherent risks, necessary resources, products of their activities, time, and budget. An integral part of a new product development process is the decision-making process, choosing between projects in a more or less complex manner, followed by the allocation of resources for innovation.

From a financial perspective, the activity of innovative companies manifests itself: with investments in fixed assets, costs of business R&D, but also in the labor costs of the marketing department, training costs, and often the costs of laboratories, etc. The costs of innovation activity are often not specifically recorded in accounting (by means of appropriate indexation), except for those investments and costs of R&D activities which are carried out by external providers.

An important factor influencing the "yet to be tested" product is the presence of the different attitudes of buyers and the existence of the related phenomenon of the so-called valley of death, describing the transition from innovator client to early majority clients. This is all the more important upon the growing popularity of completing the product after its introduction into the market. This means that there is a concurrent operation of a launch and a simultaneous improvement of the product, marketing plan and manufacturing (experience curve). This approach, let's call it "market-concurrent", corresponds well to seed-funds and start-up funds, since the measures involved are gradual after reaching a specified pool of tasks and the results confirm the assumption. The product is developed and perfected at the same time.

For the purpose of this article, the definition of an Oslo Manual (Oslo Manual, 2005, point 147 and 148) is "An innovation is the implementation of a new or significantly improved product (good or service), or process, a new marketing method, or new organizational method in business, workplace organization or external relation". This broad definition of an innovation encompasses a wide range of possible innovations. An innovation can be more narrowly categorized as the implementation of one or more types of innovations, for instance, product and process innovations. The main subject of the research is innovations implemented by companies and disclosed in expenditure on R&D sector. Of course, spending on R&D does not cover the entire range of innovation expenditure.

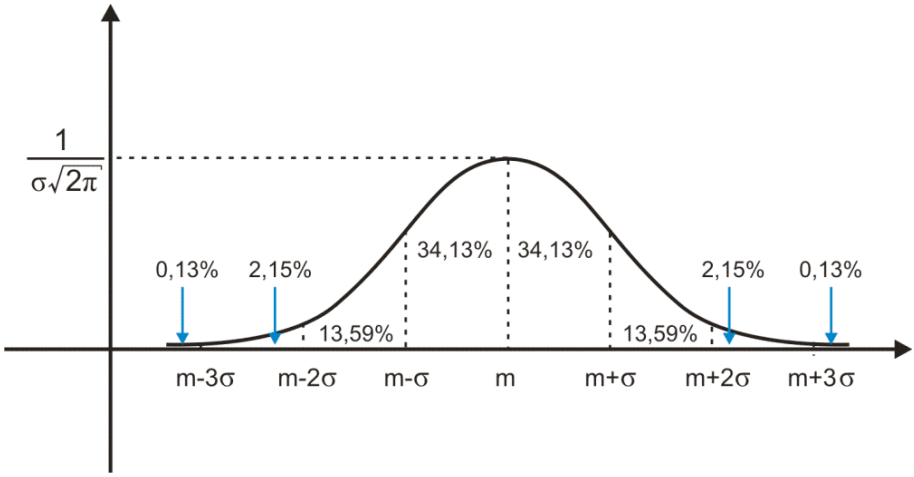

Figure 1. Gauss curve

Source: Retrieved from http://www.naukowiec.org/wiedza/statystyka/rozklad-normalny-rozklad-gaussa_710.html (10.10.2016).

Based on the analysis of consumer behavior described by the Gauss curve (Figure 1), five types of customers have been identified:

- 2.5% – innovators – 2 deviations from the mean,
- 13.5% – the buyer accepting innovations early,
- 34% – accepting most of the early innovations,
- 34% – accepting most of the late change,
- 16% – conservatives.

Analyzing the attitude of buyers in comparison to the Figure 1 (Startup financing cycle) the conclusion is that many newly created entities are not able to cross the threshold of the early majority. This results in the bankruptcy of companies in the early stages of their development and hence there is a strong emphasis on marketing and product perfection. It should be emphasized that it is difficult to obtain the statistical data of how many projects in well established companies actually fail. According to a study by Edgett (2015, p. 1) companies willing to work hard at creating innovation capabilities become top performers and realize the benefits. Success rates, in the marketplace, are 2.5 times higher (63-78%) than the poor performers that only achieve a 24% success rate.

In practice, this means that estimating future benefits before crossing this point is highly uncertain. We can say that this is a kind of Rubicon for innovative products / services. This calls for even more precaution, increases the risk, but for those who do not “drown” it will also provide the expected above-average return.

Financing innovation in SME

SMEs are one of the essential parts of the knowledge economy. Larger companies, which are the poles of innovation thanks to the activity, flexibility, agility and innovation of SMEs, gain the ability to rapidly deploy product innovations. Innovations in process technology are concentrated in SMEs. Effectiveness and efficiency of individual units of the SME sector increases the effectiveness and efficiency of the entire value chain (Golej, 2013). SMEs improve the dynamic flexibility of business activity and have an influence on improving the overall situation of national economies. SMEs are widely considered to be the source of significant innovation activity (Johnson & Cathcart, 1979) which increases competitiveness (Song & Parry, 1997). Gaps in financing innovation in companies from the SME sector will reduce the flexibility and efficiency of the entire system. The ability of SMEs to grow depends highly on their potential to invest in restructuring, innovation and qualification. But all of these investments need capital and therefore access to finance (Giurca Vasilescu, 2010).

Despite specific global efforts to strengthen the SME sector, these companies face a number of barriers to financial and regulatory markets, particularly in developing and emerging countries (Newberry, 2006). At the same time, small and medium-sized enterprises are emerging from the private sector in developing countries and are the basis for the development of the private sector (Hallberg, 2000). It is also recognized that these actors in the economy can be neglected, especially in terms of financial support (Beck, 2007).

Many small businesses start out as an idea from one or two people, who in general, invest their own money. At the next stage, the developing SMEs need new investment to expand or innovate. At this moment, the SMEs begin to face financing problems, because the access to financial resources (banks, capital markets or other suppliers of credits) is more difficult than in the case of larger enterprises (Giurca Vasilescu, 2010).

Alternative forms of financing such as mezzanine capital are becoming more and more a supplement to the traditional forms of corporate financing for SMEs (Brokamp, Hollasch, Lehmann & Meyer, 2004). It typically involves a mix of debt and equity financing, which allows investors to achieve gains through capital appreciation and interest on debt-repayment.

In summary (Giurca Vasilescu, 2010) it must also be noted that there are several reasons why mezzanine capital can be attractive and feasible. These are:

- the level of control by the finance provider is dependent on the mezzanine product chosen and this gives SME owners the option to retain control of the company, which is one of their main concerns,

- in contrast to equity capital, mezzanine funds are generally made available for a limited period of time, until the business can generate sufficient "genuine" equity capital from retained profits,
- this form of financing is not appropriate for particular types of companies and business phases such as financial restructurings,
- for companies with a weak market position and negative development prospects; with inadequate finance and accounting function,
- with high leverage, low equity resources.

Mezzanine financing

Mezzanine finance is not new and has been developing for more than two decades. In the 1980's, the business was dominated by insurance companies and savings and loan associations. By the 1990's, limited partnerships (LPs) had entered the arena. Today, investors include pension funds, hedge funds, leveraged public funds, LPs and insurance companies, as well as banks that have established standalone mezzanine products (Silbernagel & Vaitkunas, 2006).

Mezzanine capital represents a hybrid form of financing combining the features of equity and debt (Svedik & Tetrevova, 2015; Welz, 2006; Konecny, 2013). As for the financial concept, it refers to a financial source that is inserted into a corporation's capital structure between the "floor" of equity and the "ceiling" of senior, secured debt (Anson, Fabozzi & Jones, 2010). Mezzanine capital can have different forms, such as the forms of debt mezzanine and equity mezzanine (Meluzin & Zinecker, 2009; Volkmann, Tokarski & Grünhagen, 2010).

Mezzanine capital (Panfil, 2008; Juszczyk & Nagórka, 2009; Giurca Vasilescu, 2010) is used in the case of the so-called "equity gap". This form of financing is used when a company has no possibility of obtaining the required funds from debt and / or equity financing (equity). Specifically, use of this type of financing is for companies that have exhausted their credit and at the same time their further dynamic development requires additional financing. The most important feature of this type of financing is that the mezzanine type funds accept a higher risk level than that of bank deposits, with a favorable future participation in profits at the completion of the project. At the same time they expect their return to be smaller than that of the current owners, but greater than in the case of new shareholders. Mezzanine financing is an indirect form of financing between debt and equity financing. Because mezzanine financing has features such as equity and debt financing it is called a hybrid. One form of mezzanine financing consists of debt financing plus the so-called equity kicker. An equity kicker takes many forms, but always allows

for the financing provider to benefit from growth through the acquisition of a small equity share in the future.

The main features of mezzanine financing (Sulima, 2008) are:

- it is long-term, which means that the repayment period is longer than a bank loan,
- often it does not require regular repayments,
- combines elements of debt and equity, part of the commitment is made in cash (in the current debt service), the second part is warrant (the opportunity to take shares issued in the future or purchase them at a preferential price), the so-called equity kicker implemented at the end of the investment if the value of the company has increased (it has the characteristics of equity),
- usually does not require collateral on assets,
- capital providers have non or incomplete ownership rights.

This means that usually mezzanine is a less risky form of investment in relation to stock because in the case of the bankruptcy of the company it is repaid before any payment to the shareholders. Mezzanine financing is used in situations where for various reasons it is not possible to use additional conventional debt financing. A characteristic feature of mezzanine financing is its flexibility compared to ordinary debt. It can manifest itself, for example, in capitalization of accrued interest.

Mezzanine financing is used traditionally to (Sulima, 2008):

- support business expansion through mergers and acquisitions,
- increase the value of the company before the sale of its shares on the stock exchange (IPO or SPO),
- financing of investments, which significantly affect the potential of the company,
- strengthening of working capital in situations of redemption of the shares from a shareholder who has decided to leave the company,
- financing of leveraged buyouts (LBOs), including the buyout of the company by managers (MBO or MBI),
- financing of mergers and acquisitions,
- recapitalizations – to allow the payment of higher dividends through company debt,
- refinancing – change of the current financing structure to a more flexible one, which will help with servicing the debt and/or getting out of debt.

Below is a drawing depicting traditionally invested Mezzanine capital (Figure 2).

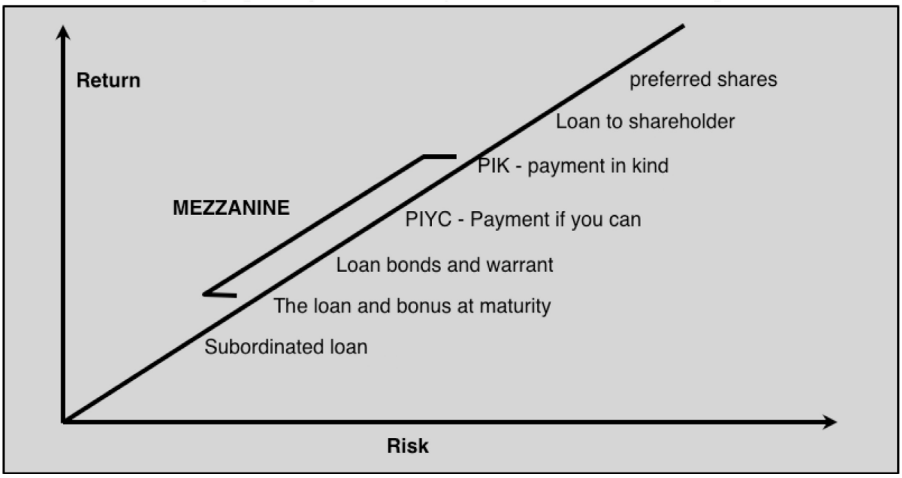

Figure 2. Mezzanine – return and risk relative to other forms of financing company development

Source: Augustyniak (2007).

The main Mezzanine instruments include (Augustyniak, 2007):

- current interest rate,
- interest rates dependent on the results achieved by the company,
- PIYC – pay if you can – the loan is paid at the end of its term, the interest accrued during the initial period, paid in subsequent periods, according to the possibilities,
- PIK – payment in kind – a loan with interest accrued repaid at the end of its term,
- bonds convertible / exchangeable,
- the so-called Equity-Kicker, implemented at the end of the investment if the value of the company has increased (it has the characteristics of equity). The most common form of equity kicker is granting a warrant to the financing entity,
- loans with the elements of capital.

Traditionally, mezzanine financing is designed for medium and large companies with good financial standing, whose creditworthiness is not sufficient for the implementation of all investment plans, and which simultaneously have a defined strategy, experienced management, stable cash flows, established market position, growth potential. Conditions often imposed by mezzanine lenders are (Sulima, 2008):

- maintaining specified levels of financial ratios,
- positive due diligence findings ,
- participation in the supervisory board,
- right to information,

- the right to control of the company,
- participation in decision-making (security provided to third parties, incurring long-term debt, selling assets).

The benefits of mezzanine financing include (Panfil, 2008):

- flexibility in terms of financing,
- lower costs for owners of the enterprise compared with the issuance of public shares or raising capital from a private equity fund. Owners hold unthreatened control over the company,
- repayment of capital only at the end of the contract period,
- availability of financing despite insufficient collateral and creditworthiness.

From the investors' perspective, mezzanine financing also has some advantages, as follows (Giurca Vasilescu, 2010):

- access to a new investment segment,
- returns similar to those on equity,
- investment platform independent of stock and bond markets,
- optimal opportunities for diversification,
- lower exit risk and better protection of capital compared with private equity investments.

There are also a few disadvantages of mezzanine finance for investors such as: the difficulty to exit early and the wrong assessment of creditworthiness leads to lower returns. Besides, the mezzanine provider cannot rely on real security in making an investment decision because mezzanine capital is subordinated and unsecured."

An important criterion for the evaluation of the project is a business idea (Pankiewicz, 2009), most often because projects are financed with a relatively large scale and on the characteristics of a certain innovation. An important element of accessing mezzanine funds is well prepared documentation, including forecasts (Juszczyk & Nagórka, 2009).

Innovation operator

Having determined what innovation is, certain qualities of entities implementing innovations have to be indicated. These qualities are decisive in terms of financing options. For the purposes of this article the entities implementing innovations have been separated into two groups. The first group includes companies that are at the early stages of development, their development is harmonized with the innovation process. The second group includes entities with an established position in the market where product innovation is one of the processes taking place in the company.

Newly formed (startup) firms

In the case of start-ups, we can distinguish several characteristics which determine the possibilities of raising capital for development. The main features in determining the existence of the equity gap in startup companies are (Brzozowska, 2009, p. 9):

- the phenomenon of vulnerabilities – the requirements of banks regarding security measures for funds granted in a loan,
- lack of credit history,
- often found low levels of knowledge about running a business,
- lack of experience in relations with financial market institutions,
- the resulting high cost of debt capital.

On the other hand, high growth potential inherent in the innovation of the project could be an incentive for investors expecting a high return on capital employed (Duliniec, 2011, p. 113, 76). The basic and traditional forms of corporate finance at an early stage of development are Venture Capital as one of the investment strategy of Private Equity Funds. As defined by the British Venture Capital Association (BVCA), the term "private equity" is related to the financing of non-listed companies, which are in various stages of development (www.bvca.co.uk, 2012). In turn, "venture capital" is a narrower concept, covering only investments at the early stages of enterprise development (Panfil, 2005). Of course, very often the activity of Funds engaged in start-ups continues until the redemption or sale of their shares. It depends, therefore, either on the financial condition of the company or on the willingness of the acquisition by another entity from the industry.

Another early form of innovation funding in start-ups are business angels. In the light of the terms included in the literature, business angels (BA) are defined as private investors who, having capital, knowledge and business experience, financially and technically support a selected company (Angielsko-polski, 2002, p. 25). Just as in the case of PE / VC financing has an equity character, so the investor acquires both corporate and property rights.

Due to their nature, start-ups have limited access to debt financing (loans, bonds, etc.). The Figure 3 below shows a typical course of the cycle of financing entities from idea to full maturity.

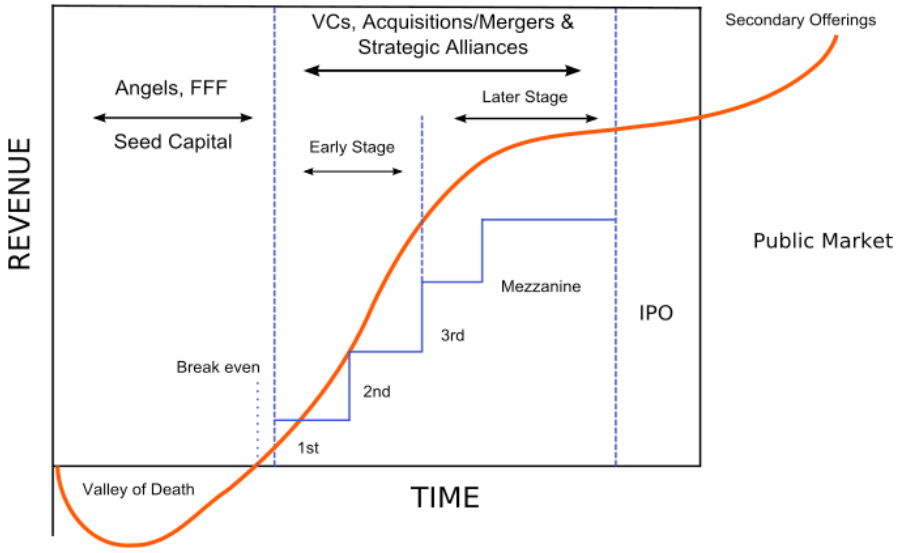

Figure 3. Startup financing cycle

Source: Cardullo (1999).

Traditional system indicates that Mezzanine capital will only be used at a later stage for emerging companies as this is the stage of expansion.

Table 1. Phases of new product development in companies newly established with reference to the stages of the investment funds Private Equity

New product developmemt stage	Investment stages PE/VC
Idea Generation	Owner, Team
Scoping	Seed capital
Build the Business Case	Seed capital, Start-up financing
Development	Start-up financing
Testing and Validation	Start-up financing
Full Production	Early-stage financing
Market Launch	Early-stage financing
Post Launch Review	Early-stage financing
Expansion	Expansion financing

Source: Own elaboration based on Cooper (1993) and Panfil (2008).

Table 1 shows the relationship the possibility of financing the various phases of the development process of new products (NPD). phase of the process NPD often determines the form of business and financing sources. This is especially important in new companies.

A significant part of innovations implemented in the form of new business, which is why it is necessary briefly to characterize the main forms of financing in the early stages of development of the company. We can list four types of investments performed by venture capital (Szydłowski, 2013, p. 93):

- Seed capital financing – the company is organized to carry out a specific innovation (incubation), at the phase of seeding (i.e. share incubation, seed, seed capital). Investments of this type are taken in order to finance a very early stage of the project. It is about all the preparatory activities related to starting a business, such as: product concept development, conducting market research, establishing a management team and business plan development. At this stage answers are given to questions in terms of: product definition (What? And Who?); the justification of the project NPD (Why? Is the market attractive, whether the market is rising? Is the return satisfactory?); resources (Who? What?).
- Start-up financing. The company is already organized and has the first experiences of non-commercial sales of the product in terms of new product development process. We are talking here about the implementation stage of product development and the definition of its final form. At this stage, the entire marketing plan is already created for the new product. In this phase also the design stage is carried out, which is topped with a prototype and technical documentation of the new product. The assumptions of production and distribution are verified.
- Early-stage financing. At this stage the product development is complete. The funds are used to start the production and sale on the market. On the one hand it is a stage characterized by a lower level of risk, on the other hand there is a higher level of capital expenditure. In terms of the product development process the full stages of production, distribution, marketing, and many other related product launch activities will be carried out.
- Expansion financing. This type of investment somehow goes beyond the implementation phase which completes the process of new product development. Investments in this phase relate to companies with stable market position, able to self-finance its current operations. Money from the Funds is used to finance increased production, further product development, marketing activities, and increased working capital. This type of investment concerns the investment in a company with an established position. A detailed demarcation is presented in Figure 4.

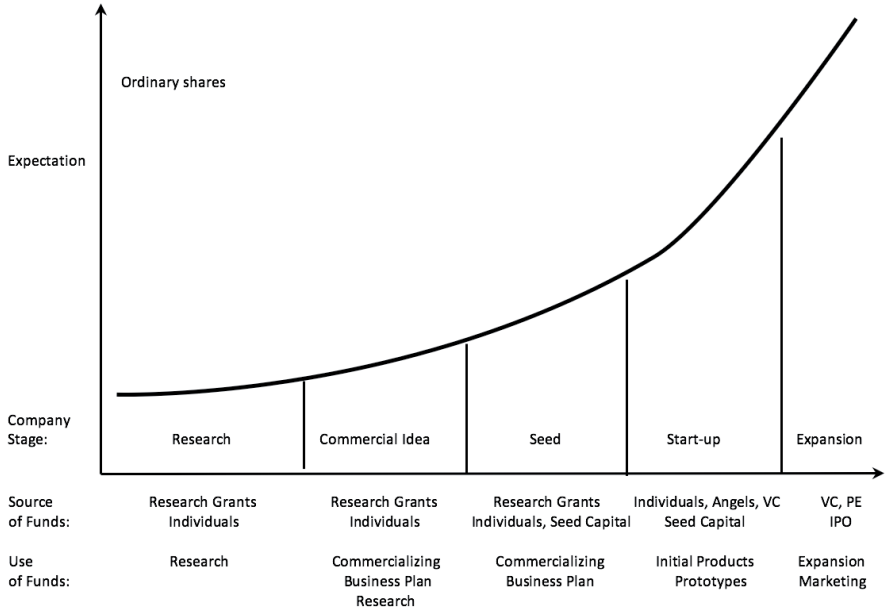

Figure 4. Financing the development of the company

Source: Own study based on Panfil (2008).

Company with an established position

The second group of entities carrying out the processes of the development of innovative products and services are companies with an established market position. For these companies, a financing gap can also occur especially in the context of rapid sales growth. What is also possible is a situation in which spending on innovation will be so high that they justify the funding of innovation in the form of mezzanine but only after using a cheaper form of financing which is credit.

Businesses with an established position can use many different forms of financing which include (Ostaszewski, 2003, p. 59):

- Own external financing – to provide cash for equity, e.g. increased share capital, share premium, excess of value over the nominal value of shares, contributions of partners, venture capital.
- Self-financing – allocating a proportion of net profit for the financing of business assets.
- Debt financing – the use of foreign sources of financing (both of which are of interest as well as those of a non-interest character) bank investment loans, issuance of bonds and other long-term debt

securities, franchises, short-term bank loans, issuance of short-term debt securities, trade credits and other commitments.
- Hybrid financing – substituting one form of financing to another (most frequently swapping debt financing on their own), or a combination of traditional instruments with derivatives (options, swaps, futures, etc.).

RESEARCH METHODS

Polish practice of mezzanine financing is interesting because Poland belongs to a group of large European countries, defining a path of development for the countries of central and eastern countries (enlargement of the EU after 2003). Successful processes in Poland are transferred to the rest of the group. Poland is also the leader of the Visegrad Group. In terms of forms of financing in Poland you can find many solutions and examples. The Polish financial market is still a market that is growing, which is also very interesting: How is the market of mezzanine financing in Poland? What is the knowledge of mezzanine financing instruments among entrepreneurs in Poland (educating level)? All the time are open questions about the possibility of using hybrid financing for the funding of SMEs, particularly innovative companies and start-ups on a larger scale.

The study involved interviews in several companies in the SME sector. The study concerned the possibilities of financing innovation involving mezzanine, knowledge of hybrid forms of financing, preparedness for hybrid financing. Studies are not representative, but are rather sounding a view to clarifying further research. These are the questions:

- How to encourage SMEs to this form of financing?
- Are the SMEs prepared for this form of financing?
- Do they have adequate documentation?
- Do they have knowledge of this form of financing, leading to a sense of security?
- Is there an adequate supply of R & D projects?
- How deep is the market for R & D?
- Is the model of mezzanine investing working in practice?
- What are the benefits to investors?
- Is there potential for this form of funding to be used in smaller projects?
- How to manage a distributed investment portfolio (small investment unit) by funds offering mezzanine financing, which on the one hand improves security (for diversification), but on the other increases the cost of managing the fund because of the need to participate in the management of SMEs?

The hypothesis which will be verified during the test is as follows: mezzanine financing, using its internal features are increasingly being used to finance the gap in the financing of innovation, in particular for special purpose companies in the SME sector in Poland. So the hypothesis raises two strands of research. The first concerns the financing of innovation seen from the mezzanine fund. The second concerns the willingness of enterprises to use this form of financing. The study was conducted in two directions. The first concerned the analysis mezzanine transactions on the Polish financial market. For this purpose, data was collected on available information of mezzanine transactions in the fund markets offering this type of financing. Seven funds offering mezzanine financing were identified. Additionally, data was collected on expenditure in the R & D sector, in order to determine the potential market for the financing of innovation.

The second direction of research examined the demand side in individual companies. The research was exploratory in nature and consisted of conducting free interviews. Interviews were conducted with seven persons (persons who are simultaneously owners and management teams) representing seven players from the SME sector. In this case, we studied knowledge of the concept of hybrid financing and evaluation of the level of interest in this type of financing. They were also asked about the potential possessed documentation and the possibility of its preparation.

ANALYSIS AND STUDY

Expenditure on R&D sector

An important element shaping the market is the demand (supply) to the capital for the implementation of innovations. The only possible approximation spending on innovation is the statistics of expenditures for R & D. Expenditures on innovation have been limited to the available data on R&D expenditures, collected from the companies that file such declarations. Below are Polish Statistical Office data describing the expenditure on research and development in 2015 (Table 2).

Demand for capital for R&D among enterprises in 2015 amounted to 8411 million Polish zloty (PLN), of which a significant proportion accounted for investment expenditures.

Table 2. Internal expenditure on R&D by sector

Sector [mln PLN]	2014	2015
Enterprises	7532	8411
Governmental	3873	4406
Higher education	4715	5215
Private noncommercial investments	49	28
Total	16169	18060

Source: Główny Urząd Statystyczny [GUS] (2016, p. 2).

Investment strategies of private equity

Another factor affecting the financing of innovation is the investment strategies offered by private equity funds. For a broader view the Table 3 below shows data for the global market (approximate data estimated from graph).

Table 3. Private Equity Strategy – Risk / Return (2002–2012)

	Return-Median Net IRR (%)	Risk-Standard Deviation of Net IRR (%)	Risk-Coefficient of Variation CV
Early Stage Venture Capital	8,00	19.80	2.48
Balanced	8.20	11.00	1.34
Late Stage Venture Capital	9.00	17.50	1.94
Buyout	13.00	16.00	1.23
Mezzanine	9.30	5.20	0.56
Fund of Funds	9.50	7.00	0.74
Real Estate	10.50	16.00	1.52
Growth	12.00	15.50	1.29
Infrastructure	12.80	10.10	0.79
Natural Resources	13.50	15.10	1.12
Distressed Private Equity	13.60	13.00	0.96

Source: Own calculations based on (Preqin, 2013).

Most capital is allocated to buyout-type transactions. It should be noted that in the case of Mezzanine there is a low coefficient of variation. This, of course, has consequences as it offers a relatively low level of return, but also in a significantly differentiated level of risk measured by coefficient of variation (Table 3).

Mezzanine funds record a 9.3% return, while these funds also show the lowest coefficient of variation of all the investment strategies. The highest

return was on Distressed Private Equity with a standard deviation equal to the rate of return. The lowest return was Early Stage Venture Capital with the highest coefficient of variation.

Mezzanine investments are an attractive form of investment for investors with a low appetite for risk, ensuring at least a 4% return (return – standard deviation) (Table 3).

The following Table 4 shows the scale and direction of engagement in Private Equity and Venture in Poland in the years 2008-2015. Increasingly apparent is the growing activity of Funds in the field of start-ups and a high activity of Funds in the buyout segment.

Table 4. Type of investment by CEE country, Poland 2008-2015 (in € million) 2015

	2008	2009	2010	2011	2012	2013	2014	2015
Seed	3.87	1.10	0.00	0.48	2.5	1.6	1.82	2.92
Start-up	11.36	0.00	1.29	5.18	2.7	4.9	8.76	10.25
Later-stage venture	42.27	0.48	6.27	16.29	3.1	16.0	11.91	6.41
Total venture capital	57.5	1.6	7.6	22.0	8.3	22.4	22.5	19.6
Growth	138.44	61.55	134.37	183.28	118.7	77.3	65.41	79.29
Rescue/ Turnaround	0.07	6.10	4.57	1.92	3.1	0	0.00	0.00
Replacement capital	0.00	0.10	16.15	0.00	26.7	25.2	0.00	40.23
Buyout	531.32	411.10	341.59	481.51	383.8	226.6	161.39	748.31
Total	727.3	480.4	504.2	688.7	540.6	351.5	254.4	887.4

Source: Own calculations based on European Private Equity & Venture Capital Association; www.evca.eu (30.10.2016) also http://www.investeurope.eu/media/504370/invest-europe-cee-statistics-2015.pdf (30.10.2016).

Mezzanine financing in Poland

The research results for mezzanine transactions in Poland are shown in Table 5. It provides information about known mezzanine transactions in Poland achieved by mezzanine funds. The Table 5 is a contribution to the study of mezzanine financing.

Table 5. Examples of mezzanine transactions in Poland

Name of the Fund	Currently implemented and planned investments in Poland	Investment data (size of the investment, commitment of capital, phase)
Accession Mezzanine Capital (the strongest fund operating in the area of mezzanine financing in Poland	• Dominium Pizzerias (2013, mezzanine) • Diagnostyka – Clinical trials in 2011, NA) • Masterlease – Fleet management (2010, LBO, NA) • Wheelabrator / Disa (2008, mezzanine LBO) • Lux Med – services in the field of health (2004, 2007, 2008, mezzanine, completed) • Solaris Bus & Coach – vehicle manufacturer (2005, mezzanine, completed) • Zaberd SA – signs (2005, mezzanine, completed) • SAD Sp. o.o. – Distributor of Apple (NA, LBO, NA)	€ 8-40 mln value of a single investment € 80 mln commitment in Poland, expansion, mezzanine, privatization, refinancing, acquisitions.
Derby Private Equity	• CTL Logistic – TSL (2008, mezzanine, lasts) • Mieszko – Sweets (n/d Realized) • Tłuszczowe -Zakłady w Bodaczowie Sp z o.o. – Processing of rape (2007, mezzanine, NA)	€ 5-25 mln value of a single investment € 24 mln commitment in Poland, expansion, mezzanine, privatization, refinancing, acquisitions.
Hanseatic Capital	• Lynka Sp z o. o. – promotional solutions (NA, NA, NA)	$ 1-10 mln value of a single investment NA mezzanine, privatization, refinancing, acquisitions.
Penton Partners	• Kujawskie Zakłady Poligraficzne DRUK-PAK SA – cardboard packaging (2006, private equity, it takes) • Fabryka Pierścieni Tłokowych Prima SA – spare parts (NA. Private equity, completed) • Govena (Fluorescent lamps)	$ 3-12 mln value of a single investment $ 34 mln commitment in Poland, expansion, mezzanine, privatization, refinancing, acquisitions.
Seaf Polska	• BPSC – Software ERP (1992, equity / mezzanine, lasts) • MATRAS – Bookstores (1996, 2010, equity, credit tem, it takes) • PPZP – Pork production (NA) • PUPIL – Pet food (NA) • SYMBIO – Vegetables and fruit (1998, equity, long-term credit, NA)	$ 50-600 thousand value of a single investment $ 17 mln commitment in Poland, start-up businesses in the early stages of development, mezzanine.

Name of the Fund	Currently implemented and planned investments in Poland	Investment data (size of the investment, commitment of capital, phase)
Mezzanine FIZAN	• Bonds for the purpose of financing the acquisition (LBO). Issue is secured indirectly on the shares in the company being acquired. • Bonds secured on land for development companies (from a few to several mln PLN). • The company in the sector of light industry-Recapitalisation and expansion)	From 5 mln PLN, small and medium-sized enterprises NA
Syntaxis	• BIK Brokers – Financial services (2013, mezzanine / equity mix, it takes) • Home.pl – Szczecin – computer science (2012, LBO, NA) • Info TV operator – telecommunications (2012, minority interest acquisitions / mezzanine, NA) • Kisan – Construction materials (2008, LBO / mezzanine, NA) • Etos – Trade (2008, fund development, NA) • Axtone- Transport equipment (2008, MBO / mezzanine, NA) • GTS Central Europe – ISP (2008, LBO / mezzanine, NA) • Ultimo – Financial services (2007, capital development, NA) • Polflam (Building material and fixtures, Recapitalisation and expansion in 2014) • Trans Polonia – Road logistics services (mezzanine / equity mix in 2015 • Loconi Intermodal – combination of mezzanine and direct equity 2015 • Polflam Building-material and fixtures-(Recapitalisation and expansion, mezzanine / equity mix 2014) • eSKY- Travel & leisure (Recapitalisation and expansion, mezzanine / equity mix, 2014)	Segment assets of non-public
Mezzanine BRE Bank	• Marvipol SA (30 mln PLN 2007-2010) pre-IPO, convertible bond • Internet Group SA (40 mln PLN, 2007-2008) acquisitions 4 firms – bonds with warrants + credit 50 mln • Stolarka SA (40 mln, 2007-2012), acquisition 1 firm – convertible bond • ABC Data Holding SA (76 mln, 2007-2012, bonds with warrants)	From 5 mln PLN, small and medium-sized enterprises

As a result of studies on the structure of mezzanine investments in Poland, which have been included in Table 5, it was found that:

- the majority of investments involve large projects, greater than 1 million Euro,
- there are investments with a value of less than 250 thousand Euro, targeted to the SME sector,
- there are investment funds offering mezzanine investment, perfectly suited to the Polish market and its characteristics, which facilitates the evaluation of even smaller innovative projects,
- a significant portion of smaller mezzanine investments concerns developer activity, which has little to do with innovation,
- a significant part of the investment relates to LBO transactions,
- often they invest in new business models that combine known solutions such as: Dominion Pizzerias, etc.,
- investments are often of innovation in the business model,
- it seems that an important factor influencing the minimum value of the transaction is fixed costs of the service and the cost of keeping control of the funded company,
- there is a small amount of mezzanine funds directed to the financing of SMEs.

An interesting example of development funding with the use of mezzanine financing is the LUX MED deal (input 2007- exit 2012); bought for 120 million PLN, capitalized at 200 million, then resold to an industry investor for approximately EUR 400 million, giving a profit on the transaction of approximately 640 million PLN. At an annual rate of return of 12% computed only with the relationship capital expenditures and the selling price, except for the results obtained in the period between the purchase and sale of the company.

Mezzanine financing to SMEs

On the other hand, mezzanine financing is bespoke with its possibilities and expectations. The studies that were conducted point to these possibilities and expectations of SMEs in financing innovation. The interviews that were conducted with managers and owners of SMEs indicate that:

- the majority of those questioned did not know about mezzanine financing,
- great importance was given to the selection of sources of financing and ownership structure, as business owners strove to maintain a dominant position,
- they do not keep the necessary records that would allow them to apply for mezzanine funds,
- they do not have adequate staff to prepare the required documentation,

- entrepreneurs showed great interest in mezzanine financing after the presentation of this form of financing.

The presented results of conducted research are also in line with Giurca Vasilescu's findings that (Giurca Vasilescu, 2010):

- SMEs are often not aware of the opportunities and the requirements,
- mezzanine finance is often difficult to obtain by small firms because there are more stringent transparency requirements to meet in order to obtain this type of finance,
- mezzanine finance is more expensive than debt financing,
- the interest component and the debt-like characteristics of mezzanine finance make it difficult for suppliers of mezzanine finance to small firms to arrange an early exit,
- mezzanine finance is in principle unsecured.

DISCUSSION AND CONCLUSION

Additional liquidity can be obtained from equity investors, but equity is one of the most expensive sources of capital. Besides, equity capital, by its nature, dilutes existing shareholders. As a result, mezzanine capital can be an attractive alternative way to get the needed capital and it can be helpful in financing the start-up, expansion of SMEs, innovation and business transfers.

Studies show that few mezzanine funds invest in innovative solutions, focusing essentially on LBO transactions. In the case of new projects they are usually a significant investment (from 5 million PLN) in new business models and the expansion of already verified marketable ideas. They are mainly for companies with an established position. The hypothesis was therefore only partly confirmed.

The presented data shows that the majority of mezzanine transactions are large buyout type projects. However, there are mezzanine funds in Poland, which use their flexibility to support innovative projects. To a large extent, however, they support the entities in late-stage start-up, expansion, and stable business phase. Some transactions have been oriented to expansion and recapitalization, and thus to the payment of higher dividends. The data also indicate that a part of the transactions are carried out in the construction sector. The nature of the investment in these transactions is often confined to a single building or a housing estate. These projects can create a space to enter mezzanine capital in innovative projects in the earlier stages of development. It should be noted, however, that in the case of entities with an established position, but having a financing gap, mezzanine financing can help to develop new products / services. It seems indeed that the characteristics of mezzanine financing directly meet expectations of

such companies. Mezzanine investments are made in the sector of industrial production, but also in the services and the construction industry.

It is interesting that in the case of investments with the participation of BA, PE / VC the entire development process of a new product is realized, which is superimposed by the kind of organic growth of the company in the initial stage of its development in the financial part. The advantage of the availability of resources, systems, capital and organizations lies with existing companies. Determination, agility and flexibility are something that the startup companies have and to them each customer symbolizes success. There are many examples of the latter having overtaken the former in the advancement of innovative technologies.

Another conclusion resulting from a comparison of new product development with the development of a company is the fact that, in the case of financing the subsequent phases of development of the company by another specialized institution, we achieve the effect of market allocation, where there is a mechanism of balance and, somehow spontaneously, a funnel effect appears. The decision on the selection of projects is taken by teams of experts authenticating the market and financial success of selected projects, the main criteria being the maximization of economic effects (own-interest). The advantages of VC and mezzanine financing, therefore, should be the process of applying for funding of the project and its wider consultation, because it becomes a filter between the phase of detailed analysis/design and the test phase.

In the case of implementation of the new product development process in established companies there is a hierarchical mechanism of resource allocation in the whole process from the idea to new product market implementation. In this case, in addition to economic motives, also non-economic motives will play a large role. Thus, the allocation of resources in established companies will be a mixed (hybrid) type.

The arguments presented above indicate that mezzanine type of financing is a good instrument to support the development of enterprises. In the case of startup type entities mezzanine financing can be used at a later stage of growth.

In the case of companies with a strong market position, the scope of cooperation is greatly expanding. This applies especially to knowledge-based firms and technology companies where there may exist a security gap. Like the other companies, not only the security gap, but also the equity gap may exist. The flexibility of mezzanine allows for the use of market opportunities for companies that for various reasons do not have adequate backup to finance their dynamic growth. For them, mezzanine can be a very good tool for financing innovation.

In Poland, mezzanine funds invest in a variety of industries, but mainly focus on LBO transactions. We observe more and more transactions that support the expansion of businesses. Innovative activity may prove to be an attractive area of financing both to investors and to the supported companies.

It should be emphasized that among the various private equity investment strategies mezzanine funds gain the smallest coefficient of variation, which shows they are relatively low risk.

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The studies were exploratory in nature. They showed, however, the interest that SMEs have in financing mezzanine. Research should continue in the direction of the search methods, tools, the restrictions on the use of mezzanine financing as a method limiting the funding gap between equity and senior debt.

The study conducted on investment funds which offer mezzanine finance indicated that more and more often they invest in innovation in the SME sector. Unfortunately, studies have shown that the poor preparation of SMEs and their limited knowledge of mezzanine finance restrict their use of this form of financing. This raises the need for wider promotion and education in the various forms of hybrid financing.

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Abstract (in Polish)

Szczególną formą aktywności przedsiębiorstwa decydującym o jego rozwoju, a nawet przetrwaniu jest działalność innowacyjna. Pozyskanie kapitału na realizację innowacji, jest ważnym ale, nie jednym czynnikiem wprowadzenia innowacji. Cechy innowacji, a w szczególności ryzyko powodzenia sprawiają, że istnieje istotna trudność pozyskania finansowania zewnętrznego, w szczególności obcego na ich rozwój i wdrożenie. Przedmiotem rozważań w artykule jest finansowanie hybrydowe w formule mezzanine projektów innowacyjnych realizowanych tak w firmach start-up jak i w firmach o już ugruntowanej pozycji. Za cel artykułu przyjęto przeprowadzenie dyskusji dotyczącej możliwości oraz analizy praktyki stosowanej przez fundusze mezzanine w Polsce wobec aktywności innowacyjnej przedsiębiorstw. Badania przeprowadzono na podstawie informacji o inwestycjach funduszy mezzanine w Polsce.

Pierwsza część artykułu poświęcona jest osadzeniu finansowania mezzanine, w tym celu wskazano cechy innowacji decydującej o możliwości ich finansowania zewnętrznego. Zaprezentowane różne strategie inwestycyjne funduszy Private Equity Fund w skali globalnej, w której uwidocznione jest znaczenie i cechy finansowania mezzanine. Wskazano również na podstawie danych statystycznych jaki jest potencjalny rynek finansowania innowacji w Polsce. W dalszej kolejności wskazano istotę finansowania typu mezzannine oraz jego potencjalne możliwości wsparcia rozwoju i innowacji. Na tym tle przeprowadzono analizę możliwości finansowania innowacji w firmach typu start-up oraz w firmach o utrwalonej pozycji rynkowej. Na, tym tle zaprezentowano przykładowe finansowania mezzanine jakie miały miejsce w Polsce w ostatnich latach. Praca przybrała zatem formę analizy dedukcyjno-indukcyjnej.

Przeprowadzone badania prowadzą do wniosku że, następuje stopniowy rozwój finansowania mezzanine w Polsce. Transakcje są różnorodne tak, co do branży jak i wielkości inwestycji. Odnotowuje się jednak obniżanie minimalnych kwot pojedynczych inwestycji, co powoduje, że zainteresowanie tą formą finansowania może wzrosnąć. Należny jednak stwierdzić, że fundusze mezzanine swoją aktywność koncentrują na firmach średnich i dużych w dobrej kondycji finansowej, które nie mają zdolności kredytowej dla realizacji wszystkich przedsięwzięć rozwojowych. Posiadają one cechy organizacji dojrzałej. A zatem mają: strategię, doświadczony zarząd, dobre przepływy finansowe, dobrą pozycję rynkową i potencjał wzrostu. Barierą rozwoju funduszy mezzanine w innowacje realizowane w sektorze MSP, może być koszt stały transakcji oraz koszty realizacji funkcji kontrolnej funduszu w pojedynczej inwestycji.
Keywords: *innowacje, mezzanine, finansowanie innowacji, Polska.*

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Financial Innovation and Sustainable Development in Selected Countries in West Africa

Folorunsho M. Ajide[1]

Abstract

Financial innovation has given a new trend to modern financial system and its importance has been widely recognized. This study investigated the effect of financial innovation augmented with bank competition on sustainable development in eight West African countries. Data were sourced from World Bank development indicators from years 2000-2013. We used two proxies of competitions, two proxies of financial innovations and regressed them on a growth indicator as well as development indicator with other control variables. Using panel data estimations, our results confirmed that an increase in banking efficiency driven by competition and financial innovation would improve economic growth and development. While the two proxies of competition were significant, the financial innovations were not significant; one displayed a negative, while the other exhibited a positive relationship with development. These results revealed the differential effects of different financial innovations adopted in the financial system. That is, the growth effect of financial innovation is sensitive to the choice of proxy. A reduction in demand for money caused by financial innovations could deter economic growth and development. This is because individuals would move away from more liquid assets to less liquid assets. On the other hand, financial innovations could potentially lead to an increase in money demand if payment systems improve and individual's demand for more liquid assets is channeled to productive sectors. We therefore concluded that policies which would drive competition and efficiency in the banking industry as well as financial innovation should be introduced to ensure effective functioning of the financial system.

Keywords: *financial innovation, competition, development, Africa.*

INTRODUCTION

A debate on financial innovation and its effect on growth and development can be traced to the view of Schumpeter (1934). He was the first to give

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us an idea of the connection between innovation performance of an economy and the functioning of its credit and capital markets. A good understanding of the relationship between finance, innovation, and growth begins with understanding the character of innovation. (Mazzucato, 2013). Financial innovation is perceived to be strategic by nature. It has value if its sustainability can be assured in the financial sector (Costanzo, Keasey & Short, 2003). It is necessary to identify the kind of financial innovations which are associated with different development processes in terms of activities, formality and cross-functional involvement as well as performance outcomes. The connection between the financial sector and sustainable development is financial innovation. Financial innovation constitutes the introduction and promotion of financial products and services, the development of new processes, as well as the interaction with customers and the development of new structures for financial institutions (Mention, 2011). Innovation continues to play a key role as a force for sustainable development, social inclusion and peace, because of its potential to generate intangible and tangible social changes. It can reduce the gap of competitiveness, and uneven knowledge-gap between the developed and developing countries (Salas, 2009).

This paper is a contribution to the empirics of financial innovation and economic growth and development in Africa. Although a substantial amount of academic research has been devoted to financial development and growth nexus, the overall effects of financial innovation on growth and development are not conclusive. The paper examines the effect of bank competition and financial innovation on sustainable development. This is based on the realization that effective competition in the banking industry can increase the level of financial innovation, reduce the cost of financial intermediation, improve delivery of high quality services and enhance consumers' welfare (Simpasa, 2013). Competition can be seen as a stimulus to increase downward pressure on costs of services or products, reduce managerial laziness and even improves the level of technology and financial innovation (Nickell, 1996). Thus, competition may have the desirable effect of stimulating technological research and development. It forces producers to innovate constantly in order to be efficient and effective in the production of higher quality products and minimize costs to maintain or increase their market share and make more profit (Motta, 2004; Whish, 2005; Ajide & Ajileye, 2015).

Bank competition and financial innovation, as argued, in this paper, is a crucial instrument of the shifts towards sustainable development. It would be impossible or otherwise, without finance to foster the technological shift, and the pace of change towards sustainable development and growth would simply not be quick enough. The world is not short of savings, nor is it short of the needed technological investments and opportunities to redirect it to; if

we are to avert the disastrous ongoing speed of global warming and its tipping points. Financial innovations and the role of the state in fostering these shifts worldwide is what the challenge is all about (Dasgupta, 2015).The possibility for innovation is full of challenges and opportunities. It is now necessary to create more awareness of the complex world in which we are living today, and the implications for saving tomorrow´s planet, by helping governments, corporates and society to draft spurring sustainable polices and efforts.

In West Africa, competition and innovations in the banking sector have indeed increased over the period. New products such as international fund transfers, school fee loans, negotiable certificates of deposit, car loans, consumer/hire purchase loans, travellers' cheques, computerization of all transactions and branch networking have taken new shapes in terms of development. West African banks have both national and international networks and branches. Bank operations and information processing have vastly increased. Automated teller machines (ATMs) are now widespread, giving clients/customers the freedom to transact business at their own convenience. The current trend is for personal computer banking systems, telephone banking systems, e- banking, branchless banking, agent banking and, more importantly, SMS banking. These are driven by the improvement in telecommunication networks and advancement in computer technology in West African countries (Abor, 2005). It is now necessary to investigate whether financial innovations promote growth and development.

Following this background, we contribute to the existing literature by investigating the effect of bank competition and financial innovations on growth and sustainable development in West African countries. Our study investigates whether financial innovations are tailored towards productive sectors, hence economic growth in West Africa. We also investigate whether financial innovation and bank competition can foster economic growth by focusing on the peculiarity of the West African region. Policy makers really need to know if competition or higher market power is desirable in the West African banking industry, leading to improvements in financial innovation, and hence growth and development. The rest of this paper is organized into four sections. Section 2 deals with the literature review; section 3 discusses methodology while section 4 analyzes the results. Section 5 concludes the paper.

LITERATURE REVIEW

Innovations in the African financial market and its growth

The African financial market registered a growth rate of over 5% between 2003 and 2007, which had systematically exceeded the world average. This growth

was stimulated by an important set of financial reforms. They were also the consequence and the driver of historically high levels of inflows and domestic resources (Dahou, Omar & Pfister, 2009). In 2008, when the financial crisis hit Africa, the Continent was on the rise to have a stronger financial system. It was believed that strong financial markets were a prerequisite for innovation on the continent. While from the firms' perspective banks offer inadequate products (with high interest rates, large collateral requirements, and short repayment periods, among others), equity markets remain underdeveloped with only a low number of investors. Stock markets are limited in size and liquidity which can largely be explained by the lack of market culture, high listing costs, and ineffective investor protection. Therefore, there is a need for innovations in the system.

Innovation represents the changes in the process of ideation, evaluation, selection, development, and implementation of new or improved products, services, or programs with the purpose of increasing the number of ideas, improving the quality of ideas and a more efficient implementation of quality ideas. Financial innovation may be described as the emergence of new financial instruments and services, and of new forms of organization in more sophisticated and complete financial markets. Financial innovation is concerned with the introduction of new financial instruments or service or practice. That is, introducing new uses of funds, or finding out new sources of funds, or introducing new processes or techniques to handle day-to-day operations, or carrying out a re-organization on parts of existing financial institutions and channels. In addition, the emergence and the spectacular growth of new financial institutions and markets is also part of financial innovation (Patrya, 2006). Financial innovations include a range of changes in the financial system which results in the broadening, deepening, diversification, structural transformation, internationalization and sophistication of the financial system. They result in the financialization of the economy whereby the financial assets to total assets ratio tends to increase. Financial innovation concerns the introduction of new liquid assets that partially replace traditional money in agent's portfolios, technological progress in banking services that reduces the costs of transactions, and changes in the regulatory environment that facilitate transactions (Melnik & Yashiv, 1994). It is believed that financial innovation has brought a permanent change to the money demand that is not caused by opportunity cost (i.e. interest rates and scale variables such as GDP) and it includes both technological processes and financial regulation or deregulation (Arrau & De Gregorio, 1991).

Changes are taking place in the African financial system. The spread of mobile phones has accelerated the use of mobile phone financial services.

This is because the number of mobile users has increased rapidly over the years, causing, significantly, the number of bank customers in many African countries to increase at a geometric rate. It was reported that Africa is currently leading the trend of mobile financial services with over 56 deployments in place. Sub-Saharan Africa alone accounts for over 45% of the world's total mobile money deployments. A survey conducted in June 2011 shows that East Africa has become the most active mobile money market in the World with 46% of all mobile money transactions processed in June 2011 originating from the African regions (African Development Bank, 2013).

Among the financial innovations that have taken place in the region are mobile financial services. These services include sending money, paying bills, receiving bulk payments and purchasing airtime. They are called functional transactions and are different from cash conversion or administrative transactions. The growth of mobile financial services in Africa has allowed millions of people, who would otherwise have been excluded from the formal financial system, to perform financial transactions relatively cheaply, securely, and reliably (Demirgüç-Kunt & Klapper, 2012). Table 1 show that East Africa has the highest mobile money usage with about 0.38%, even more than the world usage, while Southern Africa has the highest credit card usage in the region.

Table 1. Mobile money and credit cards usage in Africa

	Adults using Mobile Money(%) in the past years	Adults with a Credit Card(%)
World	0.05	0.15
Africa	0.14	0.03
Central Africa	0.08	0.02
East Africa	0.38	0.03
North Africa	0.03	0.03
Southern Africa	0.09	0.07
West Africa	0.09	0.01

Source: Demirgüç-Kunt & Klapper (2012).

The most familiar financial innovations adopted in African countries are ATMs and Point of Sale (POS). They are categorized as the most essential elements for financial service delivery. These services ensure efficient payment and settlement systems are in place. In some African countries, Demirgüç-Kunt and Klapper (2012) stated that the number of ATMs and POS still remains limited. For example, in 2010, Botswana counted 21 ATMs and 288 POS terminals per 100000 people while in South Africa the number of ATMs and POS stood at 52 and 700, respectively.

However, with the high reduction in the cost of hardware and other supporting infrastructures, the new trend shows that the number of ATMs and POS has been growing at a fast pace in sub-Saharan Africa. It accounts for the second highest figure in the world after South Asia. The advent of internet banking has also improved the level of financial services in Africa. It has empowered different organizations with new business models and new ways to offer 24 hour accessibility to their customers. A significant achievement has been recorded in the payment and settlement systems. The Automated Clearing House, as observed in the system, has reduced the number of days its takes to clear quasi-money such as cheques. Another trend of innovation in the financial system is the introduction of crowdfunding, or the collective pooling of small resources (usually online) to finance projects. This can be taken as a financing model for innovative firms worldwide but Africa lags behind. Between 2011 and 2012, the crowdfunding model saw a growth rate of 91% worldwide to reach USD 2.8 billion (Econsultancy, 2012). There are two approaches to the model: Equity and lending-based crowdfunding where returns are expected as per typical investments, and donation and reward-based crowdfunding which are mostly used for cause-based campaigns. Africa however only hosts less than 1% of total crowd sourcing platforms, and about 0.5% of total crowd funding campaigns worldwide (Econsultancy, 2012).

Also, in most African countries, financial derivates activity does not exist. While the derivates market in South Africa still remains under developed, there is no interest rate or cross currency swap market in Algeria, Nigeria and Zimbabwe. However, there are a few off-shore non-capital markets to fulfill their financing needs at competitive prices. Meanwhile, the initiatives to establish these by some governments in most West African countries and Southern African countries still remain in its infancy. In some West African countries, foreign exchange forwards exist with moderate liquidity and maturities extending up to 3–6 months. In 2008, a futures market based on treasury bonds was opened in Morocco. This is the first attempt to broaden the offering on the Casablanca Stock Exchange. While in Botswana, transactions concerning derivatives activity simply consist of over-the-counter foreign exchange forwards and currency swaps. However, both forwards and currency swaps markets are liquid, with terms up to 3-months and 6-months, respectively (Allen, Otchere, Lemma & Senbet, 2011).

Development and economic changes in Africa

Sustainable development recognizes not only growth, but inclusive growth. It also includes environmentally sound plans to reduce poverty and build

shared prosperity for today's population, which will continue to meet the needs of future generations (World Bank, 2001). This can work well if the plan is proficiently organized with enough financial resources and is carefully planned to deliver both immediate and long-term benefits for people, planet, and prosperity.

Meanwhile, development and growth have taken another shape in Africa. It was reported by the African Development bank (ADB, 2014) that, in 2013, Africa continued to demonstrate resilience in the face of a slow recovery in the global economy, although with broad variations across countries and regions. Growth in sub-Saharan Africa was 5%, and excluding South Africa which was about 6%. West Africa registered the highest rates of growth, about 7% (the same level as recorded in 2012), followed closely by East Africa with about 6%, about 2% age points above those of 2012. Central Africa grew at about 4% (compared to 6% in 2012) with the eruption of armed conflict in the Central African Republic reducing growth prospects for the sub-region in the near term. North Africa grew by 1.9%, a decline of approximately 8% age points compared with 2012. In Southern Africa, growth averaged 3.0 %, indicating little change from 2012. Among major oil exporters, growth was highest for Angola, Gabon and Nigeria, at 5 % or above. The investment-driven economies, that are countries transitioning toward manufacturing and services as drivers of the economy, grew at between 3% to 7%. Africa's average inflation fell by 2% age points to 6.7% in 2013, compared to 2% in the US and the EU, and to a global average of 6%. Overall, countries maintained a cautious fiscal stance. The average fiscal deficit as a percent of GDP rose to 3.9% in 2013 from 2.9 % in 2012. The current account deficit increased to 2.5% of GDP in 2013 from 1.5% in 2012. Net oil-exporting countries saw their current account surplus as a percent age of GDP fall from 2.3% in 2012 to 0.8% in 2013, while the current account deficit was 8% of GDP for oil importers, compared to 7.6% in 2012. Africa's growth is projected to be about 4.8% in 2014 and 5.7% in 2015 (ADB, 2014).

Also, in the area of technological development that is capable of accelerating economic development and growth in Africa, is the impressive rise in the adoption of mobile telephony in the continent. This has allowed innovative solutions to emerge, ranging from cashless payments to real-time price information, and these have contributed to the economic growth and well-being of African dwellers by allowing them to make better economic decisions. Also, in the area of digital education, much progress has been made. The major improvement in this line is the ability to boost people's productivity, the ability to innovate, and the contribution to the transformation of the economy (Kayizzi-Mugerwa, 2014).

Financial innovation and development/growth

Financial innovation and financial system reforms are part of the solution to rapidly scaling capital for sustainable development. We can reason that such interventions can complement action in the real economy and deployment of public capital. The modern economy cannot exist without the efficient intermediations in the financial systems. The financial system is regarded as one of the most important creations of the modern society and it is described as an integrated part of the economic system. Financial innovation raises the efficiency of financial intermediation through an increased variety of financial products and services, resulting in improved matching of the needs of individual savers with those of firms raising funds for expanding future production. By this way, it systematically contributes to capital accumulation hence leading to economic growth (Chou, 2007). It has been documented that financial innovation helps to correct some kind of market inefficiency or imperfection. If markets are incomplete then financial innovation can improve opportunities for risk sharing. If there are agency conflicts, then new types of security can improve the alignment of interests. Financial innovation can lower taxes and it can avoid the effects of regulations in the financial market (Tufano, 2003). Financial innovation is good for economic growth based on the fact that such innovations will improve the allocation of capital. Due to the increasing sophistication and depth of financial markets resulting from financial innovations, it promotes economic growth by allocating capital where it can be most productive (Bernanke, 2007).

Financial innovation provides the mechanism to fund innovative technological projects when traditional sources of funds are unavailable due to high investment risk. Technological and economic progress resulting in a higher complexity of business processes and new types of risk, forces the financial system and financial markets to adapt to the changes and to be modernized according to the new requirements of the business entities and the challenges of the modern world. This leads to the conclusion that without financial innovations, technological and economic development would slow down and the wealth of nations would be lower. At the same time, the application of financial innovations would be limited without the demand arising from technical progress (Blash, 2011).

Financial innovation can assist individuals and firms to smooth expenditures in the case of temporary shortfalls in income. It may also lead to too much spending if they become over-confident. Financial innovation can increase economic uncertainties in different directions. If innovation comes with different changes in the financial system, it would have different effects on volatility. The different economic disturbances changes over time, the impact of augmenting or damping certain kinds of shocks will matter more or

less in certain periods. A single type of innovation can affect households and firms differently, so one needs to aggregate the various responses (Elmendorf, 2008). A number of different forms of financial innovations can have different effects on the money demand hence economic growth (Dunne & Kasekende, 2016). New products such as ATMs/ debit cards, and quasi-money such as financial instruments, could potentially improve efficiency and reduce transaction costs, in as much as, cash that would have been carried in wallets is replaced by these innovations. This could lead to a decline in demand for cash. A reduction in demand for money for transaction motives could deter economic growth and output. Also, individuals move away from more liquid assets to less liquid assets. This results in a demand for less money. On the other hand, financial innovations could potentially lead to an increase in money demand if payments systems improve but individuals demand more liquid assets. For example, where individuals demand electronic money and cash through the use of mobile phone technology but do not necessarily move away from more liquid assets to less liquid assets, this action may as well increase the transaction motives thereby increasing demand for goods and services in the economy, while at the same time improving economic growth. Financial innovation is good for the economy if it enables an economically productive use of money that would not otherwise occur. It is very clear that financial innovations may not necessarily add value to an economy. This can be the case when information asymmetries are present. This can happen if information asymmetries present particular contingencies that are not contractible, having complete markets is infeasible. It may also occur when contingencies are not verifiable, and/or too costly to verify. Introducing a financial innovation might not generate a good outcome or much motivation. Financial innovations might be intended to fool market participants. Financial innovations would then tend to worsen the allocation of capital (Johnson & Kwak, 2009; Boot & Marinc, 2010).

EMPIRICAL REVIEW

Finance, competition and growth/development

Early attempts to explain a finance-growth nexus can be found in Bagehot (1873), Schumpeter (1912), Gurley and Shaw (1955), Goldsmith (1969), and McKinnon (1973). Financial systems can affect savings-investment decisions and growth through acquiring and processing information about possible investment projects and entrenching constructive corporate governance; trading, diversification, and management of risk; mobilizing and pooling of savings, and facilitating the exchange of goods and services (Levine, 2005).

These functions help to offset market imperfections, by lowering information and transaction costs, they help in fostering economic growth through more competitive and efficient allocation of financial resources (Khan & Senhadji, 2000; Ajisafe & Ajide, 2014; Ajide & Aderemi, 2015). Furthermore, a number of studies have empirically proved that the financial market promotes growth (Spears, 1991; Thornton, 1995; Levine & Zervos, 1998; Rousseau & Wachtel, 2000; Calderon & Liu ,2003; Caporale, Howells & Soliman, 2004; Ajide, 2012). Other studies have also investigated the effect of competition on growth (Bikker & Groeneveld, 2000; Bikker & Haaf, 2002; Demirgüç-Kunt, Laeven & Levine, 2003; Greenberg & Simbanegavi, 2009; Schaeck & Clhak, 2010; Ajide & Aderemi, 2015). They hinted that the industry intermediates large portions of capital flows and household savings in developing economies; which is based on the fact that the industry constitutes the primary source of business finance in developing countries. Healthy and effective banking competition is necessary because the absence of this condition can lead to a potential break-down in the financial system which can yield contagious effects to all other sectors of the economy (Ajide & Soyoye, 2015).

The work of Maudos and Guevara (2006) examined the effect of financial development and banking competition on economic growth using both structural measures of competition (that is, market concentration) and measures based on the new empirical industrial organization perspective (Panzar and Rosse`s test and the Lerner index). The study used the period 1993-2003 for a sample of 53 sectors in 21 countries and indicated that financial development and the exercise of bank market power promoted economic growth. This result is consistent with the literature on relationship lending which argues that banking competition can have a negative effect on the availability of finance for companies that are informationally more opaque. The results cast doubt on the use of market concentration measures as indicators of competition.

Claessens and Laeven (2005) using an indicator of market power based on the theory of industrial organization (i.e the *H* statistic of Panzar and Rosse) analyze the effect of banking competition on economic growth. Their results show that industries most dependent on bank financing grow faster in the countries with stiffer banking competition, so they reject the hypothesis that market power can favor access to finance. In addition, Claessens and Laeven (2003) in their study also relate a competition measure to industrial growth for 29 banking systems using the model developed by Rajan and Zingales (1998) which assesses the relationship between financial development and growth using sectoral growth data for a large sample of countries. They found that the effects of competition on access to financing (and growth) can depend on the level of development of the financial system. Specifically, in countries

with less developed financial systems, financially dependent industries grow faster when the financial system is less competitive, while in more developed financial systems, more competition is associated with higher growth.

Bayraktar and Wang (2006) perceived that banking sector openness may directly affect growth by improving the access to financial services and indirectly by improving the efficiency of financial intermediaries, both of which reduce the cost of financing, and in turn, stimulate capital accumulation and economic growth. These direct and indirect links were confirmed using a more advanced econometric technique (GMM dynamic panel estimators) which linked financial market development with investment and provided support for countries planning to open their banking sector for international competition.

Soedarmono (2010) investigates the link between bank competition and economic development from a sample of Asian countries over the period 1999-2007. He states that, in general, although banking market power has a U-shaped relationship with economic growth, banking market power tends to improve economic growth. However, the positive impact of banking market power on economic growth only occurs in the agricultural sector, but not in the industrial sector. It is also shown that higher banking market power in countries with greater economic freedom erodes overall economic growth and industrial growth. On the contrary, there is no significant relationship between banking market power and agricultural growth in countries with greater economic freedom. He, therefore, concludes that when economic freedom increases and financial service investments come into a country, any policy to boost banking competition becomes necessary. In this case, the industrial sector is more important than the agricultural sector.

Asante, Agyapong and Adam (2011) empirically investigate the relationship between bank competition, stock market and economic growth in Ghana using time series data for the period 1992 to 2009, and the number of registered banks and trend as a proxy for bank competition. The short and long run relationships were established within the frameworks of Granger causality and the Autoregressive Distributed Lag (ARDL)/ Dynamic Ordinary Least Square (OLS) approach respectively. It was found that bank competition and stock market development granger caused economic growth in Ghana. Also, in the long run, banking competition is good for economic growth. However, there is a disproportionate response of economic growth to stock market development.

Financial innovation and growth/ development

Ample studies have been conducted on financial system-growth nexus with mixed results. However, few of these studies pay attention to the issue concerning financial innovation. By seeking to answer the question "Is financial innovation necessary for sustaining economic growth?" Laeven, Levine and Michalopoulos (2015) built a Schumpeterian model in which entrepreneurs earn profits by inventing better goods and profit-maximizing financiers arise to screen entrepreneurs. The model has two novel features. First, financiers engage in the costly but potentially profitable process of innovation: they can invent better methods for screening entrepreneurs. Second, every screening process becomes less effective as technology advances. The model predicts that technological innovation and economic growth eventually stop unless financiers innovate. Empirical evidence is consistent with this dynamic, synergistic model of financial and technological innovation. A recent study by Dunne and Kasekende (2016) investigated the development of financial innovation and its impact on money demand in sub-Saharan Africa using panel data estimation techniques for 34 countries between 1980 and 2013. The results indicated that there was a negative relationship between financial innovation and money demand. This suggests that financial innovation plays a crucial role in explaining money demand in sub-Saharan Africa and can have important implications for future policy design. The factors influencing the adoption of financial innovation in Ghana's banking industry were carried out by Domeher**,** Frimpong and Appiah (2014). Surveys were conducted involving 405 clients of the six major banks in the country. Using logistical regression, the results showed that innovation attributes such as lack of complexity, compatibility and perceived usefulness provided by financial innovation, increase the likelihood of e-banking adoption. Anthony and Aboagye (2014) examined the relationship between bank competition, financial innovations and economic growth in Ghana using quarterly data from 1990 to 2009. They employed the ARDL co-integration procedures. The results showed that, in the long run, bank competition is positively related to economic growth whilst financial innovation is negatively related to economic growth. In the short run, bank competition is negatively related to economic growth. By the same token, financial innovation is positively related to economic growth in the short run. In terms of causality, the results showed that, there is unidirectional Granger causality from bank competition to economic growth. However, there is bidirectional Granger causality between financial innovation and economic growth. More regulations toward a more competitive banking system with more innovative products tailored toward mobilization of savings and investment to growth induced sectors of the economy were encouraged.

Norden, Buston and Wagner (2014) found that banks with larger *gross* positions in credit derivatives charge significantly lower corporate loan spreads, while banks *net* positions are not consistently related to loan pricing. They argued that this is consistent with banks passing on *risk management* benefits to corporate borrowers but not with alternative channels through which credit derivative use may affect loan pricing. They also found that the magnitude of the risk management effect remained unchanged during the crisis period. In addition, banks with larger gross positions in credit derivatives cut their lending by less than other banks during the crisis and have consistently lower loan charge-offs. Their study is suggestive of significant risk management benefits from financial innovations that persist under adverse conditions, that is, when they matter most.

Further investigation on the effect of financial development on innovation for 51 countries between 1993 and 2008 was carried out by Meierrieks (2014). Consistent with the expectations from Schumpeterian models of finance, entrepreneurship and economic growth it was found that higher levels of financial development coincide with stronger innovative activity. It was further stressed that financial intermediaries may indeed encourage investment in innovative entrepreneurial activity. Hao and Hunter (1997) examined the link between banking, financial system structure and economic growth, by constructing a cross-country regression model using data over the 1970–1988 periods. They extended the existing literature by explicitly examining the impact of measures of a country's financial deepness, in terms of second stage financial innovations, on a country's rate of economic growth. The results showed that financial development (e.g., as measured by the presence of an organized financial futures market—a second stage innovation) is positively correlated with enhanced economic growth.

METHODOLOGY

Data and sources

The new database of financial development and structure across countries and over time in the World Bank development indicator has been used to source data to carry out this study. This database is unique in that it unites a wide variety of indicators that measure the size, activity and efficiency of financial intermediaries and markets. It improves on previous efforts by presenting data on the size and activity of bank and non-bank financial institutions. The study covered the period 2000-2013 utilizing secondary data sourced from this database in the World Bank financial Development Indicators. The study used eight West African countries; Benin, Ghana, Niger,

Nigeria, Senegal, Mali, Sierra-Leone and Burkina Faso. All the data used were drawn from the Word Bank Development Indicators (2015). Table 2 provides a summary of data source and the period involved.

Table 2. Summary of data source and the period

Data description	Period	Sources
Adjusted net saving	2000-2013	World bank development indicator (2015)
GDP per capita	2000-2013	World bank development indicator(2015)
Bank return on Assets(after tax)	2000-2013	Financial development and structure (World bank Indicators, 2015)
Boone Indicator	2000-2013	Financial development and structure (World bank Indicators, 2015)
Bank concentration index (%)	2000-2013	Financial development and structure (World bank Indicators, 2015)
Narrow and Broad Money (M1 and M3)	2000-2013	World bank development indicator (2015)

Empirical model

An investigation into the relationship between financial innovation and development/growth can be examined using the simplest endogenous growth model normally called *AK* model (Pagano, 1993); where *K* is capital stock and *A* is the level of technology (which is taken as given in the economy). We can say that aggregate savings transform into capital stock. The capital stock can be generated from the banking sector's activities which are affected by competition and financial innovation in the financial intermediation in the industry. This arrangement can be modeled using the *AK* model to empirically show: firstly, the effects of bank competition and financial innovation on economic growth and secondly, to examine the effect of bank competition and financial innovation on sustainable development. To show the effect of bank competition and financial innovation on growth, we specified the model as:

In econometric term, it can be specified as:

$$LGDPP=f(BR,BC,CP,FI) \quad (1)$$

Also, to show the effect of bank competition and financial innovation on sustainable development, we specified the model as:

$$LGDPP_{it} = \beta_{0_{it}} + \beta_1 BR_{it} + \beta_2 BC_{it} + \beta_3 CP_{it} + \beta_4 FI_{it} + \varepsilon_{it} \quad (2)$$

In econometric term, it can be specified as:

$$SD_{it} = \beta_{0_{it}} + \beta_1 GDPP_{it} + \beta_2 BR_{it} + \beta_3 BC_{it} + \beta_4 FI_{it} + \varepsilon_{it} \quad (3)$$

Where *SD* is Sustainable Development, ***LGDPP*** is economic growth, ***BC*** is Bank Competition**,** ***BR*** is Bank Return, ***FI*** is financial innovations, and ***CP*** is Banking Sector development. Also, *GDPP* is *GDP per capita* and is used as a proxy for income of individual in the economy

Dependent variables

Sustainable Development ***(SD)*** serves as one of dependent variables in the model built for the study. We have used Adjusted Net Savings as a measure of sustainable development (Gnegne, 2009; Blanchet, Le cacheux & Marcus, 2009; PardI, Arifin, Salleh, & Nawi, 2015). Adjusted Net Saving (ANS), as a %age of Gross National Income (GNI), is derived from the standard national accounting measure of gross saving by making four adjustments: (i) consumption of fixed capital is deducted to obtain net national saving; (ii) current public expenditure on education is added to account for investment in human capital; (iii) estimates of the depletion of a variety of natural resources are deducted to reflect the decline in asset values associated with extraction and depletion; (iv) deductions are made for damages from carbon dioxide and particulate emissions. The indicator is then computed by dividing ANS by GNI. The second dependent variable is ***LGDPP*** is defined as economic growth proxy by Log of Real Per capita GDP.

Independent variables

Competition

BC is defined as Bank Competition. The study used two measures of bank competition (Bank concentration and Boone Indicator). Bank concentration is used as a measure of market dominating power within an industry or among companies. Bank concentration index of the highest three (*CR*3) total deposits is used. We also employed the Boone indicator proposed by Boone (2008). The ***Boone indicator (BI)*** reflects more than 80 % of the information contained in other measures of competition such as the H-statistic and other variables like government ownership of banks and the Financial Freedom index (Schaek & Cihák, 2010).

Bank Return

BR is defined as Bank Return. We employed this ratio as a proxy for banking sector efficiency; it is measured as bank returns as a %age of Total Assets. We have used this variable to account for issues concerning banks' profitability and efficiency of the banking sector potentially not captured by our two measures of competition (that is, Concentration ratio and Boone indicator).

Financial innovation variables

Among the functions of financial innovation are; the effective movement of funds at the appropriate time; the pooling of funds; extracting information to support decision-making; and facilitating the sale and purchase of goods and services through a payment system. However, we recognize that different forms of financial innovations can have different effects on growth/development. For instance, ATMs/debit cards and quasi-money among others, could potentially improve intermediation efficiency and reduce transaction costs, in as much as cash that would have been carried in wallets is replaced by these innovations. This could lead to a decline in demand for cash. A reduction in demand for money for transaction motives could deter economic growth and output. Also, individuals could move away from more liquid assets to less liquid assets. This results in demand for less money. Therefore, to measure financial innovations (***FI***), we employed the ratio of M_3 to M_1 (Dunne & Kasekende, 2016; Hye, 2009; Mannah- Blankson & Belyne, 2004). We also employed growth of the ratio of bank credit to the private sector to GDP (***growth of CP***). This is because the revolution of technological innovations spearheaded by the application of information and communication technology can strengthen the efficiency of the banks to mobilize savings and allocate funds to productive areas (Anthony& Aboagye, 2014).

Control variables

We employed ***CP*** and **GDP per capita** as control variables. ***CP*** is defined as Banking Sector development proxy by Credit to private sector as a %age of GDP. Also, GDP per capita is used as a proxy for income of individual in the economy. We expect that as individual income increases sustainable development is enhanced.

Method of analysis

The panel data analysis has been carried out to find out the effect of bank competition and financial innovation on growth/sustainable development. The panel character of data allows for the use of panel methodology. The panel data estimations are considered the most efficient analytical methods in handling econometric data of this kind. The panel data model is a powerful and strong research instrument. The combined panel data matrix set consists of a time series for each cross sectional member in the data set, and of variety of estimation methods. The main purpose of using panel data is because it provides a more efficient estimation of parameter by considering a broader source of variation, it outsources more information to the researcher and it

allows the study of dynamic behavior parameters. Precisely, we use pooled OLS, fixed effect and random effect estimation; appropriate estimations are determined using the Hausman test.

RESULTS AND DISCUSSION

Table 3 and 4 report the correlation matrix and descriptive statistic of the variables adopted for the study. It can be seen that *MC* has a negative relationship with *LGDPP*. We observe a similar characteristic between credit to private sector (CP) and BR and LGDPP, BI and BR. There is a positive relationship between CP and LGDPP. The correlation between CP and LGDPP is commendable as most studies have proved that financial development has a positive correlation with economic growth (Levine, 2005; Akinlo & Olufisayo, 2009).

The descriptive statistic shows that the growth rate is 6.2% on average with maximum of 6.9% and minimum of 5.5%. This reflects the significant government reforms in Africa. The development prospects for African countries remain promising, with real growth forecasted by the IMF to be above 4 % in 2015. The level of volatility is 0.4%. The Boone indicator shows a fiercer competitive condition in the banking industry with an average figure of -0.11%, with a maximum value of 0.061% and minimum value of -0.69%. This shows the dynamic movement of the competitive environment in the West African banking industry. Standard deviation shows the level of volatility is 0.118%. Meanwhile, banking sectors are typically concentrated as the average is about 77 % which may lead to inefficiencies in financial intermediation in the long run. According to the World Bank's Financial Inclusion Database, only 24 % of adults in SSA had a bank account in 2011. Consequently, access to finance in sub-Saharan Africa, though expanding, remains among the lowest in the world and one of the key obstacles to the activity and growth of enterprises. The ongoing structural changes, such as the emergence of mobile banking, are beginning to strengthen competition, to deepen sub-Saharan financial markets and improve access to finance. The soundness and efficiency of the industry is depicted by the variable BR with a maximum value of 18.74% and minimum value of -18.02%. On average the level of profitability is 2.72%. The adjusted savings is 0.45 on average, with a volatility level of 8.30.

Table 3. Descriptive statistics

	Adj. Net Sav.	LGDPP	BI	BR	MC	Growth of CP	M3/M1
Mean	-0.45186	6.186846	-0.11508	2.720481	76.61770	2.50198	0.97374
Median	-0.12117	6.186468	-0.07662	2.096897	77.75488	2.62516	1.0000
Maximum	19.0525	6.962089	0.06108	18.7446	100.000	3.58377	7.99893
Minimum	-20.3889	5.509877	-0.69448	-18.0628	23.75945	0.34661	-10.4042
Std Dev.	8.30653	0.379302	0.11861	3.478881	17.02623	0.63106	1.30141
Observ.	112	112	112	112	112	112	112

Table 4. Correlation analysis

	Adj. Net Sav.	LGDPP	BI	BR	MC	Growth of CP	M3/M1
Adj. Net saving	1.0000						
LGDPP	0.324472	1.0000					
BI	0.183623	0.276233	1.0000				
BR	0.066928	-0.27623	-0.39609	1.0000			
BC	0.131093	-0.40578	-0.101985	0.277284	1.0000		
Growth of CP	0.363669	0.647190	0.629801	-0.54433	-0.340336	1.0000	
M3/M1	0.000384	0.025937	-0.013341	0.049855	0.005431	-0.04043	1.0000

Our estimations are presented in Table 5 and Table 6. Table 5 shows the effect of bank competition and financial innovation on economic growth while Table 6 shows the effect of bank competition and financial innovation on sustainable development. As depicted in Table 4, the Hausman test shows that random effect is the most appropriate estimate for the model of bank competition, financial innovation and growth. The bank return has a negative relationship with growth, while the two measures of competition (market concentration and Boone indicator) reflect a positive relationship with growth. This means that effective competition in the banking industry would increase the level of economic growth. The same applies to innovation in industry. As the financial innovation variable shows, a one-% increase in financial innovation would accelerate the level of growth in West Africa. The variable on financial development (credit to private sector) reflects a positive relationship with economic growth. We are not surprised with this result because various studies have proved the relationship (e.g., Levine, 2005; Akinlo & Olufisayo, 2009). A critical look at the results would confirm that financial innovation is not significant, while other variables are significant. A good reason for this is that the majority of the financial transactions in West African countries are still based on a conventional banking system; the

banks are only innovating old systems (such as the use of cheques and cash deposits) and most of these changes are only reducing the long queue in the banking hall. The F-statistic of 9.866984 reflects the overall significance of the model.

As aforementioned, Table 6 shows the effect of bank competition and financial innovation on sustainable development. The Hausman test shows that the appropriate estimation is the fixed effect. In the fixed effect, it can be envisaged that income is important in the model. It reflects a positive relationship with development, as higher income means higher development. The two measures of competition exhibit a positive relationship with development. Effective competition would ginger up development and growth. This result is consistent with the previous studies (Maudos & Guevara, 2006; Soedarmono, 2010). Also, we have used two measures of financial innovations. They are based on the idea that different forms of financial innovations can have different effects on growth/development. The growth of is negative. A major reason for this relationship is that ATMs/ debit cards and quasi-money could potentially improve efficiency and reduce transaction costs, in as much as cash transactions are replaced by financial innovations. This could lead to a decline in demand for cash. A reduction in demand for money would not make a consumer become an active spender in buying firms' products and services. It contrasts demand for transaction motives which could deter economic growth and output. Also, individuals move away from more liquid assets to less liquid assets. This results in a demand for lesser cash for transactions. The second measure exerts a positive relationship on development. The growth of credit to private sector (cp) has a positive relationship with development.

Table 5. Effect of bank competition and financial innovation on economic growth

	Pooled OLS	**Fixed effect**	**Random effect**
Bank Return(BR)	0.012168	-0.014603*	-0.014063*
	(0.009032)	(0.004279)	(0.004266)
Boone Indicator(BI)	-0.316444	0.474607**	0.463716**
	(0.273961)	(0.183404)	(0.463716)
Market consent(MC)	-0.004997*	0.002183**	0.002029**
	(0.001655)	(0.000828)	(0.000825)
Credit to private sectors(CP)	0.039989*	0.008217*	0.008978*
	(0.005385)	(0.003108)	(0.003089)
Fin. Inn(M3/M1)	0.015084	0.008175	0.008221
	(0.020209)	(0.008080)	(0.008079)

	Pooled OLS	Fixed effect	Random effect
Constant	5.917231*	5.989242*	5.987440*
	(0.181252)	(0.084311)	(0.138834)
R-Square	0.4922	0.925169	0.317604
Adj.R-Square	0.468284	0.916098	0.285415
F-stat	20.55161	101.998	9.866984
Prob(F-Stat)	0.000000	0.00000	0.000000
Huasman Test:			
Chi-squ.		6.84975	
Prob(chi-sq)		0.2321	

Dependent variable: Log of GDPP
*1% sign., **5% sign., ***10% sign. Figures in ( ) are standard error.

Table 6. Effect of bank competition and financial innovation on sustainable development

	Pooled OLS	Fixed effect	Random effect
Income(GDPP)	4.231050***	21.50214*	9.88571*
	(2.485627)	(5.778365)	(3.236538)
Boone Indicator(BI)	-4.382143	10.4489	6.387798
	(7.548415)	(10.25161)	(7.982581)
Bank Return(BR)	0.739207*	0.602380**	0.549895**
	(0.235875)	(0.247806)	(0.223292)
Market consent(MC)	0.148563*	0.158686*	0.180858*
	(0.044303)	(0.047159)	(0.042000)
Fin. Inn(Growth of CP)	7.241972*	2.629892	4.089911*
	(1.936519)	(2.376480)	(2.021383)
Fin. Inn(M3/M1)	-0.001958	-0.174483	-0.068722
	(0.518766)	(0.444683)	(0.442477)
Constant	-58.64399*	-152.4868*	-86.39698*
	(14.61031)	(33.60769)	(18.76724)
R-Square	0.311924	0.536488	0.290436
Adj.R-Square	0.272605	0.475002	0.249889
F-stat	7.933228	8.725342	7.163023
Prob(F-Stat)	0.000000	0.00000	0.000002
Huasman Test:			
Chi-squ.		17.4652	
Prob(chi-sq)		0.0077	

Dependent variable: Adjusted Net savings(SD)
*1% sign., **5% sign., ***10% sign. Figures in ( ) are standard error

This agrees with the submission of Anthony and Aboagye (2014) who confirm that financial innovation is positively related to economic growth. This means that, the revolution of technological innovations spread the application of information and communication technology which have strengthened the efficiency of the banks to mobilize savings and allocate them to productive sectors of the economy. From the view of Schumpeter (1934), innovations may lead to competitive advantage that can be exploited by innovative firms. This view supports a substantial body of scholars who have suggested that the relationship between a firm's level of innovation and performance should be positive. This would substantially improve the level of development by improving the level of employment and providing quality products to consumers (Christensen & Bower, 1996; McWilliams & Siegel, 2000; Schumpeter, 1934; Zahra & Covin, 1995).

CONCLUSION

Financial innovation has brought a new trend to the modern financial system and its importance has been widely recognized. The importance of new products and services in the financial system has been well highlighted (Miller, 1986; Merton, 1992). Innovations are not only critical for firms in the financial services industry, but also affect other companies by enabling them to raise huge capital at a lower cost than they could otherwise. Our study investigated the effect of bank competition and financial innovation on sustainable development/growth in selected West African countries. We used two measures of competition (market concentration and Boone indicator), two measures of financial innovation (growth of credit to private sector as a % age of GDP and ratio of M_3 to M_1) and we regressed them on a growth indicator as well as a sustainable development indicator with other control variables using panel data. Our results confirmed that an increase in banking efficiency driven by competition and financial innovation would improve economic growth and development. However, the growth or development effect of financial innovation is sensitive to the choice of proxy. While the two proxies of competition were significant, the financial innovations were not significant; one displayed a negative, while the other exhibited a positive relationship with development. These results revealed the differential effects of different financial innovations adopted in the financial system. A reduction in demand for money caused by financial innovations could deter economic growth and development. This implies that individuals would move away from more liquid assets to less liquid assets, which in turn discourage consumption. On the other hand, financial innovations could potentially lead to an increase in money demand if payment systems improve and individuals demand more

liquid assets, hence, consumption is encouraged. By implication, production would increase, leading to an increase in growth and development. Our findings here reaffirm the submission of Adu, Marbuah, and Mensah (2013) who state that, whether financial development is good or bad for growth depends on the indicator used to proxy for financial development. We therefore propose that policies that can drive competition and efficiency in the banking industry, as well as a growth-enhanced innovation, should be introduced to ensure effective functioning of the financial system.

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Abstract (in Polish)

Innowacje finansowe są nieodzownym elementem współczesnego systemu finansowego. Badania zaprezentowane w artykule dotyczą znaczenia innowacji finansowych dla konkurencji bankowej oraz ich wpływu na zrównoważony rozwój w ośmiu krajach Afryki Zachodniej i zostały oparte na wskaźnikach rozwoju opracowanych przez Bank Światowy z lat 2000-2013. W badaniach jako zmienne objaśniane wykorzystano wskaźnik wzrostu jak i rozwoju, a wśród zmiennych objaśniających znalazły się między innymi dwie zmienne opisujące konkurencyjność, dwie zmiennie określające innowacje finansowe. Na podstawie analizy danych panelowych stwierdzono, że wzrost efektywności w systemie bankowym wywołany przez konkurencję i innowacje finansowe przyczynia się do wzrostu gospodarczego i rozwoju. W modelach dwie zmienne objaśniające w zakresie konkurencyjności okazały się statystycznie istotne, natomiast zmienne w zakresie innowacji finansowych nie były istotne – jedna wykazywała negatywny, podczas gdy druga pozytywny wpływ na wskaźniki rozwoju. Badania ujawniły zróżnicowane efekty innowacji finansowych zaadaptowanych w systemach finansowych, co oznacza, że efekt wzrostu wywołany przez innowacje finansowe jest wrażliwy na dobór zmiennej objaśniającej. Zmniejszenie popytu na pieniądz wywołane innowacjami finansowymi może spowolnić wzrost gospodarczy i rozwój. Wynika to z faktu, że osoby fizyczne mogą konwertować swoje aktywa z bardziej płynnych na mniej płynne. Z drugiej strony innowacje finansowe mogą potencjalnie wpłynąć na wzrost popytu na pieniądz jeżeli system płatności zostanie usprawniony i indywidualny popyt na bardziej płynne aktywa zostanie przeniesiony na sektor produkcyjny. W związku z tym stwierdza się, że w celu zapewnienia funkcjonowania efektywnego systemu finansowego polityka powinna pobudzać konkurencję i efektywność w systemie bankowym jak i innowacje finansowe.

Słowa kluczowe: *innowacje finansowe, konkurencja, rozwój, Afryka.*

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Information Transparency of the Statement of Comprehensive Income: The Reporting Practice of WIG30 and DAX Companies

Jacek Gad[1]

Abstract

This article aims to identify changes in the form of the statement of comprehensive income in companies in the WIG30 and DAX indices. It also aims to identify and grade components of other comprehensive income, in terms of the information transparency of the presentation options. The article demonstrates also the impact of national cultural dimensions on the form of the statement of comprehensive income. The study found that most of the surveyed companies present their statement of comprehensive income in two statements, with the number of accounting notes regarding comprehensive income presented by companies in their financial statements increasing over the period under study. The study identified four options for the presentation of other comprehensive income components used by the surveyed companies in the years 2012-2014, with the particular option chosen reflecting the different information transparency of the statement of comprehensive income. The results show that the practice of reporting in the area of the statement of comprehensive income of the DAX index companies is ahead of that in the WIG30 index. The research results on information transparency of the statement of comprehensive income correspond to one of the national cultural dimensions.

Keywords: *financial statements, comprehensive income, WIG30, DAX, information transparency.*

INTRODUCTION

Contemporary changes in economic reality are accompanied by changes in the tools with which companies communicate with the environment, including changes in the financial statements. Year on year, the financial statements of public companies are getting longer, and their form is also evolving. Globalization, the expanding scope of services provided, the

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increasingly widespread use of financial instruments, and the constantly increasing information requirements resulting from IFRS, result in new areas which require more detailed information in the financial statements. The key question seems to be whether the increased scope and change in form of presenting information in the financial statements streamlines the communication process or causes misinformation.

In Europe, comprehensive income is a relatively new concept, and it appears that the problem of misinformation among users of financial statements may be caused by new concepts of reporting. Given the lack of European experience in the area of presenting components of other comprehensive income, it seems that research in this area is justified. Importantly, other comprehensive income provides an excellent platform for international comparative research. Regardless of the sector in which companies operate or location within the European Union capital market on which they are listed, the components of other comprehensive income are similar, despite being presented in various forms.

This article aims to identify changes in the form of the statement of comprehensive income in companies in the WIG30 (the Warsaw Stock Exchange Index comprises the 30 largest joint-stock companies in Poland) and the DAX (Deutscher Aktienindex is the main German stock index. It comprises the 30 largest joint-stock companies) indices. It also aims to identify and grade components of other comprehensive income in terms of the information transparency of the presentation options. The article also includes the effect of national cultural dimensions on the form of the statement of comprehensive income.

The study identified four options for the presentation of other comprehensive income components used by the surveyed companies in 2012-2014. It seems that the particular option chosen for the presentation of the items of other comprehensive income may reflect the varied information transparency of the statement of comprehensive income. It should be noted that according to the efficient market theory the form of presentation of comprehensive income is not important, because it does not affect the investors' decisions, as they have all known information (Turktas, Georgakopoulos, Sotiropoulos & Vasileiou, 2013 p. 1; Rees & Shane, 2012, p. 807). At the same time Hirst and Hopkins (1998, p. 49) and Maines and McDaniel (2000, pp. 180-182) suggest that the form of presentation of components of comprehensive income can affect how investors interpret information. This view is shared by Bamber, Jiang, Petroni and Wang (2010, p. 99), who noticed, that if investors only focus on the bottom line items and the statement of comprehensive income is drawn up together with the profit and loss account, it is possible that they overemphasize the components

of other comprehensive income. Therefore, because the components of other comprehensive income are generally volatile and transitory, it may make investors think that performance of the company is more volatile. It seems, therefore, that research concerning the form of the statement of comprehensive income is justified.

The content presented in this article was prepared based on literature studies and an analysis of 180 consolidated financial statements from public companies. The inductive reasoning was used in the article. The research process involved descriptive statistics, and the structural similarity index. The structure of this paper is as follows. The first section presents considerations on the lack of information transparency of modern financial statements. The second section indicates the guidelines of IAS 1 on the presentation of components of other comprehensive income. The third section presents the results of research on comprehensive income conducted by research centres around the world. The fourth section contains the results of empirical research conducted by the author on the presentation of the components of other comprehensive income by public companies in Poland and Germany.

LITERATURE REVIEW

Transparency of financial statements in the presence of an excess of information in the reports of companies

As shown by research results, an increase in the amount of information contained in the financial statements does not always increase their usefulness (International Accounting Standards Board [IASB], 2013). Increasingly, it has been suggested that, rather than increasing the amount of information, it should be reduced, simplified. It is extremely difficult to find a happy medium in this area. These are the dilemmas which face company management and organizations developing reporting standards.

The length of financial statements increases from year to year. This is confirmed by the results of research conducted by Deloitte among the companies listed on the London Stock Exchange (Deloitte, 2010). As noted by Vos (2013a, p. 24), too long financial statements are less effective as a communication tool between a company and its environment. Users are not able to understand the essence of the economic situation of the entity, because they are too involved in the quest for the essence. Too long financial statements confuse users, and information overload begins to obscure the relevant information (Vos, 2013a, p. 26; Vos, 2013b, p. 55).

Another problem concerns the form of presentation of information in financial statements. The results of a survey conducted in 2012 among members

of the Chartered Financial Analyst Institute (the CFA Institute) indicate that "investors believe improved financial statement presentation is a key element to improving financial reporting because poor financial statement presentation limits transparency" (CFA Institute, 2013, p. 18). A survey implemented by the CFA Institute (2013, p. 6) found that as many as 82% of investors indicated that the priority changes in financial reporting should include an improvement to the presentation of information in financial statements, including improvement in the consistency of the information contained therein.

The problem of a lack of information transparency in financial statements, to the greatest extent, relates to the notes. The Financial Accounting Standards Board (FASB) and the European Financial Reporting Advisory Group (EFRAG) are currently making efforts to create an overriding conceptual disclosure framework, which is aimed at making disclosures more organized. Disclosures should also contain less unnecessary information. It should be noted, however, that these efforts are not entirely consistent with the expectations of investors. The study conducted by the CFA Institute (2013, p. 7) found that as many as 85% of investors indicated that before a disclosure framework concerning information in the notes has been prepared, standards' setters should once again examine what information is now presented in the financial statements.

According to P. Lee, from the perspective of users, more information is not necessarily better, just as less information is not necessarily better, instead, better quality information is needed (IASB, 2013, p. 6). This view is shared by Walińska (2009, p. 164), according to whom the real challenge today is not to increase the amount of disclosures, but to provide relevant and useful information, and present it in an intelligible form.

It seems that, especially from the point of view of utility of the statement of comprehensive income, the proper form of presentation of information is crucial, because the form may be determined not only by the regulations but may also depend on cultural values of the country. The literature indicates that the differences between the models of accounting are caused by cultural values which affect the institutional structure of particular countries (Doupnik & Salter, 1995; Lawrence, 1996).

Presentation of information on other comprehensive income under IAS 1

The presentation of comprehensive income is associated with the use of a valuation model which applies "clean surplus accounting." The approach of clean surplus accounting is related to the fact that the income statement reflects all changes in equity, excluding transactions with owners (Ohlson, 1995; Feltham & Ohlson, 1995; Szychta, 2012).

Comprehensive income comprises all components of the profit and loss account and other comprehensive income (International Accounting Standard 1 [IAS 1], 2008, paragraph 7).

The concept of comprehensive income was implemented to International Accounting Standards (IAS/IFRS) in 2008 (IAS 1, 2008). Since 2009, companies which prepare their financial statements in accordance with IAS/IFRS have been required to present comprehensive income. IAS 1 provides only general guidance as to the structure and content of the financial statements, including the statement presenting other comprehensive income.

As regards the method of presentation of items of other comprehensive income, the entities can choose from two options (IAS 1, 2008, paragraph 81):

- Option I – a single statement of profit or loss and other comprehensive income.
- Option II – two statements: a statement of profit or loss and a second statement, which shall begin with the net profit (loss) and present items of other comprehensive income.

Two forms of presenting the tax effects relating to other comprehensive income are also allowed. An entity may present items of other comprehensive income either net of related tax effects or before recognizing any tax effects (IAS 1, 2008, paragraph 91).

Reclassification adjustments are an important part of the statement of comprehensive income. They can be presented among items of other comprehensive income or in the notes. The principles of presenting other comprehensive income were amended in 2012 (IAS 1, 2012). Entities shall apply those amendments for annual periods beginning on or after 1 July 2012, and entities required to comply with IAS/IFRS must apply the provisions of the IAS 1 amended in 2012, which implies e.g. the breakdown of items of other comprehensive income into two sections (IAS 1, 2012). The first section relates to items that will not be reclassified to net profit (loss), while the second section presents the items that will be subsequently reclassified to net profit (loss) when specific conditions are met. IAS 1 does not provide guidance as to how each section presents items of other comprehensive income.

Other comprehensive income as part of the financial statements: The main conclusions from global research

Views on the usefulness of information contained in comprehensive income are varied. The main argument in favour of the limited usefulness of items of other comprehensive income is the fact that they are transitory in nature. They do not concern the basic activities and are limited in usefulness,

in comparison with the net profit or loss, in forecasting cash flows of the company. It is also noted that items of other comprehensive income produce information noise, which makes the performance of an entity more difficult to predict (Black, 1993; Dhaliwal, Subramanyam & Trezevant, 1999; Holthausen & Watts, 2001; Barton, Hansen & Pownall, 2010). Supporters of the presentation of other comprehensive income indicate that the net profit or loss together with other comprehensive income reflect all sources of value creation (Johnson, Reither & Swieringa, 1995; Smith & Reither, 1996). The introduction of comprehensive income was a response to the problem of creative accounting and lack of transparency (O'Hanlon, 2000, p. 1303). Companies shifted some of their revenues and expenses to equity in order to eliminate their impact on net profit or loss. In this way, companies could manipulate users of financial statements, since they were more focused on the financial result than on changes in the level of equity (Marcinkowska, 2003, p. 95; Bek-Gaik, 2013, p. 908). Comprehensive income can eliminate this problem.

The results of studies on the usefulness of disclosures on comprehensive income are not clear. According to Cheng, Cheung and Gopalakrishnan (1993, pp. 195-203), investors pay more attention to operating than non-operating items. Studies in the USA indicate that investors attach particular importance to the two components of other comprehensive income, i.e., to gains and losses arising from translating the financial statements of foreign operations and unimplemented gains and losses from investments in equity instruments measured at fair value through other comprehensive income (Chambers, Linsmeier, Shakespeare & Sougiannis, 2007, pp. 557-593).

The results of studies carried out among European countries indicate that comprehensive income is value relevant, but less so than net profit or loss (Lin, 2006, pp. 1110-1141). Significantly, the results confirm that the format of the presentation of comprehensive income is important from the point of view of investors. At the same time, taking into account differentiated results of studies, it is difficult to identify clearly which form of presentation they prefer (Chambers et al., 2007, p. 559; Maines & McDaniel, 2000, pp. 180-182; Hirst & Hopkins, 1998, pp. 48-50).

Regarding the problem with the presentation of components of other comprehensive income within the income statement or as a separate statement, the studies indicate a failure to gain more information related to the reporting of comprehensive income in a separate statement (Chambers et al., 2007, pp. 559-560). As noted by Rees and Shane (2012, p. 809), there are no reliable research results in this area.

The issue of reclassification is crucial when considering comprehensive income. In accordance with IAS/IFRS, reclassification should not be made in

the event of gains or losses arising from defined benefit plans and in the event of gains and losses from the revaluation of fixed assets and intangible assets (Rees & Shane, 2012, p. 810). What is important is that users of information (both experts in the field of accounting, and others) pay more attention to items of comprehensive income which are not subject to reclassification. According to Tarca, Brown, Hancock, Woodliff, Bradbury and van Zijl (2008, pp. 184-217), this is due to the fact that reclassification introduced additional difficulties which complicate the process of obtaining information.

RESEARCH METHODS

The examined group comprised companies in the Polish WIG30 index and the German DAX index. Companies in the DAX index: ADIDAS, ALLIANZ, BASF, BAYER, BEIERSDORF, BMW, COMMERZBANK, CONTINENTAL, DAIMLER, DEUTSCHE BANK, DEUTSCHE BOERSE, DEUTSCHE POST, DEUTSCHE TELEKOM, E.ON, FRESENIUS MEDI, FRESENIUS, HEILDELBERG CEMENT, HENKEL, INFINEON TECH, K+S, LANXESS, LINDE, LUFTHANSA, MERCK KGAA, MUNICH RE, RWE, SAP, SIMENS, THYSSENKRUPP, VOLKSWAGEN. Companies in the WIG 30 index: ALIOR, ASSECO, BORYSZEW, BZ WBK, CCC, CITI HANDLOWY, CYFROWY POLSAT, ENEA, EUROCASH, GRUPA AZOTY, GTC, ING BANK ŚLĄSKI, JSW, KERNEL, KGHM, LOTOS, LPP, BOGDANKA, mBANK, NETIA, ORANGE, ORLEN, PGE, PGNIG, PKO BP, PKO SA, PZU, SYNTHOS, TAURON, TVN. One hundred and eighty consolidated financial statements for the years 2012-2014 were examined.

These entities were selected because of the similar number of companies in the WIG30 index and the DAX index, which facilitated comparability. Since 2009, companies operating both on the Polish and German capital markets have been obliged to present other comprehensive income. This fact facilitated an analysis of the changes in reporting practice in this area. The companies in the WIG30 were chosen for the study due to the fact that the Warsaw Stock Exchange is the largest stock exchange in those countries which are “new” Member States of the European Union. In turn, companies in the German DAX index were chosen for the study due to the fact that the German economy is the strongest in the European Union. It seems, therefore, that the companies in the DAX index are an appropriate benchmark for comparative research. Importantly, the examined entities operate in the same continental accounting model.

The companies surveyed represented nine sectors among which Heavy Industry, Finance, and IT and Telecommunications were predominant (see Table 1).

Table 1. Breakdown by sectors of the WIG 30 and DAX companies

N.	Sector	WIG 30 (%)	DAX (%)
1.	Heavy industry	40.0	36.7
2.	Finance	26.7	13.3
3.	IT and Telecommunication	10.0	13.3
4.	Trade	10.0	3,3
5.	Media	6.7	0.0
6.	Light industry	3.3	20.0
7.	Construction	3.3	3.3
8.	Services	0.0	6.7
9.	Capital market	0.0	3.3

The study has determined how the form of the statement of comprehensive income among companies in the WIG30 and DAX indices changed in the period. It was crucial to determine how the change in the form of the statement of comprehensive income affected the information transparency of this statement. It should be noted that the transparency of information is a subjective concept, in this article it has been evaluated by the Author. The results indicate that the average share of other comprehensive income in the net profit (loss) increased in companies in both indices in the period. In addition, the share was much higher in the case of the DAX index (see Table 2).

For 75% of the surveyed companies in the WIG30, the average share of other comprehensive income in the net profit (loss) for the period was 22.2% or less in 2012, 14.4% or less in 2013 and 20.2% or less in 2014, while for 75% of the surveyed companies in the DAX index the share of other comprehensive income in the net profit (loss) stood at 60.9% or less in 2012, 69.6% or less in 2013 and 98.6% or less in 2014. In 2014, the standard deviation for companies in the WIG30 was 41.9%, while in the case of the DAX it was as much as 84.2%. This means that in 2014 the average share of other comprehensive income in the net profit (loss) was more varied in the case of the DAX index than in the case of companies in the WIG30.

Considering the average share of other comprehensive income in the net profit (loss), it can be concluded that for companies both in the WIG30 and the DAX indices other comprehensive income is a significant value.

Table 2. Descriptive statistics on the average share of other comprehensive income in the net profit (loss) in the surveyed companies

	WIG30 (%)			DAX (%)		
	Year 2012	**Year 2013**	**Year 2014**	**Year 2012**	**Year 2013**	**Year 2014**
Arithmetic average	19.0	23.7	23.9	39.0 *	62.3	78.5 **
Median	10.7	7.1	10.2	31.1	24.09	50.5
Percentile 25	4.9	2.0	4.9	9.1	11.1	29.8
Percentile 75	22.2	14.4	20.2	60.9	69.6	98.6
Standard deviation	22.1	53.9	41.9	38.6	89.2	84.2
Minimum value	0.0	0.0	0.1	0.5	0.4	1.7
Maximum value	106.1	222.2	199.5	1964.3	330.5	2602.7

* While calculating the arithmetic mean and standard deviation, one extremely high value was omitted (this concerned COMMERZBANK, where the share of other comprehensive income in the net profit stood at 1964.3%).
** While calculating the arithmetic mean and standard deviation, one extremely high value was omitted (this concerned Lufthansa, where the share of other comprehensive income in the net profit stood at 2602.7%).

The study also determined the average share of other comprehensive income in total assets. In the case of both indices, the average share was not more than 2.0% (see Table 3). It seems, therefore, that in terms of the average share of other comprehensive income in total assets, it is not a significant item. The average share of comprehensive income in total assets is declining from year to year for the DAX companies. On the other hand, in the case of companies in the WIG30 index, the average share decreased in 2013, but increased significantly in 2014.

Table 3. Descriptive statistics on the value of the average share of other comprehensive income in total assets of the surveyed companies

	WIG30 (%)			DAX (%)		
	Year 2012	**Year 2013**	**Year 2014**	**Year 2012**	**Year 2013**	**Year 2014**
Arithmetic average	0.7	0.3	1.3	1.9	1.4	2.0
Median	0.4	0.2	0.4	1.0	1.0	1.8
Percentile 25	0.2	0.1	0.1	0.2	0.3	0.9
Percentile 75	1.0	0.4	1.3	1.9	2.0	2.8
Standard deviation	0.8	0.4	2.3	3.6	1.4	1.5
Minimum value	0.0	0.0	0.0	0.0	0.0	0.0
Maximum value	3.4	1.5	11.2	20.4	6.6	6.4

In 2014, for 75% of companies in the DAX index, the average share of other comprehensive income in total assets was 2.8% or less, while in the same year for 75% of the surveyed companies in the WIG30, the average share of other comprehensive income in total assets was 1.3% or less. The results confirm the high volatility of other comprehensive income.

ANALYSIS AND STUDY

In the first place, the study established the general form of the statement of comprehensive income. Over the period, companies in the DAX index presented the components of other comprehensive income in two statements, with most companies in the WIG30 index also using this form of presentation. At the same time, 40% of companies from this index in 2012 and 36.7% in the period from 2013 to 2014 presented comprehensive income within a single statement.

Over 80% of the DAX companies presented profit and loss account and the statement of other comprehensive income in two separate pages of the annual report. In addition, every year the share of companies opting for this form of presentation increases. A similar tendency can be observed also among companies in the WIG30 index. This share, however, is significantly lower in comparison to the DAX index companies. This is because some WIG30 companies present the profit and loss account and statement of other comprehensive income in one report (see Table. 4).

Table 4. The general form of presentation of the statement of comprehensive income used by the WIG30 and DAX companies

	WIG 30 (%)			DAX (%)		
	Year 2012	Year 2013	Year 2014	Year 2012	Year 2013	Year 2014
Presentation of the profit and loss account and statement of comprehensive income in one statement	40.0	36.7	36.7	0.0	0.0	0.0
Presentation of the profit and loss account and statement of comprehensive income in two statements	60.0	63.3	63.3	100	100	100
Presentation of the profit and loss account and statement of comprehensive income on one page in the annual report	53.3	46.7	43.3	16.7	13.3	10.0
Presentation of the profit and loss account and statement of comprehensive income on two pages in the annual report	46.7	53.3	56.7	83.3	86.7	90.0

The results show that to a large extent the presentation of the profit and loss account and the statement of other comprehensive income on one

or two pages of the annual report coincides with their presentation within one or two statements. In 2012, one company, and in 2013 and 2014, two WIG30 companies presented the profit and loss account and statement of other comprehensive income on two pages of the annual report, even though they were drawn up within a single statement. On the other hand, in the years 2012-2013 five WIG30 companies, and in 2014 four WIG30 companies presented the profit and loss account and the statement of other comprehensive income on one page of the annual report, although these were separate statements.

Most companies within both indices presented deferred tax in the statement of comprehensive income (see Table 5). This form of presentation seems to be beneficial for users of the financial statements, as they do not have to look for that information in the notes. In most cases, the investigated companies presented the total amount of deferred tax on all components of other comprehensive income in the statement of comprehensive income. Selected companies presented the deferred tax for each component of other comprehensive income, while other companies of the DAX index presented the gross amount, the net amount and the deferred tax for each component of other comprehensive income.

Table 5. Percentage share of companies within the WIG30 and the DAX indices presenting deferred tax in the statement of comprehensive income

	WIG30 companies (%)			DAX companies (%)		
	Year 2012	Year 2013	Year 2014	Year 2012	Year 2013	Year 2014
Presentation of deferred income tax in the statement of comprehensive income	66.7	73.3	76.7	66.7	66.7	66.7

The results show that companies in the DAX index presented more components of other comprehensive income. Some components of other comprehensive income were presented by all companies of the DAX index (e.g. *Actuarial gains and losses on defined benefit plans* in the years from 2013 to 2014).

The companies in the WIG30 and DAX indices most often presented the item *Gains and losses arising from translating the financial statements of foreign operations.* The share of companies in the WIG30 index which did not present any notes on the components of other comprehensive income decreased over the period. In companies in the DAX index, this share declined over the years 2012-2013, then rose again in 2014 (see Table 6). In 2013 and 2014, in the case of both indices, most companies presented the notes

on the components of other comprehensive income. Moreover, for most companies (mainly in the DAX index), an increase in the number of notes was accompanied by more information in the statement of other comprehensive income.

It should be noted that in 2014, the share of companies presenting a certain number of notes was very similar in both indices (the structural similarity index was as high as 0.93).

Table 6. The percentage share of companies presenting a certain number of notes on the components of other comprehensive income

	WIG30 (%)			DAX (%)		
Number of notes	**Year 2012**	**Year 2013**	**Year 2014**	**Year 2012**	**Year 2013**	**Year 2014**
0	50.0	43.3	43.3	50.0	33.3	40.0
1	26.7	26.7	23.3	20.0	23.3	20.0
2	20.0	13.3	13.3	13.3	23.3	13.3
3	0.0	10.0	13.3	6.7	10.0	16.7
4	0.0	3.3	3.3	6.7	3.3	3.3
5	3.3	3.3	3.3	3.3	6.7	6.7

Four options of presenting the components of other comprehensive income can be identified in the reporting practice of the examined companies, with individual options reflecting the different levels of information transparency. It seems that the higher the option, the higher the level of transparency (Option No 1 – low level of information transparency, Option No. 4 – high level of information transparency) (see Table 7).

Option No 1 involves the presentation of the components of other comprehensive income in one group (without distinguishing items subject or not subject to reclassification and without specifying the value of reclassification adjustments). Under Option No 2, the components of other comprehensive income were divided into two groups, the first of which presented the components of other comprehensive income subject to reclassification to profit or loss (without specifying the value of reclassification adjustments), while the second group presented items not subject to reclassification to profit or loss (Option 2A). One of the companies in the WIG30 index presented the components of other comprehensive income in one group, while pointing out the total value of components subject and not subject to reclassification (Option 2B). Under this option, reclassification adjustments should be presented in the notes. Under Option No 3, the companies presented the components of other comprehensive income in a single group. Among the components of other comprehensive

income (subject to reclassification), companies presented the change in value of the components of other comprehensive income during the financial year (not recognized in the income statement) as well as reclassification adjustments. Option 4 is the resultant of Option No 2 and Option No 3. Under this option the components of other comprehensive income were divided into two groups, the first of which presented the components subject to reclassification to profit or loss, and the second, in turn, the components not subject to such reclassification. In the first group of individual components there was detailed information on the reclassification to net profit (loss) and changes in fair value not recognized in profit or loss for the period. It appears that option 4 provides full information on comprehensive income.

The concept of comprehensive income is fairly complex. A change in the value of a given component of other comprehensive income may result both from the valuation of this component, as well as from the reclassification to profit or loss of the current period. In a situation where an entity does not present reclassification adjustments in the statement of comprehensive income, it should disclose this information in the notes. The practice of reporting indicates, however, that companies do not disclose this information in the notes either, with a number of the surveyed companies not drawing up notes concerning other comprehensive income. Therefore, if the companies do not present reclassification adjustments (in the statement of comprehensive income or in the notes), the users of financial statements do not have full information on the comprehensive income. The form of presentation and the resulting transparency of the statement of comprehensive income are of fundamental importance in terms of its usefulness.

The results show that, despite companies of the two indices applying the same regulations, the form of presenting the components of other comprehensive income varied and changed over the period. In 2012, among companies in the WIG30 index, as many as 83.3% chose Option No 1, while in the same year, only 46.7% of the DAX companies chose this option. At the same time, 43.3% of the companies in the DAX index presented the items of other comprehensive income under Option No 3, and thus disclosed reclassification adjustments in the statement of comprehensive income. The year 2013 was crucial in terms of the presentation of the items of other comprehensive income. Since 1 January 2013, companies have been required to present the components of other comprehensive income in two groups, i.e. items subject or not subject to reclassification to net profit (loss) (see Table 8).

Table 7. Four options for presenting the components of other comprehensive income by the examined companies in the WIG30 and DAX

Options of presentation		Items of other comprehensive income
Option 1		Item of other comprehensive income Item of other comprehensive income Deferred taxes
Option 2	A	Items of other comprehensive income that will be reclassified subsequently to profit or loss Item of other comprehensive income Item of other comprehensive income Deferred taxes Items of other comprehensive income that will not be reclassified subsequently to profit or loss Item of other comprehensive income Item of other comprehensive income Deferred taxes
	B	Item of other comprehensive income Item of other comprehensive income including: Value of items of other comprehensive income that will be reclassified subsequently to profit or loss Value of items of other comprehensive income that will not be reclassified subsequently to profit or loss
Option 3		Item of other comprehensive income Reclassifications to net income Changes arising during the year Deferred taxes Item of other comprehensive income Reclassifications to net income Changes arising during the year Deferred taxes
Option 4		Items of other comprehensive income that will be reclassified subsequently to profit or loss Item of other comprehensive income Reclassification to net income Change in value not recognised in income statement Item of other comprehensive income Reclassification to net income Change in value not recognised in income statement Income taxes relating to components of other comprehensive income * Items of other comprehensive income that will not be reclassified subsequently to profit or loss Item of other comprehensive income Item of other comprehensive income Income taxes relating to components of other comprehensive income

* Some companies presented income tax attributable to each item of other comprehensive income (e.g. THYSSENKRUPP, BAYER, MERCK).

It should be noted that in 2013, 10% of companies in the WIG30 index and 6.7% of the DAX index companies did not comply with the provisions of the amended IAS 1. In 2013, as many as 90% of companies in the WIG30,

chose Option No 2, i.e. they divided the items of comprehensive income into two groups in their statements, i.e. items that are subject or not subject to reclassification. The same option was applied by 46.7% of the DAX companies. What is also important is the fact that up to 46.6% of companies in the DAX index went a step further in the process of improving the statement of comprehensive income. These companies presented the items of other comprehensive income under Option No 4, i.e. not only dividing the items of comprehensive income into two groups, but also presenting reclassification adjustments. In this context, one can say that the practice of reporting used in 2013 by companies in the DAX was characterized by greater transparency.

In 2014, the share of companies which presented the items of other comprehensive income under Option No 1 decreased in both indices, and stood at 3.3% among companies in the WIG30 and 6.7% among companies in the DAX index. Almost all companies (96.7%) in the WIG30 presented the items of other comprehensive income under Option No 2. In the case of the DAX index, the items of other comprehensive income were presented under Option No 2 by 40% of companies, while over 50% of the DAX companies presented the items of other comprehensive income under Option No 4.

Treating consecutive options of the presentation of items of other comprehensive income as stages of the development of reporting in the area of comprehensive income, it can be concluded that the practice of reporting companies in the DAX index is ahead of the practice of reporting companies in the WIG30.

Table 8. The percentage share of companies in the WIG30 and the DAX presenting items of other comprehensive income in accordance with one of the four options

		WIG30 (%)			DAX (%)		
Options of presentation		**Year 2012**	**Year 2013**	**Year 2014**	**Year 2012**	**Year 2013**	**Year 2014**
Option 1		83.3	10.0	3.3	46.7	6.7	6.7
Option 2	Option 2A	16.7	90.0	93.4	10.0	46.7	40.0
	Option 2B	0.0	0.0	3.3	0.0	0.0	0.0
Option 3		0.0	0.0	0.0	43.3	0.0	0.0
Option 4		0.0	0.0	0.0	0.0	46.6	53.3

The difference in the form of presenting the statement of comprehensive income by companies in both indices increased in the period. This was confirmed by the increasingly lower value of the structural similarity index. In 2012 the index stood at 0.56, while in 2014 at 0.43 (see Table 9). It should be

noted that in all years the index was at a level of 0.4 to 0.6, which means that the structures are fairly similar.

Table 9. Structural similarity index in the years 2012-2014

Structural similarity index value		
Year 2012	**Year 2013**	**Year 2014**
0.57	0.53	0.43

The study sought to determine the impact of the sector in which individual companies operate, on the presentation of information on other comprehensive income. Three sectors were identified; those companies whose share in both indices was at least 10%. In the case of the WIG30 significant differences were not identified in the presentation of components of other comprehensive income in individual sectors. In 2012 option No. 1 prevailed, while in the years 2013-2014 option No. 2. Differences concerning the presentation of components of other comprehensive income depending on the sector are visible in turn in the DAX companies. In 2014, all Finance DAX companies presented the components of other comprehensive income under Option 4 (the highest degree of transparency). In the same year, 63.6% of companies from the Heavy Industry sector and 25% of companies from the IT and Telecommunication sector of the DAX index presented components of the other comprehensive income under Option 4 (see Table 10). The results indicate that in the case of the DAX companies there are significant differences regarding the presentation of the components of the other comprehensive income between the sectors.

The differences regarding the presentation of other comprehensive income by the DAX and WIG30 companies identified in the study may result from cultural differences. National cultural dimensions were the subject of research conducted by Hofstede and Hofstede (2007). They identified the following national cultural dimensions: large vs. small power distance; collectivism vs. individualism; masculinity vs. femininity; strong vs. weak uncertainty avoidance; long- vs. short-term orientation. According to the Author, taking into account the scope of optional disclosures, the dimension of national cultures concerning the avoidance of uncertainty seems to be particularly important.

Table 10. The percentage share of companies in the WIG30 and the DAX presenting items of other comprehensive income in accordance with one of the four options – by sectors

Options of presentation	WIG30 (%)			DAX (%)		
	Year 2012	Year 2013	Year 2014	Year 2012	Year 2013	Year 2014
Heavy Industry						
Option 1	75.0	0.0	0.0	54.5	0.0	0.0
Option 2	25.0	100.0	100.0	9.1	54.5	36.4
Option 3	0.0	0.0	0.0	36.4	0.0	0.0
Option 4	0.0	0.0	0.0	0.0	45.5	63.6
IT & Telecommunication						
Option 1	66.7	0.0	0.0	25.0	0.0	0.0
Option 2	33.3	100.0	100.0	50.0	75.0	75.0
Option 3	0.0	0.0	0.0	25.0	0.0	0.0
Option 4	0.0	0.0	0.0	0.0	25.0	25.0
Finance						
Option 1	100.0	12.5	0.0	0.0	0.0	0.0
Option 2	0.0	87.5	100.0	0.0	0.0	0.0
Option 3	0.0	0.0	0.0	100.0	0.0	0.0
Option 4	0.0	0.0	0.0	0.0	100.0	100.0

Poland is one of the countries with a high level of uncertainty avoidance index. Of the 74 surveyed countries, Poland ranked 9th in terms of uncertainty avoidance index. On the other hand Germany belongs to a group of countries with a moderate uncertainty avoidance index. Among 74 countries surveyed Germany ranked 43rd (Hofstede & Hofstede, 2007, p. 182). Uncertainty avoidance is defined as the level of threat perceived by members of the given culture in the face of a new, unknown or uncertain situation (Hofstede & Hofstede, 2007, p. 181). In countries with a low level of uncertainty avoidance index there is a higher level of innovation, while in countries with a high uncertainty avoidance index there is a higher accuracy of executing activities and a stronger need for their formalization. In countries with a high uncertainty avoidance index there is a need to cover everything in the provisions of law (Hofstede & Hofstede, 2007, p. 357). It seems that the level of uncertainty avoidance index is reflected in the disclosures presented by companies, the scope of which is not precisely defined in the provisions of law or good practices. To a certain extent the disclosures on the components of comprehensive income have such character. Entities operating in a country with a high uncertainty avoidance index (e.g., Poland) will choose

not to present detailed, non-compulsory disclosures. For countries with an average uncertainty avoidance index (Germany), the propensity to present optional disclosures will be higher. A higher level of transparency of the DAX companies, compared with the WIG 30 companies, was also confirmed in studies on the presentation of information in the management reports (Gad, 2016).

CONCLUSION

A key principle of the concept of comprehensive income is to increase the transparency of financial reporting. Components of other comprehensive income include capital gains and losses which, before the introduction of the concept of comprehensive income, were recognized only in equity items. According to the concept of comprehensive income, capital gains or losses of subsequent periods are presented beneath the current period's profit or loss.

It seems that an appropriate presentation is crucial in terms of understanding the concept of comprehensive income by users of financial statements. The lack of information on reclassification adjustments, or the disclosure of fragmentary information on this subject in accounting notes, may adversely affect the usefulness of the statement of comprehensive income.

The simultaneous implementation of the concept of comprehensive income in EU countries was an excellent opportunity to analyse the development of reporting practice in this area. During the period under study, all companies in the DAX index presented the components of other comprehensive income in two statements. In the case of companies in the WIG30, most (60-63%) also used this form of presentation. This form of presentation allows for a clear separation of revenues and costs of the current period from gains and losses.

Four options of the presentation of components of other comprehensive income were identified over the years 2012-2014. Under Option No 1, components of other comprehensive income were presented in one group, without distinguishing items subject or not subject to reclassification and without specifying the value of reclassification adjustments. Under Option No 2, components of other comprehensive income were divided into those items subject or not subject to reclassification (without indicating reclassification adjustments). Under Option No 3 (used by companies in the DAX index in 2012), components of other comprehensive income were not divided into those items subject or not subject to reclassification, and for each component of other comprehensive income (subject to reclassification), presented the value of reclassification adjustments. Option No 4 uses the division into

components subject or not subject to reclassification, as well as presenting the value of reclassification adjustments. Option No. 4, used by companies in the DAX index, reflects the highest level of information transparency. Despite the fact that the companies of the two indices were applying the same regulations, they presented components of other comprehensive income under different options. The study determined that the dynamics of change in financial reporting in the area of the presentation of components of other comprehensive income was higher in the case of companies in the DAX index. The reporting practice exhibited by some companies in the DAX index may be regarded as exemplary.

The results of research on forms of presentation of components of other comprehensive income by the WIG30 and DAX companies correspond to one of the national cultural dimensions identified by Hofstede and Hofstede (2007). Poland belongs to a group of countries with a high uncertainty avoidance index. This is manifested, among others, by the fact that companies avoid optional disclosures, not regulated by provisions of law. On the other hand, Germany is one of the countries with a moderate uncertainty avoidance index. The DAX companies present in their statements of other comprehensive income the information which is not required by IAS 1, and which according to the Author, increases the usefulness of this statement.

The article complements the existing knowledge on forms of presentation of the statement of other comprehensive income in the practice of Polish and German companies. The research presented in this article is a reference point for further research involving a larger number of companies. In addition, a comparative study of an international nature would make it possible to identify the impact of cultural values on the practice of reporting. Promotion of the research findings presented in this article may contribute to an improvement in the practice of reporting on the components of comprehensive income.

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Abstract (in Polish)

Celem artykułu jest identyfikacja zmian formy sprawozdania z wyniku całościowego w spółkach należących do indeksów WIG 30 oraz DAX. Celem artykułu jest również identyfikacja oraz gradacja pod względem przejrzystości informacyjnej wariantów prezentacji składników pozostałego wyniku całościowego. W artykule uwzględniono również wpływ wymiarów kultur narodowych na formę sprawozdania z wyniku całościowego. W ramach badania ustalono, że większość badanych spółek prezentuje sprawozdanie z wyniku całościowego w ramach jednego sprawozdania. Na przestrzeni analizowanych lat zwiększyła się liczba not księgowych dotyczących wyniku całościowego prezentowanych przez spółki w sprawozdaniach finansowych. W procesie badawczym zidentyfikowano cztery warianty prezentacji składników pozostałego wyniku całościowego zastosowane przez badane spółki w latach 2012-2014. Poszczególne warianty odzwierciedlają różną przejrzystość informacyjną sprawozdania z wyniku całościowego. Wyniki badań wskazują, że praktyka sprawozdawcza w obszarze wyniku całościowego spółek z indeksu DAX wyprzedza praktykę sprawozdawczą spółek z indeksu WIG 30. Uzyskane wyniki badań dotyczące przejrzystości informacyjnej sprawozdania z wyniku całościowego odpowiadają jednemu z wymiarów kultur narodowych.

Keywords: *sprawozdania finansowe, wynik całościowy, WIG 30, DAX, przejrzystość informacyjna.*

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