RAPPORT
HÖGSKOLAN VÄST

Nr 2016:3

Maher Asal

Contemporary Problems in Corporate Governance

Contemporary Problems in Corporate Governance

Maher Asal (ed.)

Revised Papers presented at the 4th conference on Contemporary Problems in Corporate Governance, 6-8 May, 2015, the Faculty of Management, University of Gdansk, Sopot, Poland.

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ISBN 978-91-87531-30-9

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Preface

This Anthology consist of 7 revised papers, first presented and discussed at the 4th Conference on "Contemporary Problems in Corporate Governance", hosted by The Faculty of Management, University of Gdansk, Sopot, Poland, 6-8 May, 2015.

The aim of this conference was to bring together researchers from around the globe to discuss and exchange views on issues and challenges in an area of Corporate Governance that is gaining more and more impact in research and business practice. More than 50 researchers from different countries within the field of corporate governance have participated. During 3 days of sessions 30 papers were presented and discussed. The seven most preeminent research papers from the conference are published in this report after a blind peer review process.

Contents

The supervisory board activities in different types of subsidiaries

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Abstract

The business group is a specific type of an economic entity, because subsidiaries must achieve goals, which are a consequence of their role in the group and their supervisory board, in addition to obligations under the law, may engage to the management of subsidiary in many different ways. There are three generic types of subsidiaries: operational, cooperative and conglomerate. The results of the research conducted by the author show that depending on the type of the subsidiary, the supervisory board differently affects the management process in the subsidiary. In the case of operational subsidiary in the largest number of cases the supervisory board was identified as an industry-oriented type, in the case of cooperative type it was the active board type and in the case of the conglomerate type – finance-oriented type.

Keywords: Parent company, subsidiary, business group, supervisory board

JEL Classification: G30, G34, M19

Introduction

Proper supervision over enterprises, where ownership and management are separated, is an issue considered on many levels. The question of effectiveness of such supervision is usually raised after reports about the bankruptcy of another corporation, as a result of which the owners had to accept loss of the capital invested. Thus, despite broad literature on conducting effective ownership supervision, there is still a need for theoretical and empirical analysis of this phenomenon. Despite relatively good knowledge of this subject, an efficient theoretical model of ownership supervision has not been developed yet. Simultaneously, modern economy demonstrates a desire to "consolidate" organizations and combine them into broader economic organisms. As a result of merger and acquisition processes, entities operating in corporate group structures replace entities which are independent in terms of organisation and making decisions. And conversely – large companies "fall apart", e.g. by means of asset outsourcing a single organization is replaced by a number of legally independent entities connected by "capital ties". Supervision over such an entity is likely to be different from the supervision over an independent company. This is primarily due to the fact that the purpose of a subsidiary's operation is often directly dependent on the role it has been assigned by the parent entity. It may be implementation of a "part" of the parent entity's or the whole group's goal. Thus, supervision over performance of a subsidiary is crucial in the context of effective functioning of the whole business group.

A supervisory board is the main tool for the exercise of supervision, but also for affecting its current activities. The aim of this article is to analyse theoretical aspects of the supervisory board operation in a subsidiary, as well as to present the results of research on the role and activities of a supervisory board in various types of subsidiaries. The structure of the article is as follows. The first part discusses the nature and perception of a business group as a research object. The second part discusses the concepts of supervisory board functioning models. The third part presents a subsidiary typology, proposed by the author, research hypothesis and the results of empirical research. The study was conducted with the use of a questionnaire on a sample of 76 subsidiaries. The respondents were members of supervisory boards of these entities. The sample size does not allow for drawing conclusions with the use of descriptive statistics tools. These results, however, may be a basis for discussion, a contribution to further research as well as may let us formulate practical recommendations for actions of a supervisory board in subsidiaries of a business group.

Business group as an object of study

A business group is an unusual object in the management science. Legally speaking, such an organization consists of a number of separate companies, but in economic terms it is acknowledged an economic "unity". Therefore, on the one hand it is a multi-entity enterprise, as it consists of business units of different legal and economic status, on the other hand, these units form a single economic entity, common objectives and principles of operation of which are imposed and enforced by a "managing medium" [Allan, 1978, pp 341-344].

A business group can therefore be perceived in two ways. It can be treated as a single economic entity but one can also recognize performance of its parts. In theoretical terms, the group consists of two types of entities: the parent company and its subsidiaries. The parent company is a "commander" of the group. Through appropriate coordination of various elements it seeks to achieve its objectives. Subsidiaries are obliged, by various types of relations, to carry out the tasks arising from these objectives. Obviously, research on business groups has been carried out, but usually its proposals concern functioning of the group as a whole. Nowadays, one can also observe some kind of "specialization" trend in which researchers of business groups focus on a narrow issue of their operation, e.g. in the area of internationalization, diversification and structure [Romanowska (red.), 2011], value creation [Chadam, 2012], methods of development [Aluchna, 2010] or human resource management [Zając, 2012].

Nevertheless, a methodological question arises: can management science treat a subsidiary of a business group equally to a financially independent company? If not then, should business groups be analysed only as a whole or can one study its subsidiaries as separate entities, which in many ways differ from independent companies? The latter seems to be a more appropriate option. A subsidiary's incomplete autonomy in decision making the necessity to adapt its strategy to the group's objectives, restricted or completely "closed" path to external market, an imposed role in the value creation chain, limited technological and product-market innovation, these are just some aspects of strategic and operational management, which seem to differentiate subsidiaries from independent companies.

According to the data of the Central Statistical Office of Poland (GUS), entities which belong to a particular business group employ nearly 30% of all employed in enterprises, and their combined income is greater than the combined income of financially independent businesses [GUS 2014, p. 28]. Simultaneously over 80% of entities which belong to business groups are "single-storey" subsidiaries i.e. companies which simultaneously are not dominant towards any other entity of the group [GUS, 2014, p. 29]. These statistics show that subsidiaries of business groups should be "under constant observation" of researchers, especially that in some developed economies, their number begins to outweigh independent enterprises (excluding self-employment) [Heugens, Zyglidopoulos 2008, s. 328].

The issue of business group subsidiaries operation has not been particularly explored in Polish management science, nevertheless this topic has been covered, inter alia by J. Chadam [Chadam, 2002, pp 65-76], Z. Kreft [Kreft, 2003, pp 16-17] and B. Nogalski [Nogalski, 2002, pp 64-83] *.T. Falencikowski made an interesting contribution to the problem of subsidiaries functioning, by examining discretionary power in the management of a business group [Falencikowski, 2008]. However, the subject scope of this study was limited to entities within the business groups registered as tax capital groups†. Contribution to research on subsidiary performance can also be found in the publication by A. Broszkiewicz [Broszkiewicz, 2008, pp 26-29], which dealt with the subject of impact of foreign business groups on functioning of subsidiaries in Poland in the area of financial economy, management, production, sales, procurement, investment and human resources. Perception of subsidiaries through the prism of analysis of companies created and managed by foreign business groups is quite common, especially in the English-language publications, and resulted in a number of publications in this field. Moreover, this matter, though not new (see, e.g., [White, Poynter, 1984, pp 59-69], [Putti, Chong, 1985, pp 106-114], [Legewie, 2002, pp 901-919], [Harzing, Noorderhaven, 2006, pp 167-185], [Eckert et al, 2007, pp 7-27]), seems to be gaining in importance in the face of ever increasing globalization of the world economy and far-reaching internationalization of business organizations (see e.g. [Doherty, Teague, 2011, pp. 57-71], [Lin et al, 2013, pp 6-13], [Pisoni et al, 2013, pp 336-370]). However, it is unjustified to limit the study on performance of subsidiaries only to such companies whose parent entity is based in another country. Given the prevalence of this type of organizations and their role in modern economy one should gradually fill this gap, both conceptually and empirically.

The role of supervisory boards

Business group subsidiaries can be an object of research conducted from several different perspectives, for instance, economic efficiency, organizational culture, strategic management, people management, etc. It seems, however, that one of the first positions "on the list" should be held by the analysis of business groups

* The issue is, in turn, often discussed in literature in the field of Polish commercial law (see e.g. [Kwaśnicki, 2007], [Romanowski, 2008], [Blaszczyk, 2013]).

† According to the Ministry of Finance, in 2013 the number of tax capital groups operating in Poland was 31, compared to over two thousand business groups in total [GUS, 2014, p. 29].

from the perspective of ownership supervision held over subsidiaries, as in spite of extensive literature in this area, there still is a need for theoretical and empirical analysis of this phenomenon. An economic operator in turbulent environment demonstrates the need for an effectively functioning system of supervision. Supervisory boards are an essential element of such a system in the modern enterprise. The interest they raise is steadily growing. At the same time there is a relatively strong conviction about the need for fundamental changes in their functioning. Issue of understanding the role of a supervisory board in the process of enterprise management is gaining in importance. It should be noted that it does not seem sufficient for the board to perform only functions resulting from generally applicable legislation. A supervisory board should also operate in areas that do not fall within its "legal" duties. For instance, many strategic management specialists share the concept that board members should work closely with managers at the strategic decision-making process. They usually have broad experience and an ability to assess a situation correctly which increases the effectiveness of the control functions performed by the boards [Jeżak, 2006, 43-44]. Also A. Peszko [Peszko, 2006, p. 60] agrees with the view that the sphere of strategic management should be a special area of a supervisory board's interest.

Understanding of the role of the supervisory board as a solely "supervisory" and controlling body refers to the agency theory, in which the board cares primarily about the implementation of the owners' interests [Bathala, Rao, 1995; Hendry, 2005]. Its main task is then to monitor implementation of ownership objectives by those who manage the company. The so-called steward theory represents a completely different point of view, the keynote of which is not only to control the activities of managers but mainly to support them with knowledge and experience. The board by fulfilling their obligations in terms of initiating, approving and controlling the activities of management, should focus on the aspects of long-term survival and development of the company. From the research object's perspective the view expressed in the context of resource theory derived from the work of J. P. Barney is also very interesting. Regarding this theory, the actions of the board should focus on combining the interests of two or more organizations, by establishing ties to enable efficient allocation of resources [Wawrzyniak, 2000, p 26]. Also, management practices seem to head in the direction of increasing the supervisory board's role in the management process. It is worth noting that, according to research carried out by J. Jeżak and L. Bohdanowicz among others, managers want and expect help from the supervisory board at consulting and issuing opinions [Jeżak, 2010, p. 235]. This concept has been confirmed by the results of studies by B. Jasinski, which indicate the growing role of the supervisory board in a crisis situation [Jasiński, 2012]. Importance of the issues in question for the development of management science has been also recognized by state funding institutions which award grants in the field of the subject‡.

3. The typology of supervisory boards

One of supervisory board typologies is based on the criterion of activities undertaken by them. According to this theory, supervisory board members communicate with each other, as well as with the management, shareholders and business partners at the process of preparation, decision-making and control. Orientation adopted by the board in this process is crucial. This orientation can be of two types. Where the priority is the board's position in the capital market and/or financial results, we can talk about the **financial orientation** of the board. An **industry-oriented** board focuses primarily on technological innovation, research and development, product quality improvement, market opportunities or forecasts of the development of industries in which the company operates as well as the company's manner of operation in the market. The second criterion of distinguishing supervisory board types, according to this concept, is the degree of their involvement in activities specific to one and the other orientation. A low level of involvement indicates that functions of the board are limited, basically only to approving decisions of managers and *ex-post* control of their effects. A high degree of involvement demonstrates not only control but also initiation of certain actions. The board is actively involved in preparing decisions and the control process is based on the *ex ante* control of plans and *ex post* control of results. A combination of these two criteria allows to distinguish four types of supervisory boards [Działo, 2001; Jonnergard et al, 2004; Jonnergard, Karreman, 2004], as shown in Figure 1.

‡ For example the research project "The role of the supervisory boards in the process of formulating and implementing company strategies" implemented from 2011 to 2013 under the direction of prof. J. Jeżak and the research project "Professionalism in the functioning of the supervisory boards of joint stock companies", carried out in 2005-2006 under the direction of dr L. Bohdanowicz.

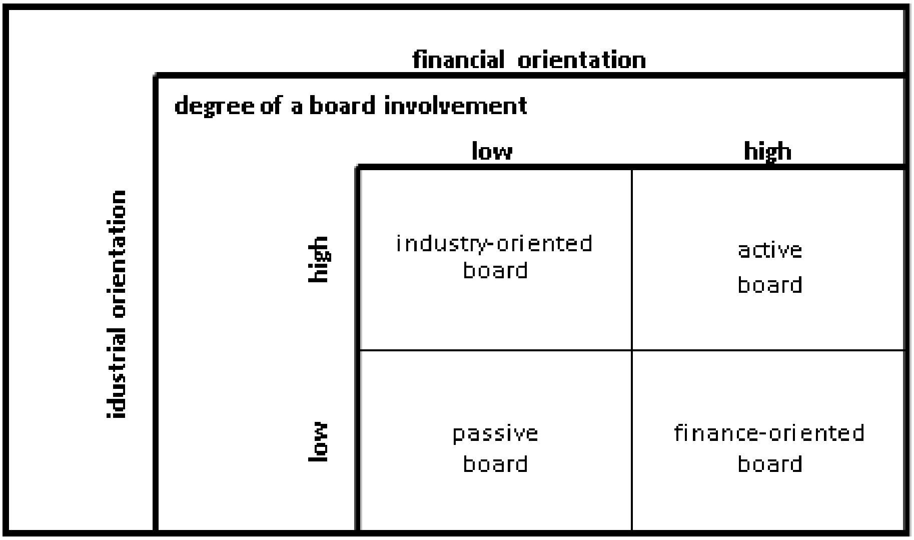

Figure 1. Types of supervisory boards distinguished by the type of orientation and the degree of involvement of a supervisory board.
Source: [Działo, 2001].

An active board is focused on both financial and industrial areas of the enterprise and while making decisions it takes the consequences of both these aspects into account. **An industry-oriented board** is mainly focused on industrial aspects of the company and thus on the situation on market for products and services. It pays less attention to financial issues. Similarly, a **finance-oriented board** focuses its attention on the issue of the company's (joint stock company's) position in the capital market. **A passive board** leaves active involvement almost exclusively in the hands of management. These two concepts form the basis for formulation of hypotheses concerning the types of operation of the supervisory boards of subsidiaries.

Typology of subsidiaries

Subsidiaries of a business group do not form a homogeneous group. Their most characteristic feature as economic entities is obviously being a part of a business group. However, there are many criteria that can be used to differentiate these entities. Some of these differentiate a whole class of companies. Such criteria may include for instance company size, geographical area of operation or industry. There is also, however, a number of criteria which differentiate subsidiaries within a business group. These criteria include: a level of location in the group's structure, the objective of functioning within the group, the method of "incorporation" of the entity into the group and the time of existence in the group, ownership structure of the company, "distribution" of decision-making powers in the supervisory bodies, the method of exercising supervisory functions by authorized bodies, etc. Therefore, various combinations arise, which increase the number of all possible types of subsidiaries to the extent that it seems impossible to carry out research, especially of a quantitative nature, which could cover all possible types thereof. Another issue is the (questionable) point of distinguishing research object classes based on so many criteria as well as the fact that due to the research focus, not all criteria seem to be relevant. Therefore, the author decided to focus on one differentiation criterion, namely on the subsidiary's "purpose of existence".

A typology of business groups according to this criterion was formed by M. Trocki. It has been based on a modified typology of forms of economic interdependence by J. D. Thompson. According to this concept, we can differentiate between the following types of business groups [Trocki, 2004, pp 71-72]:

1) operational – subsidiaries conduct activities supporting the primary operations of the parent company, which runs key business operations,

2) management – subsidiaries conduct operations focused on maximizing the synergistic effect between them, through functioning as successive stages of the value chain or assist each other in carrying out separate operations,

3) financial – subsidiaries conduct diversified operations, whereas the parent company focuses solely on managing its interests/shares.

On the basis of this typology the author divided subsidiaries into:

1) operating entities – activities focused almost exclusively on supporting the activities of the parent company,

2) cooperative entities – activities focused on collaboration with other entities within the group to maximize the synergistic effect, occurring in a particular subgroup,

3) conglomerate entities – the value for the group's operations is contributed in the form of a suitable financial result generated by them,

4) Hybrid entities – engaged in an activity that meets the demands of two or three different types.

The measure, which was adopted for the purpose of identification of a type of subsidiary is a subjective measure of involvement in activity which meets the demands of a given type. An objective measure could be for example the amount of revenue derived from activities of a particular type, however, first of all, the turnover size does not always reflect the company's level of commitment. Secondly, in the case of a capital group these values may not correspond to the actual involvement due to the application of transfer pricing for intra-group transactions [Amershi, Cheng, 1990, pp 61-99], [Pffeifer, Wagner, 2006, p 241-255].

Research questions, hypothesis and the results of empirical research

The objects of study were subsidiaries with a "single storey" structure, in which the subsidiary simultaneously was not a parent company to any other entity of the group. The second criterion for qualifying a subsidiary to the research group was that the parent company owned at least 95% of the shares of the subsidiary. This condition was aimed at exclusion of forcing upon the subsidiary "tunnelling-like" activities (e.g. [Baek et al, 2006, pp 2415-2449], [Siegel, Choudhury, 2012, pp 1763-1798], namely conscious acts to the detriment of the members or minority shareholders. At the same time, subsidiaries had already been operating for at least six years and, at the time of the study, were not designed to disintegrate (sale or liquidation). The study sample included only such subsidiaries whose nature, according to the purpose of functioning in the group, was unequivocal – operational, conglomerate and financial entities. The research hypothesis was not verified for hybrid entities. The number of possible "combinations" and thus the number of units that would have to be examined is so large that attempts to collect a minimally representative sample proved impossible.

The results of a survey conducted by the author were to answer, among others, the following question: is there a correlation between the subsidiary type and the role and type of actions undertaken by the supervisory board? The research aimed to provide information about what type of boards (active, finance-oriented, industry oriented, passive) are present in subsidiaries. The main goal was to find a relationship between a subsidiary type and the type of supervisory board, on the basis of the criterion of its actions, as well as to try to answer the question of why such a model prevails in subsidiaries of a given type.

On the basis of the analysis of literature and the author's research according to the case study methodology, a hypothesis has been formulated. It consisted of three parts verification of which was to answer the question posed.

Hypothesis 1a: The dominant (the largest number of cases) mode of action of a supervisory board in operational subsidiaries is based on the industry-oriented supervisory board type.

An operational subsidiary is designed to support the activity of the parent entity, thus the main interest of the supervisory board should lie in the matters of technological innovation, research and development, product quality improvement, forecasts for the development of industries in which the entity operates, and the like. The monitoring function performed by the board of such an orientation can be performed by tracking changes concerning for example the quality of the subsidiary's products or changes in the technological process.

Hypothesis 1b: The dominant mode of action of a supervisory board in cooperative subsidiaries is based on the active board type.

The purpose of a cooperative subsidiary operation is to maximize the synergistic effect in the subgroup, thus the board needs to focus on both financial and industrial aspects of the company's operations, it must also demonstrate a high degree of involvement in the implementation of its functions. The synergistic effect is dependent on the harmonious cooperation of all stakeholders, which is possible with strict control of the subsidiary operation.

Hypothesis 1c: The dominant mode of action of a supervisory board in conglomerated subsidiaries is based on the finance-oriented supervisory board type. Conglomerate subsidiaries operate "independently" of other entities in the group, thus the dominant model of functioning of the supervisory board in these entities should be finance-oriented, implementing the control function by monitoring the position of the company and tracking financial indicators, e.g. indicators of profitability or liquidity. Operational issues in such companies remain at the discretion of the board.

A questionnaire was the research tool of the study, whereas chairpersons of supervisory boards in subsidiaries were its respondents. Each of the possible board focus models (industry and finance) were assigned six areas in which a supervisory board may demonstrate commitment by counselling or initiating decisions.

In the case of an industry-oriented board the issues covered production and service efficiency, product quality improvement, organizational and personal potential, technological innovations, technical and production potential, as well as anticipated technical changes in the industry. In the case of a finance-oriented board the assigned areas included the subsidiary's value, financial results and profitability, financial situation, debt levels, market position and anticipated changes in the market.

The degree of activity of a supervisory board was assessed on the basis of frequency of involvement against a five-degree scale ranging from 0 points (very low involvement) to 4 points (very high involvement) in every of six assigned areas. Therefore, the total score ranges from 0 to 24 points. Depending on the number of points, assignment of the studied board to one of the four types followed. The assignment method has been demonstrated in Figure 2.

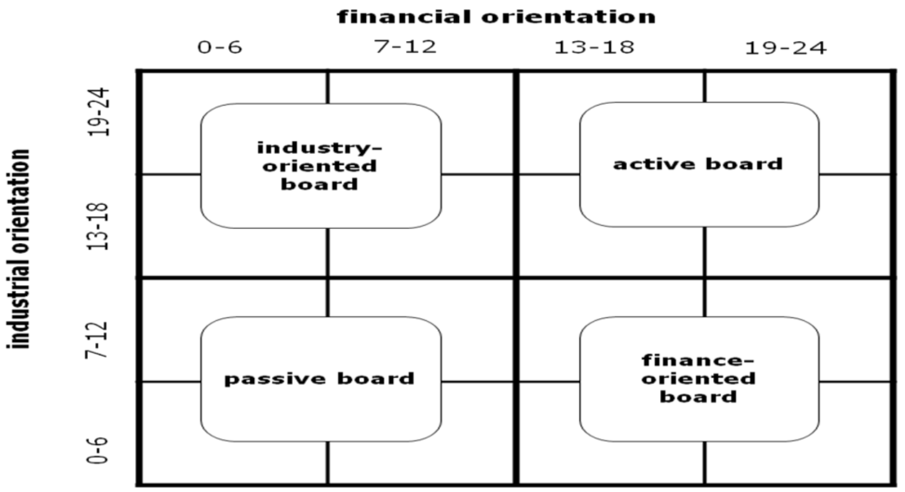

Figure 2. The method of assigning supervisory boards to particular types
Source: Author's research.

Assumptions about verification of the research hypothesis, especially the "point boundaries" between individual types, are subjective and may give rise to doubts. The collected research sample, however, did not allow for a more detailed breakdown of the typology of Jonnergard, Karreman and Svensson to, for example, a strongly industry-oriented board or to some hybrid orientation boards. In the study participated respondents from 23 operational subsidiaries, 32 from cooperative subsidiaries and 21 from conglomerate subsidiaries. Every subsidiary of the sample represents a different business group. The study was based only on interviews with use of a questionnaire. Because of the requirement of confidentiality, there can be only shown the structure of the industry of these subsidiaries (see table 1.). There was not significant correlation between the type of industry and the type of the board.

Table 1. The structure of the sample

operational subsidiaries			
Services	trade	standard production	high-tech production
11	5	4	3
cooperative subsidiaries			
Services	trade	standard production	high-tech production
11	5	12	4
conglomerate subsidiaries			
Services	trade	standard production	high-tech production
7	8	2	4

Source: Author's research.

Having made the above assumptions about the study result assessment, the following results were obtained:

1) In the case of operational subsidiaries, in 13 cases (56.5%) the supervisory board was identified as an industry-oriented type, in 2 cases (8.7%) as an active board, in 4 cases (17.4%) as a finance-oriented type and in 4 cases (17.4%) as a passive board. It can therefore be concluded that these results support the hypothesis 1a.

2) In the case of cooperative subsidiaries, in 9 cases (28,15%) the supervisory board was identified as industry oriented, in 12 cases (37.5%) as an active board, in 5 cases (15.6%) as a finance-oriented type and in 6 cases (18.8%) as a passive board. It can therefore be concluded that these results support the hypothesis 1b, although the results are not as clear as in the case of the hypothesis 1a.

3) In the case of conglomerate subsidiaries, in 3 cases (14.3%) the supervisory board was identified as industry oriented, in 7 cases (33.3%) as an active board, in 9 cases (42.9%) as a finance-oriented type and in 2 cases (9.5%) as

a passive board. It can therefore be concluded that these results support the hypothesis 1c.

The results above demonstrate that the subsidiary type appears to have a large impact on the model of cooperation with the management adopted by the supervisory board. If these results were confirmed on a larger sample, one could on such basis formulate certain recommendations for the boards of parent companies and members of the supervisory boards of subsidiaries. Assuming of course, that the choice of the board's model of action is in most cases based on reasonable grounds, stemming for instance from knowledge and experience as well as that the model is a result of evolution of the board performance leading to the best, optimal model.

Final conclusions

Business group functioning has still not been thoroughly identified, which in the context of their high economic importance, poses significant challenges. The subject of business group efficient management, despite the long-lasting discussion, is still very important and valid. The issue of ownership supervision over subsidiary operation, signalled on theoretical grounds may indicate possible directions for further empirical research. The presented results of the empirical research can be a contribution to further considerations of "tools" for influencing a subsidiary's behaviour by the parent company. Such studies may provide answers to fundamental questions concerning management of these specific business objects which may contribute to the comprehension of various aspects of business group functioning and provide a basis for creation of effective tools for managing their components.

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Managerial Ownership, Supervisory Board Committees and Substitution

Effects of Alternative Governance Mechanisms: Evidence from Poland

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Abstract

Issues related to board committees have long been an area of interest to researchers in the field of corporate governance. In view of this, an analysis of the existence of board committees in the Polish corporate environment is relevant to other European jurisdictions as there are partly mandatory and partly voluntary requirements on the appointment of board committees. Using a sample of companies listed on the Warsaw Stock Exchange (WSE), this study examines the association between the presence of supervisory board committees and three other corporate governance mechanisms, i.e. managerial ownership, supervisory board activity and executive remuneration. The results show that the presence of an audit committee is found to be negatively related with managerial ownership, supervisory board activity and executive remuneration. Similarly, the presence of a remuneration committee is found to be negatively associated with managerial ownership and executive remuneration. Consequently, these results indicate that there are substitutive relationships between alternative corporate governance mechanisms.

Keywords: Corporate governance, managerial ownership, two-tier board model, board committees.

JEL Classification: G32, G34, M19

Introduction

Boards may appoint various committees, such as an audit committee, remuneration committee, nomination committee etc., and delegate different activities to them. These committees play an important role in building effective corporate governance within the company. Cadbury (1992) stated that one reason for forming committees is to make the board's job more manageable. Moreover, they are used to support the whole board in the performance of its functions in more detail and to provide for the efficient use of corporate board members' time and expertise. Thus, committees allow directors to concentrate on specific issues and to take advantage of their knowledge, skills and experience (Colley *et al.,* 2005).

Hence, board committees have been the subject of some research. This research has mostly examined the relationship between their characteristics and company performance (Carter *et al.* 2010; Klein, 2002; Saibaba and Ansari, 2013), as well as their practices (Dobija, 2015) and effectiveness (Carcello *et al.*, 2011). Moreover, there have also been studies which scrutinized factors associated with the development of committees (Carson, 2002). But this research has not explained all the issues associated with them. For example, they did not clarify how committees substitute other corporate governance mechanisms, such as managerial ownership, board activity or executive remuneration.

Therefore, the current understanding of the factors associated with the appointment of board committees is still full of gaps. Firstly, most previous studies on them were conducted in Anglo-Saxon countries, i.e. in countries where ownership is dispersed and a one-tier board model exists (Carson, 2002; Dahya *et al.*, 2002). Only a few studies have been conducted in countries where a two-tier board model exists, but they mostly investigated committee practices (Dobija, 2015). Secondly, previous studies stated that there are substitutive effects between various corporate governance mechanisms and they examined how the activity of an audit committee is related to insider ownership (Greco, 2011). In contrast to them, this study scrutinizes the effects of the presence of both audit and remuneration committees on managerial ownership, but also on other corporate governance mechanisms, which have not yet been scrutinized, i.e. supervisory board activity and executive remuneration. Hence, this study tries to fill the gaps in the literature and its main aim is to examine the association between the presence of supervisory board committees and three other corporate governance mechanisms, i.e. managerial ownership, supervisory board activity and executive remuneration. In view of this, Poland is an interesting example because of its corporate governance environment. The Polish board model is a two-tier one and insiders are significant shareholders. Moreover, company ownership is concentrated and the employment of various corporate governance mechanisms, including board committees and executive remuneration, is strongly dependent on dominant shareholders.

The remainder of the paper is organized as follows. Section 1 provides an overview of the main features of the Polish two-tier board model and a description of the legislative and regulatory basis for the appointment of supervisory board committees in Poland. Section 2 develops the hypothesis on the relationship between managerial ownership, supervisory board activity, executive remuneration and the existence of supervisory board committees. Section 3 depicts the research design and section 4 reports empirical analysis. Finally, conclusions are presented.

1. The Polish two-tier board model and board committees in Poland

The Polish board model is a two-tier one and corporate boards consist of supervisory boards and management boards. Supervisory boards are mostly monitoring bodies. In public companies they are composed of five or more external directors and in private companies three or more external directors. According to Polish law the supervisory board exercises day-to-day supervision in all areas of the company's activity and cannot issue commands to the management board. Management boards are managing bodies and they are composed of only internal directors. According to Polish law, the management board is responsible for managing the company, including strategy formulation.

Corporate boards can appoint various committees and delegate activities to them, but they still remain responsible for the activities covered by these committees (Mallin, 2009). Cadbury (2002) stated that "one of the ways in which the chairman prevents board meetings from becoming overloaded, and either going on too long or requiring discussion to be curtailed, is by setting up appropriate committees of the board." Hence, board committees affect corporate board effectiveness. Kesner (1988) argued that the key decisions of the board are initiated by the committees, and similarly Jiraporn *et al.* (2008) mentioned that board effectiveness is stimulated by board committees, because they strongly support the decision-making process and affect corporate strategy. Due to this, many boards appoint committees to go through various proposals and save board members' time. These committees are encouraged by law and codes of best practices in corporate governance.

Charkham (2005) stated that board committees are also appointed to increase objectivity, either because of inherent conflicts of interest such as executive remuneration, or else to discipline personal preferences as in the exercise of patronage. Since internal and external directors in the one-tier board model are members of the same board, these problems may escalate. In view of this, Cadbury (2002) mentioned that unitary board members owe their loyalty to the company, but they also have loyalties to their board colleagues. At times, those two loyalties may pull against each other. He added that, potentially, there should be no such conflict of loyalties for supervisory board members, because they and management board members are the members of separate boards. In the one-tier board model, board committees are appointed to cope with, amongst others, the conflict of loyalty and interest. In the two-tier board model they are only appointed to save board members' time and to perform some duties by considering it in more detail than would be convenient for the whole supervisory board.

As in other countries, in Poland, audit committees are the most popular, followed by remuneration committees (Bohdanowicz 2009; Dobija *et al.*, 2011). Mallin (2010) and Tricker (2015) listed the duties of the audit and remuneration committee. The duties of the audit committees include: providing the useful 'bridge' between both internal and external auditors and the board; advising the board on the appointment, re-appointment, resignation, or replacement of the external auditor; reviewing the audit fees and advising the board accordingly; agreeing to the scope of the work and plans of the internal audit; reviewing with the external and internal auditors and advising the board on the company's financial statements prior to publication, the auditor's report to the shareholders, any changes to accounting policies, material issues arising in or from the financial statements, compliance with accounting standards, company law, stock exchange reporting requirements and corporate governance codes of good practices; reviewing the exposure of the company to risk and any issues that might have a material effect on the company's financial position. The duties of the remuneration committee include establishing a formal and transparent procedure for developing policy on top executive remuneration and for determining the remuneration packages for each director.

Dobija (2015) described the launch of board committees in Poland. Initially the introduction of the audit and remuneration committees was encouraged by codes of best practices in corporate governance. Since 2006, EU countries have begun to adjust their legislation to the Eighth EU Company Law Directive on audit committees. Poland also issued new legislation (the Act on Certified Auditors, their Self-government, and Entities Authorized to Audit Financial Statements and Public Supervision) in 2009. According to the new act, the supervisory boards of Polish listed companies have to appoint an audit committee which should have at least three members, including a member who should be an independent director and have a qualification in accounting or financial auditing. Moreover, if the supervisory board has only five members (the legal minimum), the audit committee's tasks can be performed collectively by the entire board.

Moreover, the Code of Best Practice for Warsaw Stock Exchange Listed Companies states that Annex I to the *Commission Recommendation of 15 February 2005 on the role of non-executive or supervisory directors of listed companies and on the committees of the (supervisory) board* should apply to the tasks and the operation of the committees of the Supervisory Board. Hence, the Polish code of best practices indirectly encourages listed companies to appoint other committees, especially a remuneration committee. But the presence of board committees seems to be strongly influenced by some factors, including other corporate governance mechanisms, e.g. managerial ownership, supervisory boards activity and executive remuneration.

2. Hypothesis development

2.1. Managerial ownership and supervisory board committees

The relationship between managerial ownership and the presence of board committees can be described on the basis of agency theory. This theory describes the conflict of interests between managers (agents) and owners (principals), and depicts various internal and external governance mechanisms, amongst them managerial ownership and board committees, which tend to align the interests of both groups (Jensen and Meckling, 1976; Oviatt, 1988). Dobija (2015), for example, mentioned that according to agency theory, the audit committee is an independent monitor of management and without this monitor, management may act in their best personal interests and not in the interests of the principals (shareholders). Similarly, managerial ownership may reduce agency conflict, because owner-managers may maximize their own value and, at the same time, act in the best interest of other shareholders (Mustapha and Ahmad, 2011).

But previous research on the association between managerial ownership and the presence of board committees are rare. It concerned more the relationship between managerial ownership and company performance (Coles *et al.*, 2012) or board committee characteristics and company performance (Aldamen *et al.*, 2012). However, since companies can use only certain corporate governance mechanisms, prior studies showed that these mechanisms can substitute one another (Linck *et al.*, 2008; Weir *et al.*, 2003). Hence, Carcello *et al.* (2006), who examined a sample of 283 NYSE and NASDAQ firms, showed that alternate corporate governance mechanisms are an effective substitute for audit committee financial expertise in constraining earnings management. And Greco (2011), who scrutinized a sample of 179 non-financial companies listed on the Italian Stock Exchange, found that managerial ownership negatively influences audit committee meeting frequency. Thus, this leads to the first hypothesis:

Hypothesis 1: Managerial ownership is negatively related to the presence of supervisory board committees (audit or remuneration committee).

2.2. Board committees and supervisory board activity

The higher frequency of supervisory board meetings allows board members to remain informed and familiar with the company. Therefore, some authors have stated that having more meetings places them in a better position to address critical problems in a timely and effective manner (Mangana and Tauringana, 2012; Ntim and Osei, 2011). Conversely, other authors have mentioned that the review of management reports and other formalities takes up much of the meetings and reduces the time the members of board could devote to monitoring managers or talking about strategy (Lipton and Lorsch, 1992). Thus, board committees are appointed to support corporate boards and to use better the time, skills and knowledge of their members. Accordingly, the presence of board committees means that by utilizing their time, skills and knowledge, board members perform board functions during committee meetings instead of during board meetings. Thus, the relationship between the existence of board committees and the frequency of supervisory board meetings seems to be negative. But previous studies did not examine these relationship and were focused more on the determinants of audit committee meeting frequency (Greco, 2011; Yin *et al.*, 2012). Sharma *et al.* (2009) examined the sample of listed companies from New Zealand and found that the frequency of audit committee meetings is negatively associated with multiple directorships, audit committee independence, and an independent chair of the audit committee, but positively with the size of the audit committee and the level of institutional and managerial ownership. In view of the foregoing, the second hypothesis is:

Hypothesis 2: Supervisory board activity is negatively associated with the presence of supervisory board committees (audit or remuneration committees).

2.3. Board committees and executive remuneration

Executive remuneration is perceived as one of the most important internal corporate governance mechanisms (Oviatt, 1988; Tricker, 2015). Thus, there have been some studies on its level, structure and determinants(Geiler and Renneboog, 2010). Other studies scrutinized the association between executive remuneration and company performance, but with mixed results (Bebchuk and Fried, 2003; Ozkan, 2011). Generally, as a corporate governance mechanism, executive remuneration can play a substitution role with other mechanisms, including board committees (Filitatochev and Allcock, 2010).

Consequently the relationship between these mechanisms should be negative. In view of this, Boyd (1994), who examined a sample of publicly held U.S.

companies, found that CEOs' salaries are greater in companies with a lower level of board control. But the research on the relationship between the presence of committees, especially remuneration committee, and executive remuneration gave the opposite results. Main and Johnston (1993) using a sample of large publicly held British companies, and also Conyon and Peck (1998) on a similar sample of large British listed companies, stressed that management pay is considerably higher in companies which appointed a remuneration committee. Moreover, Conyon and He (2011) investigated a sample of Chinese listed companies and found a significant and positive relationship between the existence of compensation committee and executive pay. Also, Jaafar *et al.* (2015) found a significant positive relationship between remuneration committees and remuneration on a sample of companies listed on Malaysian stock exchange. Thus, the final hypothesis reflects this ambiguity:

Hypothesis 3: The presence of supervisory board committees (audit or remuneration committees) is related to executive remuneration.

3. Method

3.1. Sample

The sample consists of Polish companies listed on the Warsaw Stock Exchange between 2008 and 2013. Data was hand-collected and derived from annual reports or supervisory boards' annual statements. The sample concentrates only on non-financial companies. Financial institutions are excluded due to their unique financial structure and special accounting rules for financial sectors. Moreover, observations with missing data are also excluded. This gives a sample of 292 companies and 1,109 firm-year observations.

3.2. Variables

This study employs two dependent variables. They are dummy variables, coded 1 when respectively an audit committee or remuneration committee is present, and 0 when these committees are absent. The same dummy variables were used by Carson (2002). The presence of a committee was not taken into account if all supervisory board members were appointed to the committee.

Managerial ownership is calculated as a fraction of shares owned by all management board members (Himmelberg *et al.*, 1999). It is worth mentioning that Polish listed companies are required to reveal in their annual statements the proportion of shares held directly and indirectly by management board members, but not the proportion held by other top managers who are not board members. Top managers who are not members of this board have a duty to disclose their shares only when they exceed the 5% threshold. Hence, they are omitted in this variable. However, this variable is calculated as direct and indirect voting rights at the general meeting and counted as a decimal number (Bohdanowicz, 2014).

Executive remuneration is calculated as cash compensation, which includes basic salary and bonuses. Moreover, it is counted as the aggregated pay of all the management board's members in the same period. The use of cash compensation is consistent with prior studies (Conyon and He, 2011). The analysis used the natural logarithm of executive remuneration. The number of meetings held by the supervisory board is used as a proxy for the intensity of board activity (Bohdanowicz 2014). A similar proxy was used by Vafeas (1999) and Brick and Chidambaran (2010). Moreover, as in these studies, actions by written consent, telephone meetings and video teleconferences have been excluded because it is more challenging to fulfil board functions from a distance (Vafeas, 1999).

Company performance is measured both by accounting and market measures. The accounting measure is the return on assets (ROA). ROA is calculated as the ratio of the net profit divided by the total assets. Market measure is Tobin's q, which is counted as the ratio of the total market value of the company, i.e. the market value of equity plus the book value of total debt to total assets (Brick and Chidambaran, 2010; Del Brio *et al.*, 2006) A set of other control variables is also employed, i.e. institutional ownership, board diversity, company size, leverage and industry. Their choice was motivated by their potential relevance and literature. Institutional ownership is calculated as the percentage of shares owned by institutional investors, i.e. foreign banks, insurance companies, brokerages, open-ended pension funds, open-ended and closed-ended investment funds, venture capital and private equity funds. Due to the disclosure regime in Poland only blocks of institutionally-held shares which exceed the 5% reporting threshold are counted. Supervisory board size is employed to control board size. This variable is counted as the numbers of directors on this board. Generally, board diversity is measured both by observable diversity, e.g. age, gender or nationality, and less observable diversity, e.g. educational background, industry experience or organisational membership (Kang *et at.*, 2007). In this study, the gender diversity of the supervisory board is employed as a proxy for board diversity. It is calculated as the percentage of female directors on the supervisory board (Campbell and Minguez-Vera, 2008). This variable is also calculated as a decimal number.

The total assets at the end of the firm's fiscal year are used as a control variable and a proxy for company size. This variable is transformed with a natural logarithm (Kochhar and David, 1996). Moreover, debt ratio is used to control company leverage and is calculated as the ratio of total liabilities to total assets (Crespí-Cladera and Gispert, 2003). This variable was used in audit committee literature, for example, and some authors argued that a higher level of debt ratio is linked to audit committee formation (Carson, 2002; Collier and Gregory, 1999).

Industry is calculated as a dummy variable which takes the value of 1 if the company belongs to an industrial sector and 0 if the company belongs to a service sector (Kowalewski *et al.*, 2008). The allocation of companies to these two categories is based on the Warsaw Stock Exchange classification of sectors.

4. Results

4.1. Descriptive statistics

As shown in table 1, audit committees were appointed in 42.92 per cent of observations. Remuneration committees are less prevalent due to their fully voluntary character. Describing similar results, Carson (2002) also stated that they are a less-well accepted structure. Generally, the percentage of observations where audit committees and remuneration committees exist is considerable lower than in her study on Australian listed companies, where it was respectively 84% and 57%. This difference can stem from the different functions of the board of directors and supervisory board and, arising out of that, the usability of board committees in one-tier and two-tier board models.

The mean of managerial ownership is 0.2163 with a standard deviation of 0.2752. It shows that managers are significant owners of Polish companies, and the mean does not differ significantly from the means in some other studies. For example, this mean is similar to the mean in research by Faleye (2007), which was based on 3,823 definitive proxy statements filed with the US Securities and Exchange Commission and was 0.2166. But it was slightly higher than the mean of managerial ownership in the study by Nekhili and Gatfaoui (2012) on a sample of French listed companies, where it was 0.1452, but lower than the mean of managerial ownership in the study by Greco (2011) on a sample of non-financial Italian listed companies in 2007, where it was 0.3647. Furthermore, the mean of board activity (the number of supervisory board meetings) is 6.3486 with a standard deviation of 3.3066. Bohdanowicz (2014) noticed that the number of supervisory board meetings is lower than boards of directors in the one-tier board model.

Table 1. Committee descriptive statistics

Committee	**Number of observations**	**Percentage**
Audit Committee	476	42.92
No Audit Committee	633	57.08
Total	*1,109*	*100.00*
Remuneration Committee	228	20.56
No Remuneration Committee	881	79.44
Total	*1,109*	*100.00*

Source: author's calculations based on data extracted from annual reports.

Hence, the number of supervisory board meeting in this research is lower than the number of board meetings reported by Vafeas (1999) or Greco (2011) in their studies on board activity. In these studies it was respectively 7.45 and 9.27.

The mean supervisory board size is 5.7403 with a standard deviation of 1.3024. It indicates that a lot of Polish companies have supervisory boards which consist only of the minimum number of board members. This is also supported by the median value, which is 5. Moreover, the mean of supervisory board diversity is 0.1325 with a standard deviation of 0.1665. Hence, the percentage of female directors on supervisory boards is 13.25, which is comparable with previous research on Polish companies by Bohdanowicz (2011) and Grosvold and Brammer (2011). Institutional investors seem to be growing their holdings in terms of ownership concentration, and in some studies they were perceived as having the ability to monitor managers (Alfaraih *et al.*, 2012). In Poland also they belong to the most important shareholders. Due to this, the mean level of institutional ownership in this research is 0.1272 with a standard deviation of 0.0744, but the maximum is even 0.9270. Table 2 shows more information on descriptive statistics.

4.2. Regression analysis

Table 3 reports the results of the estimations for the sample, conducted separately for the presence of audit committee and the presence of remuneration committee. Table 3 describes the multivariate analysis (logistic regressions with fixed effects) separate for two dependent dummy variables. Managerial ownership is negatively related to the presence of an audit committee (β = -1.1369 and $p < 0.001$) and the presence of a remuneration committee (β = -1.0955 and $p < 0.01$). It supports the first hypothesis. Therefore, this evidence shows that corporate governance mechanisms can substitute each other and it supports previous findings on the substitutive character of these mechanisms (Greco, 2011). On the other hand, in the two-tier board model managerial ownership can tend to introduce the domination of the management board and to diminish the role of supervisory boards (Bohdanowicz, 2014). This may also affect the character of this relationship.

Table 2. Descriptive statistics

Variable	Mean	Median	Min	Max	S.D.
Managerial ownership	0.2163	0.0328	0.0	0.9562	0.2752
Supervisory board activity	6.3486	6	1	27	3.3066
Ln (Executive remuneration)	14.0411	13.9918	10.7790	16.8910	0.9575
ROA	0.0090	0.0309	-3.6112	0.7409	0.1802
Tobin's q	1.1806	1.0114	0.2761	7.0680	0.6528
Institutional ownership	0.1272	0.0744	0.0	0.9270	0.1626
Supervisory board size	5.7403	5	5	15	1.3024
Supervisory board diversity	0.1325	0.0	0.0	0.8000	0.1665
Company size	19.4700	19.2438	13.0878	24.8301	1.6707
Leverage	0.4745	0.4515	0.0338	3.6777	0.2576

Source: author's calculations based on data extracted from annual reports.

The association between supervisory board activity and the presence of an audit committee is negative (β = -0.0708 and $p < 0.01$), but there is no statistically significant relationship between this activity and the presence of a remuneration committee. Thus, the second hypothesis is only partly supported. This negative relationship shows that the appointment of an audit committee allows for better use of board members' time and expertise. the supervisory board delegates some of its activities to the audit committee and does not need to meet frequently. However, the findings indicate that the more active the supervisory boards, the less the tendency that an audit committee exists. It is also consistent with Vafeas (1999), who stated that an increase in the number of tasks under corporate board responsibility delegated to board committees is likely to decrease the amount of work the board perform directly as a group. Then, if a standing board committee exists, the supervisory boards mainly concentrate on the coordination and final approval of the committee's recommendations.

The association between executive remuneration and the presence of an audit committee is negative and significant (β = -0.6966 and $p < 0.001$). Similarly, executive remuneration is negatively related to the presence of a remuneration committee (β = -0.5487 and $p < 0.001$). These relationships support the third hypothesis. Thus, these relationship also show the substitution effect of alternative governance mechanisms exists. It supports Boyd (1994), who found that executive remuneration is negatively related to board control, as well as the research which mentioned that corporate governance mechanisms substitute one another (Coles *et al.*, 2001; Greco, 2011; Rediker and Seth, 1995).

There are also significant relationships between control variables and dependent variables. Firstly, the supervisory board size is positively related to the presence of an audit committee (β = 1.5039 and $p < 0.001$) and a remuneration committee (β = 0.5546 and $p < 0.001$). The first relationship mainly stems from the regulatory environment. In Poland, according to company law, supervisory boards which consist of more than five members should appoint an audit committee. On the other hand, there is some evidence that larger corporate boards are less effective (Eisenberg *et al.*, 1998; Yermack, 1996). Thus, they should appoint audit and remuneration committees to better manage members' time, skills and knowledge. Secondly, supervisory board diversity is negatively related to the presence of a remuneration committee (β = -1.6559 and $p < 0.01$). Thus, an remuneration committees exist where the share of female directors on the supervisory board is lower. Thirdly, there is a positive relationship between institutional ownership and the presence of an audit committee (β = 1.1717 and $p < 0.05$). Moreover, there is also a positive association between institutional ownership and the presence of a remuneration committee (β = 1.6529 and $p < 0.001$). These relationships support prior evidence of the effectiveness of shareholder activism by institutional investors (Gillan and Starks, 2000) and previous research which identifies institutional investors as having the ability to monitor managers (Alfaraih *et al.*, 2012). According to these results, institutional investors have a stronger basis when negotiating the existence of board committees.

Table 3. The presence of board committees: Logistic regressions with fixed effects

Independent and control variables	**Dependent variables**	
	The presence of audit committee	The presence of remuneration committee
Managerial ownership	-1.1369***	-1.0955**
	(0.2939)	(0.3769)
Supervisory board activity	-0.0708**	0.0237
	(0.0261)	(0.0252)
Executive remuneration	-0.6966***	-0.5487***
	(0.0975)	(0.1026)
Supervisory board size	1.5039***	0.5546***
	(0.1176)	(0.0720)
Supervisory board diversity	0.7327	-1.7149**
	(0.4489)	(0.6043)
Institutional ownership	1.1717*	1.6529***
	(0.4871)	(0.4659)
Company size	0.0988	0.1739*
	(0.0679)	(0.0747)
ROA	0.2414	0.3958
	(0.4845)	(0.5115)
Tobin's q	-0.1869	-0.4583**
	(0.1183)	(0.1640)
Leverage	0.3587	1.0408**
	(0.3695)	(0.3949)
Industry	-0.4337**	-0.6674***
	(0.1544)	(0.1736)
Akaike info criterion	1.0392	0.9066
Schwarz criterion	1.1160	0.9834

Note: † $p < 0.1$; * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$. Standard errors are reported in brackets.
Source: author's calculations based on data extracted from annual reports.

Fourthly, company size is positively related to the presence of a remuneration committee ($\beta = 0.1739$ and $p < 0.05$). This is consistent with some prior research. For example Carson (2002) stated that the relative cost of maintaining committees decreases as the company size increases, because this cost seems to be fixed. Moreover, Pincus *et al.* (1989) and Collier (1993) found that company size belongs to those characteristics associated with voluntary audit committee formation. Carson (2002) extended it to the presence of a remuneration committee.

However, since 2009 the appointment of an audit committee is obligatory in Poland if a supervisory board counts more than 5 members; the only fully voluntary committee of those two analyzed is the remuneration committee. Hence, these results are in line with previous studies. Fifthly, there is a negative association between the value of Tobin's q and the presence of a remuneration committee (β = -0.4583 and $p < 0.01$). This shows that companies valued badly by investors often appoint remuneration committees. Thus, they may want to improve the opinion of the investors. Sixthly, the debt ratio is positively related to the presence of a remuneration committee (β = 1.0408 and $p < 0.01$). In previous research a higher value of the debt ratio in association with the presence of an audit committee was found by Collier (1993) and Collier and Gregory (1999). But Carson (2002) found a similar relationship between leverage and the presence of a remuneration committee.

Seventhly, the presence of an audit committee is related to the industry (β = -0.4337 and $p < 0.01$) and the presence of a remuneration committee (β = -0.6674 and $p < 0.001$). Hence, companies from service sectors appoint audit and remuneration committees more often than companies from manufacturing sectors.

4.3. Robustness check

In this section, two sensitivity tests to check the robustness of the results are presented. Then, some additional analysis is provided to further corroborate evidence from the main analysis.

The presence of audit and remuneration committees

To examine the robustness of the primary results, the results from Poisson regression are presented. They additionally control for the existence of both audit and remuneration committees. Hence, the presence of audit and remuneration may be counted as zero, one or two. The results of this regression are similar to the results of the main analysis. Despite this, the relationship between the presence of audit and remuneration is weak and significant at only 1% level.

Table 4. The presence of audit and remuneration committees: Poisson regression

Independent and control variables	Dependent variables The presence of audit and remuneration
Managerial ownership	-0.7502*** (0.1795)
Supervisory board activity	-0.0176† (0.0123)
Executive remuneration	-0.2780*** (0.0483)
Supervisory board size	0.2292*** (0.0237)
Supervisory board diversity	-0.0205 (0.2622)
Institutional ownership	0.6965*** (0.2042)
Company size	0.0939* (0.0352)
ROA	0.0909 (0.2269)
Tobin's q	-0.1238† (0.0712)
Leverage	0.4440* (0.1793)
Industry	-0.1399† (0.0784)
Year dummy	Yes
Akaike info criterion	1.9552
Schwarz criterion	2.0320

Note: † p < 0.1; * p < 0.05; ** p < 0.01; ***p < 0.001. Standard errors are reported in brackets
Source: author's calculations based on data extracted from annual reports.

Logit regression with lagged managerial ownership

In the analysis reported above, two independent variables, i.e. executive remuneration and supervisory board activity, are measured in the period and one independent variable, that is managerial ownership, is counted at that point in time. To control for the contemporaneity in this section, the results of logit regression with lagged managerial ownership are presented. Also, as in the main analysis, lagged managerial ownership and both committee variables have significantly negative coefficients. Thus, the results, which are presented in Table 5, are quantitatively similar to those showed in Table 3.

Table 5. The presence of board committees: Logit regression with lagged managerial ownership

Independent and control variables	**Dependent variables**	
	The presence of audit committee	The presence of remuneration committee
Lagged managerial ownership	-1.0818***	-0.8086*
	(0.3028)	(0.3816)
Supervisory board activity	-0.0750**	0.0379
	(0.0272)	(0.0260)
Executive remuneration	-0.8158***	-0.6115***
	(0.1050)	(0.1104)
Supervisory board size	1.5689***	0.5719***
	(0.1281)	(0.0782)
Supervisory board diversity	0.8768†	-1.5782*
	(0.4636)	(0.6228)
Institutional ownership	0.9689†	1.7028***
	(0.5066)	(0.4884)
Company size	0.0976	0.1447†
	(0.0714)	(0.0807)
ROA	-0.1765	0.7514
	(0.7189)	(0.8474)
Tobin's q	-0.0418	-0.3388*
	(0.1254)	(0.1718)
Leverage	0.4815	1.5945**
	(0.4499)	(0.5104)
Industry	-0.2818†	-0.5660**
	(0.1646)	(0.1850)
Year dummy	Yes	No
Akaike info criterion	1.0263	0.8925
Schwarz criterion	1.1081	0.9743

Note: † $p < 0.1$; * $p < 0.05$; ** $p < 0.01$; ***$p < 0.001$. Standard errors are reported in brackets.
Source: author's calculations based on data extracted from annual reports.

Conclusions

This study analyzes the substitution effect between alternative corporate governance mechanisms. Its main aim is to examine the association between the presence of supervisory board committees and three other corporate governance mechanisms, i.e. managerial ownership, supervisory board activity and executive remuneration in Polish listed companies. But such analysis is also relevant to other European jurisdictions as there are partly mandatory and partly voluntary requirements regarding the appointment of board committees. However, this study finds that the substitution effect between alternative corporate governance mechanisms exists. Thus, the relationships between the existence of audit or remuneration committees and the three other examined corporate governance mechanisms is negative, showing that companies can focus on better use of some mechanisms instead of others and it should not affect the quality of corporate governance. These findings also shed light on the implementation of best practices in corporate governance. Not complying with certain regulations may mean that a company complies diligently with others.

Furthermore, this study is also subject to limitations related to the method and variables. Firstly, previous studies were focused on the activity of board committees and measured the frequency of their committees' meetings (Collier and Gregory, 1999; Greco, 2011; Vafeas, 1999). Since Polish companies do not often reveal the number of meetings of board committees, this study employs two dummy variables describing the presence of audit and remuneration committees. Secondly, the possibility that some independent variables may be affected by other unobserved factors must be acknowledged. It can influence the results.

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How do Polish non-listed family firms engage in strong relationship banking?

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Abstract

On the basis of questionnaire-based interviews of Polish firms carried out in the second and third quarter in 2014 we investigate the relationships of non-listed Polish family firms to one bank. We found out that the size of the family firm, the family influence in the management and the "feeling" as family firm are very important factors for this relationship.

Keywords: Banks, Relationship banking, family firms, family influence

JEL Classification: G21, G32, G34

Introduction

Banks are important stakeholders for all firms, e. g. for lending and using other financial products offered by banks. The relationship of firms to banks can span a spectrum between two extreme positions with many kinds of relationships in between. One extreme position is to have nearly no relationship to a bank. The policy of the firm is to establish for each bank product a new combination between the firm and a bank in order to promote competitiveness amongst banks. This is the situation which describes the tendency in the corporate sector, especially where public capital markets are well developed. On the contrary – and this is the system in many countries in Continental Europe, the so-called "bank economies" – the "relationship banking" model prevails. The central point of *relationship banking* is information about the firm; the bank gathers this information over time and keeps it confidential. So we can see that the duration of this relationship is essential as well as the concentration of services amongst a low number of banks [Iturralde et al., 2010 p. 277]. One specific form is a single bank relationship (one to one-relationship) here we call this specific relationship **"***strong relationship banking***"** or in the vernacular of the trade "house bank". A resulting financial management decision of the firm is to decide how many banking relationships it wants to establish [von Rheinbaben, Ruckes, 2004 p. 1598]. In turn, it must measure the advantages and disadvantages various relationship banking options. The single or strong relationship banking is seen in literature more critically [Berger et al., 2001 p. 2137 f.; Iturralde et al., 2010 p. 277]. In this article we will focus on *Polish* family firms.

In the last years the specific situation of family firms is in a more intensive research process. While research has identified some differences amongst non-family firms it is not so easy to explain the causes of these differences [Gallo et al. 2004, p. 303]. The focus here is on *non-listed* family firms. These firms do not have to comply to extensive stock exchange regulations designed to make them transparent to third party outsiders. Consequently, the public level of information about these firms is lower. The main questions of finance research is more focused in fields where information is easier available, that means the focus lies on the listed companies and for the same reason in a geographic point of view in the USA and in the Anglo-Saxon World in general [e. g. Berger, Black, 2011 p. 727]. For relationship banking amongst family firms there is no study for Poland available [Iturralde, 2010 p. 275]. The so-called transformation countries in Europe do not have such a long history (approx. 25 years) operating as market economies with active stock exchanges. Family firms thus play a correspondingly larger role in these economies. Small firms are more likely to have a single bank than more [Berger et al., 2001 p. 2163]. Regarding the number of bank relationships there are cross-country differences [Ongena, Smith, 2000 p. 51]. Therefore we intend to *contribute to the literature* with our study regarding Poland as a mosaic-stone in strong or single relationship banking for a specific region in Europe from the point of view of the firm.

Literature Review

Relationship banking is primarily oriented to relationship *lending*. The relationship between bank, especially small banks [Elyasiani, Goldberg, 2004 p. 328] and firms is generally characterised as an information asymmetric one [Berger, Udell, 1995]. Banks have learned over centuries to reduce the negative consequences of this information asymmetry – a difficult risk calculation - e.g. with collaterals [Berger, Black, 2011 p. 727] and covenants and the pressure to the firms to earn more information about them. In this strategy of risk reduction [von Rheinbaben, Ruckes, 2004] a long relationship [Degryse, Van Cayseele, 2000 p. 107] to a firm is important, because it offers a long line of data to estimate the future financial situation of the enterprise. Elsas [2005 p.32] said for Germany, that duration of the bank-borrower relationship does not matter for the Hausbank status. This advantage of information gathering [Elyasiani, Goldberg, 2004 p. 316 and Elsas, 2005 p. 53] for banks is strengthened by a monopolistic behaviour of the banks and can be even stronger when there is a „one to one"-relationship, that means the (one and only) bank has the possibility to lend with better conditions from the point of view of the bank [Degryse, Van Cayseele, 2000 p. 107].

As a main or only credit grantor for a long time („creating lifetime value of the custumer") the bank will probably get more influence to strategic decisions and to the management in general of the family firm because of a strong personal relationship between the two organisations. An important factor for this relationship may be a small distance from geographical point of view [Sauter, 2015 p. 29]. A further advantage for the bank lies in an easier selling of future loans [Bharath et al., 2007 p. 413] and other non-credit products of the bank such as asset management, personal loans, deposits, insurance etc. („cross selling"). This may be easier when there is a relationship to the owners (e. g. family) of the enterprise [Babcock, 2013 p. 42 - 43].

But what are the *pros for the firm*? The firm will see relationship banking as risk reduction which shall lead to lower costs of debt, so Anderson et al. [2003] for founding family ownership firms, and as a kind of „insurance" against a bad financial situation in which it is very difficult to get an additional loan. It is in the best interests of the firm to gain a sympathetic and well-informed partner based on long-standing relationship and high level of engagement with the enterprise. All these shall help to get emergency liquidity in a bad situation [Sauter, 2015 p. 30]. A second point is that the firms hope to achieve better price conditions for all bank products because the bank will see the firm as an important client [Degryse, Van Cayseele, 2000 p. 107].

This article will focus on family-owned businesses. These are a large part of the SME segment too. Family businesses are important to the health of economies in terms of job creation, competitiveness, exports etc. They are a suitable topic for business research. This research interest, which has been building over the last 20 years, is given urgency in the "secular stagnation" environment of post-Credit Crisis economies where structural unemployment is becoming a heightened public policy issue. This orientation in research is important for practical issues. The number of family firms in Europe, especially in the bank-based Continental European countries, is high relative to most economies. This is certainly the case for the non-public family firms. But it is also true compared to listed companies. In all, family businesses are a very significant portion of most market economies. Yet in research the *non-listed family firms* are typically under-represented due to their lower data-availability. It is clear that the legal requirements of listed corporations are higher than that of non-listed firms and the competition in the fight of capital leads very often to a higher information level as the capital market law obligations defined.

A central problem of research in family firms lies in their *definition* [Felden, Hack, 2014 p. 10 - 17)]. On the one hand, there is no accepted definition worldwide. Even the empirical studies follow different definitions, very often determined by the availability of data. So, in many papers dealing with listed family firms, they are defined by a certain percentage of family ownership with shall show the family influence. Often some "soft" characteristics of family business are not useful for quantitative empirical research. On the other side it is not practicable for research to let the firms decide if they "feel" as family firm or not, because of individual and cultural influence.

We follow the established definition of *Klein* [2010 p. 17], which sees a family firm as an influence "package" of the family in management, controlling bodies and ownership (equity shares). Klein called this Substantial Family Influence (SFI). All these percentages are added and shall be more than 100%. This model shows better the different possibilities of influences of the family as a definition by a certain percentage of ownership.

For non-listed enterprises in *Poland* it is not possible to get these data from public information or data banks. Therefore we used a *questionnaire* and from the information obtained we classified the firms as family firms or non-family firms, using the mentioned definition of Klein. In literature the main differences of family firms to non-family firms are independency and long-term orientation [Pernsteiner, Dick, 2013 p. 95; Burgstaller, Wagner, 2015 p. 77]. Their *independency* preference has implication in the financial policy: they don't like external (i.e. outside the family) shareholders and too much influence of the banks. The first preference constrains equity in their capital structure retained earnings or the family's private wealth. The second preference impacts their attitude to risk-taking and leverage. The empirical evidence is mixed. A *long orientation* derives from thinking in generations. The firm wants to preserve itself in order to be passed on to the next generation. Consequently, a risk averse (financial) strategy is favoured. A reluctance to incur debts may also lead to constraints on expansion and less willingness to enter global markets [Dick et al., 2015].

As we see that family firms are different in many cases to non-family firms we will bring light to the influence of family firms in strong or single relationship banking. Banks will be more cautious with family firms because of higher owner-manager opportunism and the danger of misues of firms' assets [Steijvers, Voordeckers, 2009 p. 342].

For measuring the influence to relationship banking we build *four circles*:

1. *Characteristics of the family firm:* Size, generation and age of firms are doubtless important factors for bank relationships. Due to Iturralde et al. [2010 p. 290] larger and older firms have tendency to more banks. So we will answer if the assets as a sign of size has an influence for cooperation with only one bank. Firms operating for generations tend to have no higher number of banks, because they have established a reputation. Shorter operating firms need a strong partner for their financial problems (Hypotheses 1, 3 and 8).

2. *Family relationship:* The influence of the family is a very personal factor in a family firm. The "family-feeling" and the private financial influence can therefore have an influence on single relationship banking. Has the feeling and the culture of an enterprise as family firm as well as the private relationship of the employers/members of the family influence to the character of the relationship to the bank (Hypotheses 2 and 7)?

3. *Family influence in the family firm:* The three main facts in classification as family firm in the system of *Klein* [2010 p. 17] are the share of the family, the participation in the management board and in controlling bodies. It is interesting, if one of these facts have influence on strong relationship banking (Hypotheses 4 and 5).

4. *Sector:* Interesting is also, if the sector (e. g. production or trade/service) or if in general "growth" family firms are acting different in the field of single relationship banking (Hypotheses 6 and 9). Literature shows mixed evidence [Iturralde et al., 2010 p. 286]

Hypotheses

For the purpose of the research the following main hypothesis is made: cooperation of family businesses based on the relationship with one bank results from characteristics typical for these kind of enterprises. For the verification of the impact of particular characteristics the following detailed hypotheses were formulated:

H1. Family businesses with less assets are more prone to cooperate with one bank.

H2. The enterprises' self-classification as family business shows stronger links with the primary bank.

H3. Relationship banking is more developed in enterprises operating for many generations.

H4. Relationship banking is more developed in enterprises with a larger share of family capital in the total capital.

H5. The increase of family share in management board leads to stronger cooperation with the primary bank.

H6. In companies focused on long-term goals (focus on growth, focus on survival) relationship banking is less developed.

H7. Entrusting the bank with managing personal assets by the owners leads to a stronger development of relationship banking.

H8. Companies operating shorter are less connected with the primary bank.

H9. Production companies undertake cooperation with a higher number of banks and, therefore, their links with the primary bank are weaker than the links of other companies.

Dataset

The data for this project was collected by the authors's research. The research was carried out in the second and the third quarter of 2014 on a random sample of 758 enterprises which employ more than 49 persons. Questionnaire-based interviews were carried out using CATI and CAWI techniques. In the research sample, 396 enterprises were classified as family businesses with the mentioned definition, the rest are non-family firms. As a result of the relative short period of market economy in Poland the average age of the enterprises is only 21 years. Most of these firms (68%) are founder owned, 31% are in the hands of the second generation and only 1% in the hands of further generations. In our sample there is a domination of mid-sized firms (average 114 employees), but from the point of view of turnovers there are 75,2% of the firms with a turnover of less than 10 Mio €. Most of the enterprises (57,1%) are producing firms, 13,8% in the field of building industry, the rest in other industries. 38% of the firms realized their sales mainly in their own region, 43% in whole Poland and 19% abroad. Responses to the questions in cooperation with banks were provided by 391 companies (from 396 firms), of which 167 cooperate permanently over the long-term *with one bank* (42,7%), the rest with two banks (39,4%) or more than two banks (17,9%). These 167 firms are the basis of our research.

Econometric model

The analysis of cooperation of family businesses with banks was conducted in terms of above mentioned defined characteristics of the firms. However, such factors which characterize the banking sector and the business environment - as development and the nature of the banking sector, bank policies and the macroeconomic situation - were not taken into consideration. Individual data related to the investigated entities were adopted as explanatory variables. The variables used come from one period and an explanatory variable is dichotomous by its nature. Therefore to carry out research a cross-sectional logit model was used.

For the model with a dependent variable, a binary variable (RB) was adopted which determines the relationship of the family business with the bank:

- RB = 1, when the company is served by one bank (relationship banking),

- RB = 0, when the company is served by more than one bank (no relationship banking).

The selection of explanatory variables was made taking into account the findings of research on family businesses. It referred, in particular, to specific characteristics of family businesses which result from familial nature of the ownership. For the explanatory variables 9 characteristics of the enterprise were adopted:

Total value of assets, self-classification to family businesses, generation of the owners, family share in equity, number of family members on the management board, degree of focus on the long-term development of the firm, degree of focus on survival, the bank serving the company is at the same time the bank of the family, the company's age, the type of business activity – production vs. others.

The correlations of all couples of variables were calculated and it was investigated that statistically confirmed interrelations appeared in the following cases:

- focus on long-term growth of the company's value and focus on long-term development (the Pearson's correlation ratio: 0,306), thus the first variable was eliminated from the model;

- the prevailing type of business activity – production, the prevailing type of business activity – trading (the Pearson's correlation ratio: 0,616), therefore these two variables were replaced by the other: industry (1- production company; 0 – other). The logit model was estimated on the basis of modified collection of the variables.

The interpretation of the results by applying such a model goes as follows:

1) When the value of parameter is higher than zero, it is assumed that the factor described by an independent variable has a stimulating effect on the probability (possibility) that the examined event will take place.

2) When the value of parameter is less than zero, it is assumed that the factor described by an independent variable has an inhibitory effect on the probability (possibility) that the examined event will occur.

3) When the value of parameter is equal to zero, it is assumed that the factor described by an independent variable has no effect on the probability (likelihood) that the examined event will occur.

Empirical results

The hypotheses assumed in the research were subject to the verification by determining statistical significance for the explanatory variables. The calculations were made in the SPSS programme. The results of the estimates and the value of odds ratios are presented in Table 1.

The results of the estimates proved that the size of the family business has impact on maintaining a long-term cooperation with the bank based on the defined above rule of relationship. Significant and negative factors occurred with reference to the volume of the value of the company's assets (Hypothesis 1). *As the size of the company increases, its propensity to maintain relationship with only one bank decreases.* The company needs more funding and a higher number of bank products. It is also more active in looking for more favourable terms of bank services functioning on the transaction banking basis. Larger family firms would have more own financial experts who are able to compare and evaluate the offers of the banks ("more professionalism"); this is probably a sign for more financial sophistication.

Table 1. Results of estimations of model and significance level

Content	Parameter B	Significance (p)	Exp (B)
Log (Total assets 2013)	-,747	,004	,474
Self classification to family business	,838	,022	2,312
Generation of owners	-,342	,171	,710
Share of family in equity capital	,007	,533	1,007
Number of family members in board of company	,254	,075	1,289
Focus on long term growth of company's value	-,219	,433	,803
Focus on survival of company	-,803	,146	,448
Company's bank is parallel the bank of family	-,416	,041	,660
Age of company	,002	,902	1,002
Industry (1 - production company; 0 - other)	-,371	,149	,690
Constant	3,400	,037	29,954

The number of corrects prediction cases:183 (63,3%)
Reliability ratio test: $\chi^2 = 28{,}561$ [p=0,001467]
Source: Own calculations.

For the model negative and *significant factors* occurred for the variable determining *cooperation of the company with one bank which, at the same time, manages personal assets of* *the family that own them* (Hypothesis 7). It suggests that in the case of such reliance, the willingness to seek for cooperation with *more banks* increases. For family firms independence is a very important factor: If there is a strong personal relationship to private property and to the firm the family members will look more to other banks to secure independence from the one and only bank. In this case the authors argue that here may be cultural factors (Poland) in play.

A variable with a major impact on maintaining long-term cooperation with one bank is the one recognizing that the surveyed entities are family businesses (Hypothesis 2). For the estimated model the coefficient is positive. The results obtained indicate that the more the *company considers itself to be a family business, the more likely it is to maintain cooperation with one bank*. Family firms have a strong personal influence, probably with all partners; so they like to discuss their financial problems with one bank, in most cases with the same person. A more profound interpretation of this finding is impaired by the fact that in the research the company's sense of family was not expressed in a scale. The odd ratio calculated for particular models indicate, however, that there is a probability (possibility) of 131,2 % that the company will extend its cooperation to another bank.

The research allowed also us to confirm the hypothesis that the *share of the family members in the company's management has an impact on maintaining long-term cooperation with one bank (Hypothesis 5)*. Here the explanation lies in seeking an effective relationship in financial affairs and a higher value of personal relationship in family firms, because they are more informal as e.g. listed companies. While doing research on this variable and taking into account that it refers to the number of family members who are members of the board, leads to the conclusion that introducing to the board another family member increases the chance to tighten cooperation with one bank by 28,9%.

The hypothesis on the dependence of maintaining long-term cooperation with one bank for which *generation* the family has been the owner of the company, in respect of Polish family businesses, has not been proved either (Hypothesis 3). For the estimate carried out within this model, there was a negative sign for this variable, though it did not prove statistically significant. On the basis of the estimate for the model, one might conclude that this factor has a certain influence on the company's bank service based on relationship banking. Negative values of the coefficient indicate that, along with the transfer of the enterprise to the next generation, the relationship with one bank plays a lesser role and the propensity to use services of a greater number of banks is getting higher.

The estimates made do not confirm, however, any significant impact on maintaining by family businesses long-term relationship with one bank, depending on realization of *long- term goals* (Hypothesis 6). Negative signs occurred, in particular, for family businesses which put much weight on survival and the assurance of passing the company on to the next generation. Those enterprises are less willing to lock in their relationship on cooperation with one bank. Companies focused on a long-term growth of their value in general are more prone to maintain long-term relationship with one bank.

The results of the research did not prove either any significant influence of the *family share in equity* on maintaining relationship with one bank (Hypothesis 4). The factors, positive and close to zero, allow us to state that the increase in the family share in equity will increase slightly the likelihood of maintaining relationship banking. The same applies to the explanatory variable of the *age of the company* (Hypothesis 8).

An explanation for the family share is – compared with the family members in the management board – that the "operating" persons are important; this is not a strategic decision of high relevance, so the owners do not exercise their influence. As well, the age of the firm is no central variable for the choice of a bank.

There was no impact of the *type of activity* (production and other industries) on maintaining long-term connections of Polish companies with one bank, although with noticeably negative signs for production companies (Hypothesis 9). It only indicates these companies' greater willingness to cooperate with a higher number of banks. Yet, the lack of statistical significance for these variables, does not allow us to draw any further conclusions.

Conclusions

The main results are that a larger (measured in asset value) family firm is not so interested in an exclusive relationship with one bank. Rather, they prefer more banking options and competitive offers. If the family-owners are in a private cooperation with one bank in their personal capacity they do not tend to favour that bank for the business's banking relationship. The high value of personal relationships show the fact that if the enterprise is more tightly knit as a family firm and if the family has larger influence in the management they tend in both cases more to single relationship banking system. It can be very valuable for further research to compare these results with family firms in other countries to bring more light under the question of cultural influences in relationship banking and maybe compare this with non-family firms.

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Acknowledgment

The authors are very grateful to the financial aid given from the Polish National Science Centre (NCN Project No. 2012/07/B/HS4/00455, “Corporate governance, ownership structure and other financial issues of family businesses in Poland and Austria – a comparative analysis”).

Foreign Listing and the Changes in Corporate Governance
– Is There a Bonding Effect?
Evidence from Ukrainian Companies Listed at the WSE

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Abstract

This paper examines the full population of Ukrainian companies present on the main market of the Warsaw Stock Exchange (WSE), that constitute the WIG-Ukraine stock index. These companies are the largest group of foreign issuers on the WSE and are used to verify existence of the bonding effect. In effect of our research we have provided evidence supporting the idea that Ukrainian companies listing on the WSE bond themselves to higher Corporate Governance standards. It comes, however, from regulatory requirements, rather than voluntary practices. We found a positive short-term effect of foreign listing (which leads to higher governance standards) on the share value. Unfortunately, in longer term – after 3 years from the IPO – most of the companies faced a dramatic decline in the share values as well as considerable underperformance against the benchmark index (which is UX). This suggests that the credit of trust from the investors was expiring gradually.

Keywords: Corporate Governance, foreign listing, bonding effect, Ukraine, WSE, financial market

JEL classification: G15, G32, G34

1. Introduction

Corporate Governance can influence various aspects of enterprise functioning, however, research on this subject constitutes a still expanding area of interest in many scientific disciplines. Among the most-frequently mentioned benefits of implementing high standards of corporate governance, the following can be indicated: (i) improvement of the developmental prospects of an enterprise, by opening to financing from external sources, therefore creating opportunities to obtain higher investments as well as for a future increase of employment and the growth rates, (ii) reduction of the cost of capital, thus increasing the company's value and making it more demandable for investors, and – as in the previous case – raising employment and the growth rate, (iii) contribution to the growth of the company's value by improving its resources and its management's effectiveness, (iv) redundancy in the risk of financial crises, which minimizes the negative economic and social effects of such occurrences, (v) building sustainable and harmonious relationships with the stakeholders (Claessens 2003).

A system of Corporate Governance (CG) *consists of those formal and informal institutions, laws, values and rules that generate the menu of legal and organizational forms available in a country and which in turn determine the distribution of power – how ownership is assigned, managerial decisions are made and monitored, information is audited and released, and profits and benefits allocated and distributed* (Cornelius, Kogut 2003). Corporate governance mechanisms can be classified at various levels (Dennis, McConnel, 2003, Tamowicz, Dzierzanowski 2002), but from our perspective, for the purpose of this paper, division into the imposed (e.g. by legal standards) and voluntary mechanisms (shaped by the authorities of the company) seems to be the most important one. As emphasized by Ferris et al. (2009), corporations – in the era of globalization and free movement of capital – can effectively choose the level of the investor protection accepted by their organs as well as the scope of the regulations to which they are the subject, by selecting the location of the company's headquarters.

The paper focuses on modifications in the standards of corporate governance resultant from carrying out an IPO in combination with introduction of the shares to foreign market trade. The aim of the study was to determine whether entering a market with higher standards of corporate governance led to implementation of changes in this area and to long-term growth of the company. The research was based on those Ukrainian companies which have floated their shares to organized trading on the Warsaw Stock Exchange. Detailed analysis of selected data from these companies allowed us to verify the hypothesis and to draw some interesting conclusions.

The remainder of this paper is organized into the following sections: section 2, which provides an overview of the theoretical background; section 3, which presents the scope of the research and the hypotheses to be tested; section 4, which outlines the corporate governance standards, in order gain a proper research context; followed by presentation of the empirical results in section 5, and conclusions in section 6.

2. Theoretical background

Among the reasons for introduction of a company's shares to trading outside its domestic market, literature mainly accentuates opportunities to improve the company's situation, involving various factors, such as improvement in valuation of the shares, lowering the cost of raising capital, improvement of share liquidity through access to a larger pool of investors, development of the company's image and its promotion, and finally – increasing the standards of corporate governance (eg. Merton 1987, Coffee 1999, Stulz 1999, Karolyi 2006, Ferris et al. 2009, Dodd 2013).

All of the above mentioned reasons have strong foundations in numerous theories and studies, some of which explain more than one of the above rationales. Based on the Merton's investor recognition model – for example – it can be concluded, that expanding a company's investor base causes lowering of the investors' expected return and increases the market's valuation of the company's shares, *ceteris paribus*. Following Merton's suggestion to go public, in order to broaden the company's investor base, the managers may tend to expand this positive tendency even further by debuting on a foreign exchange market (Merton 1987, p. 501). This can be especially advantageous for the companies with a low initial number of the shareholders, since investors in segmented markets choose those securities which they are "aware" of (Kadlec, McConell 1994).

Numerous studies support the hypothesis about increasing or at least keeping the value of the shares around the moment of a debut on a foreign market, i.e. usually within a two-month period. There are studies on American companies listed on foreign exchanges (Lee 1991; Torabzadeh et al. 1992; Varela, Lee 1993a,b; Lau et al. 1994) as well as on companies from outside the USA, listed on U.S. exchanges (Switzer 1986; Alexander, Eun, Janakiramanan 1988; Foerster, Karolyi 1993; Jayaraman et al. 1993; Viswanathan 1996; Ko et al. 1997).

The most extensive studies in this area were conducted by Miller (1999) and Foerster and Karolyi (1999). Miller sustained the conviction about a slightly positive average abnormal return for the ADRs listed for the first time between 1985 and 1995 (1.15%), however, this was also a short-term market reaction.

Foerster and Karolyi (1999), on the other hand, found – by extending the research timespan – that the prices of ADRs plunged 2 years after the initial listing, on average by 9% below the initial price. This, to some extent, is supported by Wang, Chun and Hsu (2008), based on the market of Asia-originated ADRs.

Investors have positive attitudes towards overseas issuance of the shares, because it enables to bypass many problems associated with the costs, information and the restrictions in the regulations that are traditionally associated with equity investments across borders. Stapleton and Subrahmanyam (1977), Alexander et al. (1987), Eun and Janakiramanan (1986) and Errunza and Losq (1985) revealed that listing of the shares on another market in addition to the domestic one, where those two given markets normally would be segmented by the above mentioned problems, increases the equilibrium market price and reduces the expected return. It is due to the differences in local and global risk-exposure and in the cost of capital.

The following studies have assessed the changes in the total risk or in systematic market risks occurring around the listing date. For American companies listed outside the USA, the share-return volatility values slightly changed, while domestic market betas rose very delicately (Howe, Madura 1990; Varela, Lee 1993b; Howe et al. 1994; Lau et al. 1994). As for the changes in the risk for non-American companies listed in the USA, some studies have revealed a major decline in those companies' domestic betas, but no change in their global or American market betas; while other – a major growth of the parameter outside home country and no change on the domestic market. (Foerster and Karolyi 1993, 1999; Jayaraman et al. 1993)

The results for the firms outside the USA reflect lower capital costs following a listing abroad, assuming the usually-higher local market's risk premiums, as compared to global markets, and presuming a value increase around the time of listings. It should be added, that – in some cases – lowering the cost of raising capital does not only refer to the cost of the capital raised directly on a foreign capital market, but also to the debt for cross-listed companies (Champagne, Kryzanowski 2009).

Amihud and Mendelson (1986, p. 246) declare, that broadening the base of investors increases liquidity and – in consequence – reduces the cost of capital, as such, a growing level of liquidity can increase the value of the company. Some corporate managers, who conducted foreign listings of their companies, have similar beliefs, which primarily are motivated by the urge to increase liquidity – as can be read in some surveys (Mittoo, 1992b; Fanto and Karmel, 1997; Bancel, Mittoo 2001). Earlier studies, by Tinic and West (1974), have already discovered that 112 Canadian papers cross-listed on U.S. exchanges had lower bid-ask spreads than their equivalents traded only locally. More studies – showing intraday data and reaffirming this pattern – followed. For example Werner and Kleidon (1996) showed an unusual rise of volatility and the trading value of Japanese ADRs, recorded after the exchange in Tokyo end its session, and in the trading value of UK ADRs after the London market closes (around 11 a.m. NY time). Foerster and Karolyi (1998) supply information about the intraday volume ascent equal to a 29% increase and about shrinking of the intraday effective spreads by 44 basis points, both recorded for 52 Canadian firms present on the U.S. market. Smith and Sofianos (1996) noticed a rise in the daily average per-share trading values of 128 foreign shares listed on the NYSE, by 34% (from $240M to $340M).

Apart from the above mentioned reasons for listing abroad, there are some other issues which have been covered by more recent research – emphasizing, for example, the role of information, price, liquidity or investment banks in foreign listings (Karolyi 2006). In our view, the most important issue raised in this paper is described by the legal bonding hypothesis formulated by Coffee (1999) and Stulz (1999), which states that the companies from the countries with lower legal and regulatory standards, issuing their shares on markets in countries with higher standards, tend to comply with those higher standards of corporate governance, as opposed to the companies only present on domestic markets.

Introduction of a company to a trading system in a country with higher standards of corporate governance makes it a subject of interest to the local authorities supervising the capital market and causes the issuer to fulfil restrictive entry requirements for organized trading as well as subjects it to more stringent regulations on securities trading. Broader disclosure obligations and the requirement of independently audited annual and interim reports increase~~s~~ the enterprise's transparency and broadens the pool of the analysts who monitor the issuer's situation (Ferris et al. 2009).

Of course, as Coffee indicates, not all companies which have the potential to introduce their shares to trading abroad take advantage of this opportunity. This is particularly important in the case of companies dominated by a single shareholder, since introduction of the shares to trade on a foreign market results in incurring the costs of adjusting to higher standards and requires the dominant shareholder to resign from the private benefits of control over the company, as to better protect the rights of minority shareholders. On the other hand – access to developed foreign markets allows acquisition of significant amounts of capital, while improvement in the standards of corporate governance significantly reduces agency risks, which, in turn, results in lower capital costs and in higher market values. Decision to start quotation on a foreign market is, therefore, a choice between the potential benefits and the scope of the dominant owner's power (Coffee 2002).

Many researchers have wrestled over verification of the bonding concept. Doidge et al. (2004) analysed foreign companies listed in the U.S. and found that cross-listings are associated with higher rates of Tobin's Q at 16.5% and a market value higher by 37%, compared to the issuers present only at domestic capital markets. Campbell and Tabner (2014) found that the firms graduating from the AIM to the main section of the LSE generate positive returns on the announcement date, while movement in the opposite direction is connected with negative returns. For both categories of firms, the situation changes after the listing - the companies moving up earn lower returns, while those moving down earn higher returns. A detailed review of the research, the results of which are consistent with the assumptions of bonding, are presented by Ferris et al. (2009). Lel and Miller (2008) admit that the companies from the countries whose legal systems offer less protection for the investors and which are cross-listed on a major U.S. Exchange, are more predisposed to eliminate ineffective CEOs than the companies not present abroad. The listings in London or on the markets without such a high level of investor protection (OTC, private placement) are not bound to have a greater tendency to remove incompetently governing CEOs.

It should be emphasized, that there are voices in this discussion, which contradict the concept of bonding (Licht 2003, Bancel, Mittoo 2001; King, Segal 2004). Jordan (2006), for example, notices an interesting phenomenon – companies from the countries with strong corporate governance standards can also enjoy benefits from trading their shares on foreign exchanges, however, such benefiting cannot be justified by the change in the system of corporate governance. His statement is based on multiple examples of Canadian companies entering the U.S. market. Moore et al. show an inverse relationship of cause and effect – they examine corporate governance standards functioning in a company before an IPO (e.g. presence of the instruments linking remuneration of the managers with company's performance) as a factor in determining the choice of a specific target market. (Moore et al. 2012)

Rosenbloom and van Dijk (2009) analysed 526 companies from 44 countries, which decided to introduce their shares to organized trading on 8 most developed capital markets outside the country of their headquarters and observed their reaction to the market. The companies listed in the U.S. and in the UK – as shown by their research – were reported to improve the standards of corporate governance, which translates into an increase in the values of the companies, while in the case of other stock exchanges – European and Japanese – this effect was not observed. What is more, Fluck and Mayer (2005) in their extensive study, suggested that – when the decision of reincorporation is in the hands of the managers – they choose to reincorporate in a country with a less stringent corporate governance mechanism. Ergo, when the home country does not bring more deregulation in this area, companies tend to flee abroad in a pursuit of lower, rather than higher, CG standards. Various aspects of entering the markets with less stringent regulations (reverse cross-listing) have been discussed by Howson and Khanna (2014).

Following our observations and the conclusions of Rosenbloom, van Dijk (2009) and Ferris et al.(2009), the global literary output in this area is rich in studies on cross-listing of Russian, Canadian and West-European companies in the U.S., while there are few publications on foreign listings in less developed capital markets and on their impact on the level of corporate governance standards. The desire to fill this gap was the main incentive for us to undertake research on the countries in Central and Eastern Europe.

3. The research sample and the methods

Between 2005 and 2012 there were 27 IPOs of companies with Ukrainian origins: 13 of them took place in London, 12 in Warsaw, 1 in Frankfurt and 1 in Toronto. During this period, Ukrainian issuers raised more than 2.5 billion USD, with an average issue value of 93 million USD. In our paper, we analyse the full population of Ukrainian companies listed on the main market of the Warsaw Stock Exchange (WSE). These issuers started listing their shares during the period between 2005-2012 and nowadays constitute the WIG-Ukraine stock index. We have excluded the 12th firm – Agroliga - as this company had the lowest issue among all companies (1.4 million USD) and was the only company that entered the alternative market in Warsaw called the New Connect.

We have decided to analyse this sample, because Ukrainian companies constitute the largest group of foreign issuers on the WSE and pose as an interesting study-object to be used to verify existence of the bonding effect, since Ukraine does not belong to the EU structures and has more flexibility in the design of the capital market regulations and laws. This issue will be discussed in more detail in section 4.

In our analysis, we had to take some limitations into consideration. One of our first observations was that due to an unfavorable legal background (cross-listing limitations), Ukrainian companies opted for reincorporation in other European countries – well known tax heavens, such as Luxembourg, Cyprus or the Netherlands – and conducted IPOs on foreign markets, without being listed domestically. The fact that we do not have the share price values neither other market characteristics, such as bid-ask spreads or risk measures for the period preceding the foreign listing, precludes application of the tools used for event analysis or for structural change analysis, which are the most common methods for testing the existence of the bonding effect. Moreover, we were not able to obtain data that would allow us to calculate the average shareholder investment, thus, the only measure of the shareholders' base improvement was dilution of the capital at the IPO and a further free float.

Our sample was relatively small and therefore we were not able to control the size nor the sector, which was another limitation, yet we argue that it still may be valuable to have a closer look at this segment. We have therefore focused on qualitative research and conducted limited quantitative analyses, in order to determine what kind of changes occurred in the CG practices of those entities and whether these changes, potentially, could have had impact on the shareholder value. In our research, we wanted to refer to 5 out of 6 mentioned by Stulz (1999) mechanisms used for monitoring the management, which are: (i) an independent board of directors, (ii) certification in the capital markets, (iii) legal protection~~s~~ of minority shareholders, (iv) disclosure requirements, and (v) active shareholders. We argue that the 6th mechanism - the market for corporate control – is of less importance, since the structure of ownership turned out to be highly concentrated.

We set the following research hypotheses:

H1: Foreign listing caused the Ukrainian issuers at the WSE to implement higher CG standards than domestically listed companies.

H2: The share values of the Ukrainian companies listed on the WSE outperform the Ukrainian market benchmark.

We have analyzed each company's prospectus and financial statements up to 3 years after the IPOs. Our research was complemented by reviews in the press releases published at the time of the IPOs, by corporate websites, CG ratings by Concorde Capital and by market data from the WSE.

4. Ukrainian vs. European Corporate Governance standards

Our earlier paper (Golec, Gabriel 2013) confirmed our assumption that, at the national level, Ukrainian CG standards were much lower than Polish ones, and they generate a significant investment risk, which can be illustrated by the following quotation from the offering prospectus of one of the WSE debutantes.

Most Ukrainian companies do not have corporate governance procedures that are in line with generally accepted international standards. The concept of fiduciary duties of the management or the members of the board to their companies or to the shareholders remains undeveloped in Ukraine. Violations of the disclosure and reporting requirements or breaches of fiduciary duties by the Company's Ukrainian subsidiaries or its management could significantly affect receipt of *material information or result in inappropriate management decisions (Astarta's Prospectus p.20).*

While the Ukrainian code of good practice (Ukrainian Corporate Governance Principles 2003), introduced in 2003, should be rated fairly high – compared to other codes released at that time – the legal framework and its actual implementation, however, diverge from the standards of developed markets. Ukrainian law did not provide protection of the minority shareholders' interests in the area of giving opinions on the company's decisions. Members of the company's statutory bodies were subordinated to its majority shareholder, leaving the minority shareholders without real possibilities to prevent malpractice (Zagnitko, 2010).

In this context, it is not surprising that one of the ideas guiding the local code of good practice was to grant the minority shareholders the option to withdraw from the investment at a fair price – in case of disagreement with the main shareholder. The Code appeals for introduction of the right to request a redemption of the shares by minority shareholder, in the event of disagreement with the decisions taken by the General Meeting of Shareholders (GMS), at a fair value (not less than the average rate for the last 2 months). Furthermore, the Code contained – besides technical recommendations about organization of general meetings – the rules about ensuring a fair and transparent vote-counting system without restrictions on the disposal of the shares, and the procedures to be implemented for prevention of confidential information use by the insiders (Ukrainian Corporate Governance Principles 2003). It should be emphasized that the Ukrainian equivalent of the Financial Supervision Authority did not regulate transactions carried out by the members of the board and by senior management, which provides plenty room for malpractice. (Zagnitko, 2010)

Recommendations of the Code concerning work organization and composition of statutory bodies did not differ substantially from European standards, both in terms of appointment of the committees, introduction of independent members to a supervisory board or a detailed disclosure of the remuneration levels. Nevertheless, analyses of Concorde Capital show that the rights of minority investors as well as transparency are far from satisfactory levels. (Fisun& Klymchuk 2008, Wells 2011; Parashiy et al 2013)

In the era of information society, the fact that the Code recommended to "promptly" publish important information about the company – which means within two days from an event being a subject to reporting – seems to be somewhat surprising (Ukrainian Corporate Governance Principles 2003). The choice of a reincorporation country brings important consequences, which may be a proxy for CG standard improvement readiness. In our sample, 5 out of 11 companies chose Luxembourg for their reincorporation, and the remaining ones were divided equally between Cyprus and the Netherlands (3 entities in each country). We find it quite surprising that none of the issuers chose Poland as a reincorporation destination, but since all those destinations are tax heavens, we may assume that the tax benefits had overweighed the inconveniences associated with being listed on a market other than the incorporation country.

The systems of corporate governance in Luxembourg, Cyprus, the Netherlands and Poland are based on European Union (EU) regulations – mainly on the EU Corporate Law Directives, e.g. Directive 2013/34/EU and Directive 2013/50/EU dealing with transparency, Directive 2004/25/EC which sets minimum standards for takeover bids, Directive 2007/36/EC on shareholder rights, as well as Recommendations 2014/208/EU on corporate governance reporting, 2009/385/EC and 2009/384/EC on remuneration, 2005/162/EC dealing with the role of non-executive or supervisory directors – just to name a few. Additionally, there is Regulation No 596/2014 on market abuse and Directive 2014/57/EU on criminal sanctions for market abuse. All issuers on the WSE are required to provide information regarding whether or not they comply with the provisions of the CG Code (*comply or explain* rule), but the companies incorporated in the Netherlands and whose shares are listed on a regulated market (domestic as well as foreign) are required under Dutch law to disclose in their annual reports whether or not they comply with the provisions of the Dutch Corporate Governance Code. Entities from Luxemburg or Cyprus are not obliged to provide information about compliance with given domestic codes of CG.

It is not our aim to go into detail about the differences in the CG systems in the above mentioned countries, therefore, in order to provide a concise comparison, we used 8 World Economic Forum sub-indices, which are presented in table 1. We used an arithmetical average, because, in most cases, it did not differ from the median, while the highest difference was 0.2 points on a 7 point scale.

Table 1. Investors' perception of selected country characteristics related to Corporate Governance (2005-2013 averages)

Characteristics \ Country	Ukraine	Poland	Cyprus	Luksembourg	The Netherlands
Efficiency of the legal framework in settling disputes *	2.31	3.01	4.59	5.34	5.49
Judicial independence *	2.32	3.98	5.16	5.81	6.34
Property rights *	2.91	4.25	5.39	6.16	6.11
The strength of investor protection **	4.20	5.96	5.65	4.30	4.70
Protection of minority shareholders' interests *	2.95	4.22	4.99	5.07	5.35
Strength of auditing and reporting standards *	3.62	4.86	5.53	5.95	5.96
Efficacy of corporate boards *	4.27	4.33	4.05	5.32	5.46
Ethical behavior of firms *	3.19	4.22	4.53	6.01	6.22

* range: 1= the worst ; 7 = the best

** range: 1= the worst ; 10 = the best (the characteristic comes from the World Bank reports and is included in WEF database and reports)

Source: World Economic Forum Data Platform (2014).

We need to stress, that we are cognizant of the problem with defining "better" and "worse" CG systems, as mentioned by Howson and Khanna (2014). We agree that it is necessary to capture more than just the formal laws and regulations related to CG, since they may be differently implemented, enforced and followed. We are aware that the investors' perception of the system, although possibly exaggerated or flawed, is an important factor as well.

The data presented in Table X shows that Ukraine clearly has the lowest scores in all the aspects and that evaluation of the CG systems in the EU member states varies, which suggest that common perception of the system's efficiency is not the same for all the states. Poland has the highest scores for investor protection, but its judicial system has been evaluated as relatively low. Cyprus has been rated better than Poland in all aspects, except board efficacy and investor protection. Assessments of the same aspects, except for investor protection, in the "old" EU members: Luxembourg and the Netherlands, are similar and definitely better than those of the new member states. Based on the above, we can assume that reincorporation of a Ukrainian entity in a EU member state as well as listing in Poland resulted in entering an environment of significantly higher CG standards and created a potential for legal bonding.

5. Empirical results

Our analysis has revealed that all of the issuing companies implemented IFRS and the financial statements were verified by independent auditors, which was a significant improvement for potential investors. Those decisions, however, were conditioned by an external regulation, thus we paid more attention to the choice of a given investment bank or an auditor~~s~~, which is a company's independent decision and may be an important signal related to the *certification in the capital markets*. According to Stulz (1999), companies from less developed markets need to choose highly-reputed investment banks, who provide a monitoring function, to certify themselves as reliable for potential investors. We argue, that the same mechanism works for the choice of the auditors. Table 2 presents information about investment banks and auditors of Ukrainian issuers.

It can be observed that most of the issuers (6 out of 11) chose BZ WBK – since 2010, a Polish subsidiary of the Spanish Santander group. BZ WBK is well-known to the actors on the Polish market, however, it is doubtful whether the same could be stated for foreign investors. We can assume, that the companies had decided it was not necessary to become involved with an internationally recognizable investment bank, since the issue was to be placed on the Polish market. The ING group participated in 3 issues, KBC securities in 2, and UniCredit Bank only in one. Surprisingly, the choice of an investment bank was not related to the value of the offering.

All companies opted for reputable independent auditors – most of them for an entity from the Baker Tilly group. BDO and KPMG were chosen by 2 issuers, while Deloitte only by one. What is important, is that the relation with an external auditor, in most cases, was of a long-term character, as only 3 companies had their financial statements verified by a member of another auditing capital group within 3 years after the IPO.

Table 2. Investment banks and auditors at Ukrainian IPOs in Poland

	IPO date	Company Name	Invest-ment bank at IPO	Auditor at IPO	Type of auditor's opinion at IPO	Reasons for a qualified opinion and other emphasis of matter
1	2006	Astarta	ING	KPMG	Qualified	The auditors were unable to determine whether adjustments to costs of revenues, income tax and net profit may be necessary, because they were engaged after stocktaking.
2	2007	Kernel	ING	Baker Tilly Ukraine	Un-qualified	
3	2010	Agroton	BZ WBK	Baker Tilly Klitou – Cyprus	Un-qualified	
4	2010	Milkiland	UniCredit	BDO	Un-qualified	
5	2010	Sadovaya	BZ WBK	Inter-audit*	Qualified	The auditors did not receive sufficient evidence on transactions with certain counterparties, in respect of the formation of cost of inventories, dividend distribution, trade and other accounts payable. Without qualifying the opinion, the auditors drew attention to possible differences in interpretation of transactions for tax purposes between the

						Group and tax authorities.
6	2011	KSG Agro	BZ WBK	BDO	Un-qualified	
7	2011	Industrial Milk	ING	Inter-audit*	Qualified	The auditors were unable to determine whether adjustments to costs of revenues, income tax and net profit may be necessary, because they were engaged after stocktaking.
8	2011	Westa	BZ WBK	Deloitte	Qualified	The auditors did not obtain sufficient evidence on distributions to shareholders and were unable to determine whether any adjustment to the amount of 12.8 million USD were necessary. Without qualifying the opinion, the auditors drew attention to a significant portion of related party transactions and high concentration of sales and outstanding balances with one major customer. The auditors included corresponding figures for the previous year that were audited by their predecessors. The predecessor auditors expressed a qualified opinion for

						being unable to verify inventory quantities and distributions to shareholders (14.8 million USD)
9	2011	Ovostar	BZ WBK + KBC Securities	Baker Tilly Ukraine	Qualified	The auditors identified the property, plant and equipment valuation model as inconsistent with IAS 16. (Value 7.7 million USD)
10	2011	Coal Energy	BZ WBK	Inter-audit*	Qualified	The auditors were unable to determine whether adjustments to costs of revenues, income tax and net profit were necessary; The auditors were not able to confirm that the accounts payable, the notes issued in the consolidated statement, were recorded in full, since they did not obtain sufficient evidence as to the completeness of the disclosures on cross financing transactions settled with certain counterparties. Without qualifying the opinion, the auditors drew attention to a significant portion of related party transactions and that the interpretation of transactions for tax purposes between the Group and the tax

						authorities can differ significantly, resulting in higher tax liabilities.
11	2012	KDM Shiping	KBC Securities	KPMG	Un-qualified	

* Interaudit is a member of Baker Tilly International (Luxembourg).
Source: Own elaboration.

In 6 out of 11 cases the auditor issued a qualified opinion, which may signal additional risks for the investors. The problems pointed out by the auditors referred to: inability to verify inventory quantities, unclear related party transactions and tax treatment of certain transactions. Our next area of interest was the change in ownership structure, as it can be an indicator of readiness to give up or to share private benefits of control as well as it can be a measure of an increase in the shareholder base. Our assessments are presented in Table 3.

Table 3. Changes in the ownership structure after Ukrainian IPOs on WSE

Company	Outsider shareholding before the IPO	Expected free float after the IPO	Expected dilution of controlling stakes*	Expected gross proceeds	Final gross proceeds
Astarta	0%	28.50%	50% -> 31.5% 50% -> 31.5%	58m$	31 m$
Kernel	0%	37.97%	100% -> 62.03%	120-160m$	160 m$
Agroton	0%	26.20%	100% -> 73.8%	54 m$	54 m$
Milkiland	0%	20%	94% ->72.8%	100m$	83m$
Sadovaya	0%	25%	51% -> 38,25% 49% -> 36.7%	40-62,5m$	30,4m$

KSG Agro	2%	33%	98%->65.66%	44m$	40 m$
Industrial Milk	0%	30.3-34.9%	90% -> 58.2%	83m$	26 m$
Westa	0%	25%	100% -> 75%	70m$	47,9m$
Ovostar	0%	25%	50% -> 37.5% 50% -> 37.5%	33m$	33m$
Coal Energy	0%	25%	100% -> 75%	135 m$	79 m$
KDM shiping	0%	35%	90%->58.5%	36m$	7 m$

* including overallotment options; close family ownership was consolidated into one stake.
Source: Own elaboration.

As can be seen, outsider shareholdings were not popular among Ukrainian issuers – only 1 out of 11 companies had insignificant outsider ownership before the IPO. The Kernel's case, where there had been 2 shareholders: one having 85.7% and the other 14.3% stake in the company, was an interesting issue. However, the dominant shareholder had the call option for the remaining shares, which was executed shortly after the IPO. What is more, 32.3% of the shares were deposited at the escrow agent, who was those instruments' legal owner at the time of the IPO. Without an in-depth analysis, it could have created the impression of an institutional investor presence, and that the ownership structure was not as concentrated as it was in reality. The shareholder rights were effectively concentrated in the hands of one dominant shareholder.

All companies managed to attract attention of institutional investors - mainly Polish pension and investment funds - which can be a positive signal, however, the stakes rarely were significantly higher than 5%. It can be assumed, that without entering the Polish capital market, these investments would have never taken place, which is consistent with the market segmentation theory (Kadlec, Mc Conell 1994). Ownership dilution was a natural consequence of the IPO. The stakes offered ranged from 20% to 38%, and in all cases, the current owners maintained control over the company. Therefore the structure of corporate boards, being a representation of all shareholders' interests, was of great importance. Observation that the potential for share placement was overestimated by most of the companies can be another conclusion drawn from our analysis. Only 3 of all the issuers (Kernel, Agroton, Ovostar) raised the full expected amount of capital through an IPO. As shown by analysis of the changes in ownership, adopting resolutions about the GMS was still dependent on the founding investors' will, therefore, we decided to investigate whether the company declared willingness to make personal changes in the structure of the corporate bodies after the IPO.

The results of our research on the board structures are presented in table 4. All of the issuing companies opted for a one-tier board structure. The conclusion was that only 2 of the companies (Milkiland and Ovostar) referred to the need of reflecting new ownership structure of the board after the IPO. Another issuer (Westa) went for a short term of office for the board members elected before the IPO, but the rest of the companies nominated their directors for long-term positions. Our next observation allowed us to infer that was a tie, when it comes to conclusions about the good practice of separating the Chairman and the CEO functions. Out of the analyzed companies, 4 followed the recommendation, 4 other did not, while 3 companies did not establish a Chairman function at all. More importantly, in most cases, the founders acted as Chairmen and/or CEOs, which strengthened their position against new investors even more.

Table 4. Corporate Governance standards in Ukrainian WSE-listed companies, with respect to board structure

Company	Separation of the CEO and the Chairman functions	The role of dominant share-holder(s)	Independent board members	Foreigners on the board	Declared changes in the board~~s~~ structures after the IPO
Astarta	yes	Chairman; CEO	no information	50%	No (the term of office of current board members expires after 4 years from the IPO)

Kernel	No	Chairman & CEO	33%	50%	no (the term of office of current board members expires after 3 years and independent members after 1 year from the IPO)
Agroton	no chairman function	CEO	40%	0%	no (no expiration for the terms of office for board membership)
Milkiland	yes	Chairman	0% (target 33% after IPO)	0%	Yes (nomination of 2 independent members after the IPO)
Sadovaya	no chairman function	Executive managers (2 dominant owners)	29%	29%	no (the term of office of current board members expires after 6 years from IPO)
KSG Agro	No	Chairman & CEO	40%	40%	No (the term of office of current board members expires after 5 years from the IPO)

Industrial Milk	yes	Chairman	50%	50%	no (the term of office of current board members expires after 5 years from the IPO)
Westa	no chairman function	CEO	33%	33%	No (the term of office of 2 out of 3 current board members expires after 1 year from the IPO)
Ovostar	yes	Chairman; CEO	25%	25%	yes (new independent member nominated after the IPO)
Coal Energy	No	Chairman & CEO	43%	43%	No (the term of office of current board members expires after 6 years from the IPO)
KDM shiping	No	Chairman & CEO	40%	0%	No (no expiration for the terms of office for board membership)

Source: Own elaboration.

To compensate for an unfavorable impression caused by the composition of the board as well as to increase credibility, the companies decided to introduce independent board members (mostly foreigners). Apart from the case of Astarta, where no data was provided in the prospectus, independent members were supposed to account for 25% up to 50% of the board, directly after the IPO. It is worth mentioning that Astarta introduced 2 independent members in the year following the IPO.Another interesting consideration regarding corporate boards concerned appointment of the board committees and their composition (Table 5).

Table 5. Board committees in Ukrainian WSE-listed companies, at the time of the IPO

Company	Audit committee	Audit committee structure	Remuneration committee	Remuneration committee structure
Astarta	No*	n.a.	No*	n.a.
Kernel	whole board	min 2 independent members	whole board	min 2 independent members
Agroton	Yes	2 non-executive members	Yes	2 non-executive members
Milkiland	Yes	67% non-executive members	whole board	33% independent members
Sadovaya	Yes	67% independent members	planned in the future	n.a.
KSG Agro	declared appointment after the IPO	67% independent members	whole board	40% independent members
Industrial Milk	Yes	100% independent members	Yes	100% independent members
Westa	No (appointment not excluded	n.a.	No	n.a.

	in the future)			
Ovostar	Yes	100% independent members	whole board	target - 50% independent members
Coal Energy	Yes	100% independent members	No	n.a.
KDM shiping	Yes	100% independent members	Yes	100% independent members

* The year following the IPO (in 2007), Astarta reported compliance with a principle involving the half of the non-executive directors being independent members. The company also established an audit committee (including at least 2 independent members) and a remuneration committee.
Source: Own elaboration.

Our research revealed that most of the issuers (64%) appointed an audit committee at the time of the offer, one company declared to establish such body after the IPO, one company delegated the obligations to the entire board, and two companies did not have an audit committee at all. We have to emphasize that all of the IPOs took place when the recommendation to appoint an independent audit committee was already present in the WSE Code of Best Practice.

Appointment of a remuneration committee was not that common. Only 3 entities established a remuneration committees at the time of the IPO, 4 companies delegated the obligations to the whole board, one considered appointment of such body in the indefinite future, and 3 entities declared no intention to establish remuneration committees. Analysis of the committees' composition shows that, if the company decided to establish such body, then, in most, cases the fraction of independent directors was sufficient to influence the decisions of this body.

The above presented analysis suggests that there were improvements in the Corporate Governance standards, caused by foreign reincorporation and listing; yet, the companies could have gone much further in their efforts. This suggests that the changes were forced by an external pressure to place the offer and by obligatory regulations, rather than resultant from a deep desire to improve in this matter and to treat all shareholders fairly. This raises a ~~questions~~ whether the standards do not decrease directly after an IPO. Our concerns were strengthened by assertions from a local organization, which prepares successive independent CG standard ratings of main Ukrainian corporations.

"*What is being observed is a process of fatigue from maintaining high standards: former newcomers, on average, slip quicker in our new ratings (…) As long as the debutantes saw a benefit from the securities market, they took on such expenses. But with time, many of them stopped seeing the benefit and withdrew from maintaining high standards. Some debutantes made efforts only for the sake of showing themselves in the best light, before gaining financing on the capital markets. After the placements, they stopped trying to prove anything*" (Parashiy et al., 2013).

Therefore, we decided to verify whether the changes in the CG of the examined companies were of temporary or long term character. To place the analysis in a broader context, we used Concorde Capital CG ratings, in order to compare the quality of the governance standards of Ukrainian issuers listing domestically and abroad. Concorde Capital is a Ukrainian investment advisory company and its ratings were prepared as part of a grant program supported by the USAID. The ratings are scaled 0-10 (with 0 being the worst mark) and assess 10 criteria divided into 3 main groups: reporting and disclosure, minority concerns, and investor relations. The first group of the criteria focuses on the accounting and reporting standards as well as on corporate and ownership disclosures. The second group deals with the dilution risk, with a significant presence of institutional investors (10% or higher), and with agency risks of suboptimal business decisions. The third group refers to management accessibility, to the efforts to keep the investors informed on current activities, and to corporate websites. It is important to mention that there were some changes in methodology of the rating in 2011, which do not, however, interfere with the assessment of the two companies that were listed at WSE at that time. Table 6 presents the rating values and reveals a few interesting facts.

First of our findings indicated that the average CG scores of the companies listed on the WSE were decreasing over the years, but the average score as well as the scores of single companies (with one exception – Agroton in 2013) were still higher than the Ukrainian average, which is another argument supporting existence of the bonding effect. Furthermore, the regulatory requirements forced by foreign reincorporation and listing caused 7 of the Ukrainian WSE listed companies to be placed among the top 15 companies in the 2013 rating edition, while the entity with the lowest CG rating was ranked at a 57th place out of 87 (Parashiy et al. 2013).

Our second finding revealed that the average CG score of the Ukrainian companies (domestic and foreign share issuers) analyzed by Concorde Capital was increasing over the years. This may signify that the quality of CG is improving, which, however, may have resulted from altering the methodology – for an entity with a score between 5 and 6 in 2011 the adjusted 2008 rating would range between 4.0-1.5, which would mean that the general level of CG standards did not improve over time. Additionally, the rating authors mentioned that such a strong outcome in recent years resulted from *the survey's replenishment with quality newcomers and the departure of unsuccessful companies (from the perspective of the securities market as well as corporate governance*) (Parashiy et al., 2013). This also suggests that in our interpretations we have to be aware of the survivorship bias.

Table 6. Concorde Capital CG ratings of Ukrainian issuers listed at WSE

	The IPO date	Company Name	Country of reincorporation	CG Rating *		
				2008	2011	2013
1	2006	Astarta	The Netherlands	9.5	10.0	10.0
2	2007	Kernel	Cyprus	9.5	8.0	10.0
3	2010	Agroton	Cyprus	n.a.	8.0	4.5
4	2010	Milkiland	The Netherlands	n.a.	9.0	9.5
5	2010	Sadovaya	Luxemburg	n.a.	9.0	6.5
6	2011	KSG Agro	Luxemburg	n.a.	n.a.	8.5
7	2011	Industrial Milk	Luxemburg	n.a.	n.a.	9.0

8	2011	Westa	Luxemburg	n.a.	n.a.	6.0
9	2011	Ovostar	The Netherlands	n.a.	n.a.	9.0
10	2011	Coal Energy	Luxemburg	n.a.	n.a.	9.0
11	2012	KDM Shiping	Cyprus	n.a.	n.a.	9.0
Average for Ukrainian WSE listed companies				9.5	8.8	8.27
Average for all Ukrainian companies ranked				3.98	5.14	6.09

* Scale: 0=the worst 10=the best.
Source: Own elaboration based on Fisun, Klymchuk 2008, Wells 2011, and Parashiy et al., 2013.

Thirdly, it can be noticed that the first two debutantes maintain high CG standards and consequently rank among the best CG companies in Ukraine. The later debutantes did not manage to achieve such high scores; what is more, in two cases (Agroton, Sadovaya) we can observe a significant drop in the score values after the IPO. As we did not want to solely rely only on secondary sources and we wanted to go into more detail on this matter, we studied the financial statements for the 3rd year~~s~~ after the IPO. Since the companies entered listings at different times and because the code of best practice for the WSE-listed companies changed 4 times within the period between 2006- 2014, we focused on certain general aspects rather than on specific provisions of the codes.

We have noticed that only 3 companies (Astarta, Kernel, Industrial Milk) exhibited no changes in the board during first 3 years following the IPOs. In Coal Energy, KSG Agro and Agroton, the resigning members were replaced by new ones. Milkiland replaced 2 non-executive directors with 3 others, while Ovostar and KDM Shipping did not appoint any new directors to replace the resigning ones. Nevertheless, in all cases, there were more than 3 board members. Apart from Sadovaya, all issuers had independent board members who constituted from 33% to 50% of the board. Out of the remaining 10 companies, only 1 (Ovostar) reported noncompliance with the provision of having at least 2 independent board members, ~~as~~ because they had only one such director on a 3-person board.

After analyzing annual reports and corporate websites, we found that most of Ukrainian issuers tried to follow the best practices recommended by the WSE, yet, their reports reflect a "box ticking attitude" rather than deep care about corporate governance issues. The most common non-compliance refers to remote participation in the General Shareholder Meetings, the remuneration policies, and to gender balance on boards. It is important to point out, that while there were companies exhibiting high standards – Astarta and Kernel (with the latter joining the WSE blue chip index between March 2011 and March 2015), some "black sheep" also revealed themselves among the issuers. The most interesting cases to be discussed are Sadovaya and Westa, as the listing of their shares was suspended twice.

In December 2013, two non-executive members of the board of Sadovaya resigned from office, making the board consist of two executive members having a controlling interest in the company through their Cypriot investment vehicle. Regardless of the situation, the company reported compliance with the provision of having at least two independent members (see table 7). The company did not have any formal remuneration policy nor auditor rotation rules. What is more, in May 2014, as a result of failure to publish the annual report for 2013, trading of Sadovaya group shares at the WSE was suspended. The issuer had disclosed the report in August, but it was not audited, thus the quality of the report may be doubtful.

The second company mentioned – Westa – experienced an even more dramatic situation. In 2014, two independent and 2 executive directors resigned from their offices, leaving the board consisting of only one executive director - the main shareholder. The annual report for the year, ending on 31.12.2013, was not published until September 2014. As the independent auditor pointed out in his qualified opinion, because the board members were not replaced as required by the statues of the company, only one director signed the financial statement, which could have resulted in potential litigations. Moreover, the auditor suggested the possibility of the group not disclosing all transactions in 2013 with related parties (i.e. revenues from related parties understated by 41 million USD). Further, the auditor mentioned that he was unable to complete the audit procedures related to compliance with the bank-agreement requirements for a long term loan of ~5 million USD..

Table 7: Sadovaya's compliance report on independent board members

Provision of the *Code of Best Practice* for *WSE Listed* Companies (2013)	Explanation provided by the company
At least two members of the Supervisory Board should meet the criteria of being independent from the company and entities with significant connections with the company. The independence criteria should be applied under Annex II to the Commission Recommendation of 15 February 2005 on the role of non-executive or supervisory directors of listed companies and on the committees of the (supervisory) board. Irrespective of the provisions of point (b) of the said Annex, a person who is an employee of the company or an associated company cannot be deemed to meet the independence criteria described in the Annex. In addition, a relationship with a shareholder precluding the independence of a member of the Supervisory Board as understood in this rule is an actual and significant relationship with any shareholder who has the right to exercise at least 5% of all votes at the General Meeting.	*Complies taking into account that there is only one governing body in the Company, the Board of Directors.*

Source: Sadovaya's annual report for 2013.

Another company, which received a qualified opinion of the auditor, was Industrial Milk. According to the auditor's report, the company breached the covenants of a long-term loan agreement and the 30 million USD loan should have been reclassified as current liabilities. However, the management, based on regular discussions with the lender, expressed their conviction that the lender would not stop further funding ~~or~~ nor demand immediate repayment within one year.

The final part of our research involved share value analysis, presented in table 4. Our aim was to investigate whether the changes in Corporate Governance supported value creation or not. As most of the companies from our population entered listings in 2010 and 2011, we have chosen to analyze the shareholder returns 6, 12 and 36 months after the IPO. We had to take into consideration that the companies entered listings at different points in time and therefore their performance could have been influenced by external factors (e.g. a financial crisis). Consequently, we decided to compare the share performance against the benchmark illustrating general performance of Ukrainian companies, and to interpret the excess returns. Appendix 1 illustrates 3 indexes which, from our point of view, are significant: (i) the WIG, being the broad market index for the WSE, reflecting the condition of the Polish capital market; (ii) the UX, being the main index on the Ukrainian Stock Exchange, reflecting the condition of the domestic market; and (iii) the WIG-Ukraine, being the dedicated index reflecting performance of Ukrainian issuers listed in Warsaw.

We have chosen the UX index as a relevant benchmark, because it can serve as a proxy of the Ukrainian economic situation and the Ukrainian domestic listed companies. The fact that the UX index was launched in January 2008 was a limitation in our analysis, thus, direct comparison of the companies which had entered the capital market earlier was not possible. Correlation of the WIG and the UX was 24% (significant at a 0.05 level) within the 7-year period, but analysis of the diagram presented in Appendix 1 suggests that those indexes remained strongly correlated until June 2012[4], and after that date, performance of these indexes changed, which was confirmed by a rapid increase in tracking the error values: the WIG started an upward trend and the UX moved horizontally. The correlation coefficient calculated for the first sub-period was 91% (significant at a 0.05 level), and accordingly, we decided to use the WIG performance for a backward extrapolation of the UX, which enabled comparison of the two first debutantes with the benchmark. One additional finding from the analysis of the diagram in Appendix 1 was outperformance of the WIG-Ukraine index over the UX for the period until annexation of Crimea by the Russian Federation at the beginning of 2014. The WIG-Ukraine tendency was still in a downward trend, but the decrease in the value was much slower than for the UX. It may suggest that Ukrainian companies benefited from listing in Poland, since their value was, at least partially, bonded with the condition of the Polish capital market. Analysis of the shareholder return 6 months and subsequently 1 year after the IPO did not bring any clear conclusions, but the results show that most of the companies (8 out of 11) experienced a value drop after 3 years from the IPO, while in 7 cases the decrease in the value was dramatic (more than 66% of the IPO value). Part of this decrease can be associated with the general downward trend on the market.

Analysis of the excess returns over the benchmark reveals that 1 year after the IPO most of the shares outperformed the benchmark (21 pp on the

[4] The only event that can be associated with that time is the EURO2012 Football Championships that took place in both, in Poland and Ukraine.

average), but, in 64% of cases, this premium disappeared 3 years after the listing, which is consistent with the earlier mentioned Foerster and Karolyi (1999) observations made 2 years after the listing. Only 4 of the 11 companies managed to achieve positive excess returns after 3 years. Although Campbell and Tabner (2014) analyzed the companies which moved up from the AIM to the main market in London, our observations revealed a share return pattern similar to that in their findings. What is interesting, two of those companies (Astarta and Kernel) were the first Ukrainian issuers entering the Polish capital market and their excess returns after 5 years of listing increased, being 328 and 246 pp respectively.

Table 8: Shareholder returns after the IPO versus UX-benchmark

	Under-pricing %	Shareholder return			UX return (benchmark)			Excess return over the benchmark (pp)*		
		6m %	1Y %	3Y %	6m %	1Y %	3Y %	6m	1Y	3Y
Astarta	0.0	-18	-8	51	25	32	-51	-43	-39	102
Kernel	0.00	46	-47	164	-25	-76	-29	70	29	193
Agroton	6.8	14	-16	-92	33	-24	-53	-19	9	-38
Milkiland	6.6	12	-57	-66	10	-27	-59	3	-30	-7
Sadovaya	21.4	30	-4	-94	-5	-40	-63	35	36	-31
KSG Agro	0.55	-8	1	-79	-40	-44	-56	31	45	-23
Industrial Milk	2.31	-25	4	-16	-45	-49	-60	21	53	44
Westa	2.13	-74	-88	-96	-38	-60	-49	-36	-28	-47
Ovostar	0.32	11	45	18	-38	-58	-47	49	103	64

Coal Energy	-4.00	23	-18	-95	-27	-49	-38	50	31	-57
KDM Shiping	1.8	-16	4	-92	-6	-17	-10	-10	21	-83

* pp – stands for percentage points.
Source: Own elaboration.

6. Conclusions and limitations

Our concluding remark~~s~~ is as follows: we have provided evidence supporting the idea that Ukrainian companies listing on the WSE bond themselves to higher Corporate Governance standards, since Ukrainian companies listed in Warsaw rank among the best issuers in this regard. High ranking, however, results from regulatory requirements, rather than voluntary practices. The issuers rarely go beyond the minimum prerequisites in implementing higher standards, yet it turned out to be enough to attract institutional investors. The results are in line with our first research hypothesis, however, we have to emphasize the fact that the improved standards, although high as for Ukrainian conditions, in many aspects still were lower than those commonly expected on the listing market. Furthermore, we could not confirm that the choice of any particular destination for reincorporation was a proxy for distinctly better governance standards at the IPO date. Although some changes were forced by the regulations of the reincorporation country (e.g. accounting standards), we claim that many improvements were caused by entering the regulated market in Poland and by the necessity to report compliance with the WSE code of best practice provisions.

Our conclusions regarding the second research hypothesis are ambiguous. We found a positive effect of foreign listing (which leads to higher governance standards) on the share value, in the short term. The share values of most companies outperformed the benchmark index (UX), after 12 months, by 21 pp on average. Unfortunately, in longer term, this premium was not maintained and after 3 years from the IPO, 64% of the analysed companies experienced a dramatic decrease in the share values as well as significant underperformance against the benchmark index. This suggests that the credit of trust from the investors was expiring gradually. Moreover, analysis revealed that outperformance of the WIG-Ukraine over the UX is not representative for all companies and was positively distorted, due to very good results of the 2 first debutantes with the strongest corporate governance standards. The case of Astarta and Kernel – the companies with the longest history on the WSE – confirms that maintaining high standards over a longer period is rewarded by very high excess returns after 3 and 5 years from the IPO. On the other hand, we have to remember that for most companies, only one corporate governance rating was accessible, so we can not exclude that long term underperformance is due to the standard "*fatigue effect*". This would be an interesting issue for further research after new data is available. Finally, we have to remember that the companies operate in a complex environment and that some events occurred which could have influenced the results (the financial crisis, political revolution, annexation of Crimea), even though we have tried to eliminate them as much as possible.

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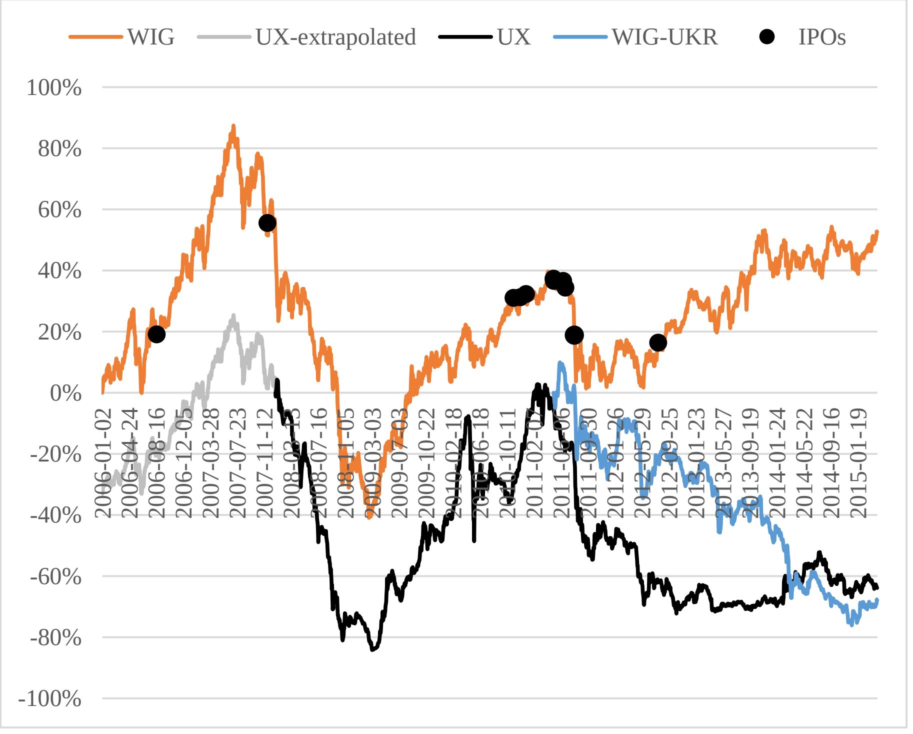
Appendix 1



Source: Own

Changes in the Slovenian Society viewed from a Perspective of Business System

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Abstract

Studies by Jaklic and others explain the uniqueness of the Slovenian society by using a concept of "business system". If we view the Slovenian society from a perspective of business system, something which hitherto has been invisible may become visible. In spite of many changes in the political regime and the economic system, the business system in which the subsistence-oriented informal sector in Alpine valley communities has been combined with the official sector with the former supporting the latter's development has been existing for about 150 years until recently. The strong social cohesion, which has been maintained in this way, helped people get through difficulties at the time of Slovenia's independence and the subsequent depression, and it was reflected in the fact that Slovenia satisfied the Maastricht convergence criteria thanks to cooperative efforts by the government, employees and employers, and introduced the euro earlier than any other new EU member states. Already before its EU accession, however, the pressure from EMU standard was strongly felt in Slovenia. As the international competition has become intensified the traditional business system has reached its limit. It is considered that there was such a change in the society at the root of the change of the government in autumn 2004 and a move to dismantle the neocorporatist network.

Keywords: Slovenia, Business System, transformation, EU Accession

JEL: E02, O11, O52

Introduction

Slovenia[5] has been a unique post-socialist country. It is a small country (area: 20, 273 square kilometers; population: about 2 million) and ethnically homogeneous (Slovenians account for more than 90% of the total population). In terms of GDP per capita, it was the richest country among the former Yugoslav republics and post-socialist countries.[6] Until the onset of the 2008 global financial crisis it was the most successful post-socialist country in Central and Eastern Europe[7]. Slovenia was admitted to the European Union (EU) in May 2004 and it adopted the euro in January 2007 earlier than any other new EU member states. It has a relatively high level of technology and strong international competitiveness. Most of Slovenians have been rather cautious about the sale of their productive assets to foreigners. In contrast to other post-socialist countries, Slovenia has not been so enthusiastic in attracting inward foreign direct investment (FDI). Rather Slovenia has been more enthusiastic in outward FDI. In my paper of 2006 (Koyama, 2006) I explained the secret of its high international competitiveness by its legacy from the past (i.e. it belonged to the Habsburg Empire), its high technological potential and its higher share of R&D expenditure in GDP (the highest among post-socialist countries). However, this paper did not explain the legacy from the past well. This country is now in serious economic and political crises. In my latest papers (Koyama, 2014 and 2015) I described Slovenia's success story and its economic failures after its EU accession and adoption of the euro, but I could not explain changes in the society at the root of its crises sufficiently. Why was Slovenia able to become a richer country with high international competitiveness? And why has it fallen into economic and political crises? This paper tries to consider these problems by paying the attention to changes in the Slovenian society.

Studies by Jaklic and others[8] that I have read recently explain the uniqueness

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[5] Slovenians are an ethnic group consisting of the Southern Slavs. Their language (Slovenian) has a similarity with Croatian and Serbian but is different in terms of the grammar and the vocabulary.

[6] As of 2008, GDP per capita (at exchange rate) was € 18,400, the highest among post socialist countries, followed by the Czech Republic (€ 14,200). Astrov, Vasily, et al (2010).

[7] For Slovenian economy, see Koyama (2015), Chapter 10.

[8] Jaklic, Zagorsek and Hribernik (2009); Kristensen and Jaklic (1997); Whitley, Jaklic and Hocevar (1998); Czaban and Jaklic (1998). Marko Jaklic is an institutional economist in Slovenia (Professor at the Faculty of Economics, the University of Ljubljana).

of the Slovenian society well by using a concept of "business system". If we view the Slovenian society from a perspective of business system, something which hitherto has been invisible may become visible. By adding results of the studies by Jaklic and others, my previous study is restructured so that we will be able to consider changes in the Slovenian society. My approach to the problem is economic history combined with comparative economic system.

This paper is structured as follows: First, the concept of business system is explained. Next, after explaining the institutions during the period of the former Yugoslavia, the business system specific to Slovenia will be explained. Then, changes in the society accompanying the system change and the EU accession will be discussed, and finally some conclusions should be drawn.

Importance of Institutions and Network

In recent years it has become common sense that as capitalism is diverse we have to explain it taking into account each country's characteristics. Studies like Variety of Capitalism (Hall and Soskice, eds., 2001), the Regulation School (Boyer, 2004), etc. are well known. Nowadays, the first consideration is not given to ownership relations as before, and instead "informal inter-enterprises network" (Stark, 1996) and institutions consisting of society came to be emphasized. David Stark, a specialist of economic sociology in the USA, for example, made field surveys in Hungary in the 1980s and observed actual circumstances of cooperation between a state enterprise and a group of its employees who worked voluntarily in off-the-working hours and in the weekend (i.e. private sector). Based on his studies on networks among numerous major enterprises, he argues, "social changes, whatever it is political or economic, should not be regarded as a way from a system to another system, but it should be regarded as recombination of patterns mixed with various systems" (Stark, 2011, p. 19).

The concept of "business system" has not been familiar to us. This is used as a key concept by a research group including Richard Whitley, a British specialist of organizational sociology, and others and it denotes "forms of economic coordination and control" (Whitley, 1999). Business system in countries has been formed being restricted by social institutions which have become dominant during the period of industrialization and later period, and by historically formed social norm and values. Anglo-Saxon type economies, for example, have capital market-led financial system and encourage a strong market for corporate control – i.e. a market for talented persons as managers

– in capital-market financial system. In their economies capital owners and managers tend to focus on short-term profit, the extent of dependence on external labor market is high, and the extent of separation between managers and workers is high. In contrast, for example, in the Japanese economy which has credit-led financial system there are the networks of mutual dependence among enterprises, suppliers, customers, banks, employees and other organizations, and assured employment of male core workers encourages the development of firm-specific skills. It seems that "forms of economic coordination" used by this research group denotes forms of coordination and control at mezzo level while the concept of regulation which the Regulation school has used denotes the mode of macroeconomic regulation[9].

Kristensen and Jaklic (1998) mention two institutions, i.e. "background institutions" and "proximate institutions". They think that "background institutions" have been able to pattern social behavior in such a way that rapid shifts in "proximate institutions" have so far no damaging effects on the economic development of the country. They explain the relatively successful transition story of Slovenia by existence of social cohesion, which enables different social groups to play surprisingly identical economic roles continuously despite political transitions. They view such social cohesion as an outcome of the close relationship between village communities and industrial enterprises (p. 2). Instead of the word "localities" where rural communities and industrial enterprises are in internal social cooperation, they use "valley communities" despite the fact that many localities in Slovenia are not situated in a valley. The reason is that they think that internal social cohesion and mutual rivalry as a pattern are rooted in a distant past because Slovenia's continuous geo-political situation has been structured by the Alps (Ibid, pp. 5-6).

[9] According to Whitley (1999), the formation of various types of business system have been affected by the following factors: (a) the relationship between providers and users of capital (owners-managed firm vs. delegated to trusted agents); (b) customers and suppliers relations within production chain (pure market contracting vs. more repeated, particularistic, and cooperative connections); (c) competitors (almost entirely adversarial and zero-sum relations vs. collaboration over a number of issues such as R&D, training, and union negotiations); and (d) employers and different kinds of employees (adversarial zero-sum conflicts typical of early industrialization vs. more institutionalized forms of cooperation represented by Germany's Co-Determination Acts, and large firm-core workers interdependencies in post-war Japan), etc. (p. 33). The emergence of business system greatly reflects "path dependency". It seems that the business system continues for a considerably longer term regardless of system changes.

Even if the ownership form of industrial enterprises changed from capitalist to socialist, and again to capitalist, the relationship of coexistence and cooperation between rural communities and industrial enterprises has not changed. It seems that they view such long-lasting relationship as "background institutions". In contrast, political and economic systems which have changed rather often seem to constitute "proximate institutions". They say that the Slovenian traditional business system, which will be explained later, began to take the present shape in the second half of the 19th century when the feudalism was abolished in the Austro-Hungarian Empire.

Business System Specific to Slovenia

From the 19th century till now there have been several changes in the political regime: In 1848 the feudalism was abolished under the rule of the Habsburg Empire. In 1918 the Habsburg Empire collapsed, and emerged the Kingdom of Serbs, Croats and Slovenians (the first Yugoslavia; renamed the Kingdom of Yugoslavia in 1928). The first Yugoslavia was invaded by Nazis Germany in 1941, but under Tito's leadership many people fought invaders and liberated the country in 1945. Afterwards, the country was reconstructed on the road to socialism (the second Yugoslavia).

Slovenia is now industrially advanced country and the share of agriculture in its economy is very small, but it was an agricultural region during the rule of Austria. Industrialization began only in the late 19th century. Kristensen and Jaklic (1997) describe Slovenia as consisting of localities with internal social cooperation between native social groups and enterprises. Localities featuring strong internal social cohesion are rooted in the distant past. Compared to the European average, Slovenian farms are extremely small, as 60% are less than 3 hectares. The average size is 3.3 hectares as compared to 14 hectares in the EU (p. 6). Because of the small size of farming and due to the rough farming conditions of the mountainous terrain, small farmers were prevented from accumulating wealth and discouraged from embarking on any entrepreneurial activity.

Farmer's lands have been small from the beginning. After 1848 when the feudal system was abolished, farmers have had to buy their land from the previous landowners, and in order to do so they took loans in newly created saving banks and mortgage banks. The farmers were heavily taxed by the Austro-Hungarian empire (Habsburg Empire) due to military needs to protect borders. The hereditary rule prescribed that a heir had to pay a fair share of the inheritance to his brothers and sisters in money or the farm was divided in equal shares. In such a situation small yeoman farmers were prevented from rapid accumulation of wealth. Caught up in this situation, few farmers would embark on entrepreneurial activities to improve agricultural productivity.

According to Jaklic, et al (2009), people started to develop local mutualism, i.e. a shadow economy and family help as means of improving their standard of living through the untaxed exchange of services. Finally a passive, subsistence-oriented business system was created when unofficial institutions, i.e. moonlighting and family assistance, were subsidizing official institutions, i.e. a system of small firms, primarily foreign- or church-owned forests, mining, saw mills and an emerging manufacturing industry (p. 242). The description that the unofficial institutions subsidized the official institutions might be a little bit difficult to understand. "Peasants continued with a basically subsistence based form of farming" (Kristensen and Jaklic, 1998, p.6). As monetary incomes from farming were decreasing, they had to work at firms which foreigners managed, but wages were quite small. It is easy to see that subsistence farming was simultaneously a subsidy to the owners of firms in a way that enabled them reduce the wage bill. Thus the two systems cohabited in a mutual reinforcing way, also reproducing their mutual enmity (Ibid, p.7).

The Slovenian traditional business system has thus been fundamentally defensively or subsistence-oriented. It has been based on four tightly interwoven infrastructure:

a) work within the formal economy, ex. in a factory;

b) locality, which provided the social space for moonlighting;

c) the family which assisted the individual with different services, ex. care for the elderly; and

d) the state.

The state played a highly important role as a key economic player, controller and generator of institutional dynamics. After World War II the state extended and upgraded its central role as it started to provide universal security and welfare.

According to Kristensen and Jaklic (1998), though valley-mutualism and foreign-owned capitalist enterprises were preconditions for each other's economic existence, this interdependence was not stabilized until the socialist system was introduced because none of the sectors permanently succeeded in dominating the other. A strange combination of village mutualism based on extremely small family farms with a foreign owned monetary sector secured each other's existence. Thus the industrialization began in Slovenia in the late 19th century. Several valley communities were manufacturing iron and metals, often into goods of high quality to be delivered to all over the empire (smoothing irons, candlesticks, stoves, fountains, elements for machines, etc.) or luxuries for the Vienna court (Ibid, p.8). However, this was only partial developments. Slovenia as a whole was a relatively poor region in the Habsburg Empire. It was the collapse of the Habsburg Empire that drastically changed the situations. With Austria's defeat in World War II, finally this empire collapsed in 1918. The Slovenians took this opportunity to become independent and formed a new Slavic country together with Croats and Serbs.

Interestingly enough, many foreigners even changed their names to Slovenian names and became citizens in the emerging Yugoslav state. They soon found out that if they were able to behave differently, they would be able to take advantage of two favorable conditions in the new state. First, as agricultural prices dropped again, an increasing number of peasants wanted to supplement their agricultural income with industrial wages. Second, with the creation of the Yugoslav state, they also got access to a quite underdeveloped and unexploited domestic market protected by trade barriers. Whereas Slovenian industry found itself cut off from its former role as supplier of raw materials and intermediate products for the Austro-Hungarian Empire, it was now in a position to supply an emerging market with finished products. The presence of Germans and Austrians as owners, administrators and engineers was very important because it gave Slovenian valleys a competitive advantage on the new home market. Mining and wood stagnated while finished goods within textiles, food and iron grew fastest. Trueborn Slovenian entrepreneurs emerged too. The number of factories increased from 275 in 1918 to 532 in 1939 (Ibid, p.9). In this way, Slovenia came to occupy an advantageous position in the less developed Yugoslav state.

Network of Partisan Entrepreneurs

In 1941 Nazis Germany invaded the Kingdom of Yugoslavia. Traditionally, the entrepreneurial class had been tied to the Habsburg Empire and saw the occupation as a new chance, whereas the Slovenian entrepreneurs and craftsmen saw it as a threat to their dreams. Many of them gradually went underground and joined the Liberation Front to become partisans. The small farms and local mutualism became the very basis for survival not only for the peasants themselves, but their ties to this system made it possible for partisans to hide for or fight the German occupational forces. After the German defeat, it was easy for partisans to see how they should act to gain local support and create legitimacy in rural society. They became entrepreneurs and formed their network (Krstensen and Jaklic, 1998, pp. 9-10). As for the importance of partisan entrepreneurs' network, for the first time I learned from Jaklic, Zagorsek and Hribernik, (2009) as well as Krstensen and Jaklic (1998). In other East European countries partisans' networks were completely destroyed due to Stalin's purges and show trials whereas in the former Yugoslavia such terrifying incidents did not take place. Therefore, their network has been maintained especially in Slovenia.

As for directors of enterprises in the former Yugoslavia, there is an interesting study by April Carter (1982). According to her, there were two contrasting types of director, and two corresponding modes of achieving the effective dominance of the director over the enterprises. The first extreme type directors was representative of the unqualified men elevated to key jobs in the early years after the communist party came to power, and liable to behave in an extremely arbitrary and high-handed fashion, when by the mid-sixties were presumably more often to be found in underdeveloped areas or backward sectors of industry. The other extreme type was represented by sophisticated directors of technically developed and expanding enterprises drawing on Western management techniques to ensure harmonious relations inside the enterprise whilst securing their own power (pp. 230-231). Presumably, there were in fact directors who were placed in the middle of these two extremes. It seems that directors of enterprises in Slovenia, the most developed region of the former Yugoslavia, were mostly the second type in Carter's classification.

According to Jaklic, et al (2009), after having seized power in 1945, the communists also did not challenge the essence of the traditional business system. They conversely legitimized their rule by leaving the valley communities and tailoring industrialization to their needs (p. 248). The partisans' network played an important role in the Slovenia's economic development. Partisan managers were assessed by two sides, i.e. by their locality and by the Party, with former being the key constituency. With himself being a local the partisan manager was prima inter pares and was assessed by his fellow locals by the level of economic prosperity that his factory was creating for the valley community. The party, at the top, was primarily interested in the public sentiment since it considered that its legitimacy came from its ability to provide public prosperity. Partisan managers formed a tightly-knit network that functioned on the basis of mutualism and reciprocity, meaning that they helped each other develop their businesses and overcome difficulties (p. 246). "In Yugoslavia the politics of allocation was much more a game of give and take within this network of former partisans than a process guided by informed plans. Rules of local mutualism and reciprocity were regulated by a system of mutualism and reciprocity among partisans" (Krstensen and Jaklic, 1998, p.11).

Partisans acted not only as entrepreneurs but also as constructors of the new state. Quoting an autobiography of an old partisan, Kristensen and Jaklic (1998) tell us interesting facts as follows: In order to secure the Slovenian Regional Security Agency its economic foundation, Economic Development Department was established. The latter in turn established numerous enterprises in different valleys after the war. "On a collective basis this department could use the Agency's national and international sources to collect information about products, production processes, etc. which would make the rapid and successful imitation of foreign technologies possible in Slovenia" (p. 12). Another interesting point is that Slovenian partisans "deliberately tried to become independent of the allocation of capital from Belgrade" (Ibid, p. 13). Their tools were bank, and already in the late 1950s the Development Bank of Slovenia was established.

The former Yugoslavia was a country based on the principle of self-management. A director of any enterprise was appointed by Workers' Council after selection by a Selection Committee through open recruitment. In spite of such an official procedure, directors' positions usually continued[10]. Kristensen and Jaklic (1998) explain the continuation of positions by a certain degree of clientelism[11]. Managers were assessed by their efficiency in

[10] In the former Yugoslav self-management system, the term of office of enterprises' directors was two years, but there was no restriction such as "up to two consecutive terms".

[11] "Clientelism" denotes the relationship between unequal two persons, i.e. the patron and the client in which the former provides the latter with access to the basic means of subsistence and the latter reciprocates with a combination of economic goods and services (such as rent, labor, portions of their crops) and social acts of deference and loyalty (Hopkins, 2006, p. 2). This concept has been used in various scenes from the relationship between patricians and their henchmen in ancient Rome, between lords and their serfs in feudal times, or between large landowners and peasants in numerous rural communities to contemporary politics (Encyclopaedia Britannica). As for contemporary politics, this concept denotes the relationship in which politicians bring "pork-barrel" to

securing their clients jobs, wages, loans, housing and education compared to how other managers within the same or a neighboring locality provided for their worker clients. If this comparison was in their disfavor, workers had the right to and could in fact turn their managers down by evoking the formalities of self-management system. Consequently, managers came into a situation in which they competed with one another (Ibid, p. 16). Further Kristensen and Jaklic (1998) say the following: In this competition partisans as managers were both each other competitors but also each other colleagues and friends. They had mutually to compete among each other to meet the socially accepted norm, but in meeting this demand they also acted almost as German cartel or Japanese business group. If some of the partisan managers had a problem, the group could collectively assist him in generating investment resources, help identify new products and engage the intelligence system in collecting knowledge on and access to production technology. The division of labor among enterprises was an outcome of negotiations rather than an outcome of competition (Ibid, p. 16).

Kristensen and Jaklic (1998) do not know much about this mutual game among the partisan managers, but according to them, it is probable that the codes of honor has been quite guiding for behavior, and the more they had to rely on the network the more they had to provide to it. Of course, as the partisan managers became older they had to retire gradually from the front line of management, but their positions were taken over by younger generations whom they trusted (Ibid, p. 17). I have described the partisan managers' network mainly based on Kristensen and Jaklic (1998) and Jaklic, et al (2009). The most important point in the description up to now is that the partisan managers were Slovenian nationalists rather than communists and that they were always trying avoid the control by Belgrade (the capital city of the Federation) and secure Slovenia's identity. Next, let us see the connection of the traditional business system with self-management system.

Self-management Socialism connected with the Traditional Business System

The former Yugoslavia was a highly decentralized federal state especially in the regime of the 1974 Constitution. It is noteworthy that also within Slovenia the society has been highly decentralized. Comparing Slovenia with Hungary, Whitley (1999) says that in Slovenia industrialization and economic development were much more polycentric and less concentrated in the major

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their constituencies in exchange for voters' political support. This term is usually used in a negative sense.

cities of Ljubljana and Maribor. He explains the reason as follows: Together with the tradition of local house building and ownership and high levels of political, financial, and economic decentralization in the 1970s and 1980s, this encouraged considerable local loyalties to particular localities and inhibited geographical and labor mobility. Consequently, commitments to local enterprises and communes have tended to be much greater in Slovenia than in Hungary (Whitley, 1999, p.213). For Slovenian people the possession of land has been very important. Even during the socialist period in the former Yugoslavia including Slovenia about 15% of the total agricultural land was possessed by socialist large agricultural enterprises while the about 85% by individual farmers[12]. "Official work hours were fixed between 6 am and 2 pm" (Stanojevic, 2012, p. 5). After having finished their works, workers took lunch at home. Even after that, workers were able to undertake extra work (for example, farming, various types of paid handcraft, help of colleagues in their housing construction, etc.) in the informal sector. The revenue from such an extra work was allocated for family investment in real estate. Therefore, the percentage of people's ownership of land and home has been high, firmly attaching families to local, valley communities. As a result, the mobility of the Slovenian labor force has remained comparatively low to the present (Ibid, p. 5).

As mentioned above, directors of enterprises were assessed by their ability to satisfy needs of local people. Firms have granted employees' moonlighting various favorable treatment. According to Kristensen and Jaklic (1998), the informal sector used the network of firms to get hold of resources and products beyond those controlled by the individual village. In addition, they describe a hypothesis that Slovenian firms became increasingly involved in informal transaction of goods and services, and many middle-managers beside their official duties also took care of a number of covert exchanges that would benefit the mutualism of the village comunity rather than the books of the firm. I do not have any materials to ascertain this hypothesis, but probably it would be correct. They say that for the growing number of relatives, family and friends provided small lots for building a house with a garden, whereas enterprise-managers secured loans to finance the building

[12] After World War II the agrarian reform was carried out based on the principle "land to those who till it". Lands possessed by banks, churches, monasteries, etc. were requisitioned and then redistributed among landless peasants. Although the construction of collective farms of the Kolkhoz type was attempted in line with the Soviet course only for a while, the policy of the construction of collective farms was renounced after the confrontation with the Soviet Union and the expulsion of Yugoslavia from the Cominform in June 1948.

of new houses (Kristensen and Jaklic, 1998, p. 17). At the same time, as mentioned above, the informal sector of "valley communities" supported firms' competitiveness because the revenue from this informal sector enabled them to make the official sector's pay lower, thereby supporting Slovenian firms' competitiveness. Such a relationship reminds us of "reciprocity" that Polanyi called (Polanyi, 2009, p. 83). It was managers' central goal to maintain the level of employment. Stable employment contributed to workers' devotion to formation of firm-specific skills.

Slovenian firms which have assured local residents employment and various needs lacked "hard budget constraint". The reason why the firms were able to survive was "lax monetary policy used as the ultimate risk-sharing tool" (Jaklic, et al, 2009, p.247) and Slovenian firms' advantageous position in the former Yugoslav markets. Jaklic clarified interesting circumstances as follows: in Slovenia earning hard currencies was given the first priority. Even if Slovenian firms' trade with foreign countries was at a loss, the loss could be compensated for by selling at a profit in the well-protected home market (Ibid, p. 247). While they did invest in R&D and technological development, most Slovenian companies did not go as far as Kolektor[13], i.e. establishing themselves as international technological leaders and instead focused on the cozy Yugoslav market and competed internationally on a low-cost, low-price basis.

System Change

The economic reform program of December 1989 during the period of the former Yugoslavia was a starting point for the system change and the transition to a market economy. Free elections based on a multiparty system took place in April 1990, and political parties aiming at capitalism won the

[13] Kolektor, which was founded in 1964, is an enterprise producing commutator, a kind of intermediate goods. In a few years it became clear that domestic technology in the field of commutators was out of date and that a foreign strategic partner was needed to bring in more advanced technological knowledge. In 1968 German Kautt & Buz (K & B), the then European market leader, became a strategic partner and 51% owner of Kolektor, based on the joint-venture law of 1967. Kolektor invested heavily in its own R&D. It was so persistent in learning from K & B and developing its own solution and committed to excellence that, by the early 1980s, its technological level surpassed the level of its German "mother". By 1988 it surpassed K & B in the number of patents. Kolektor is a rare case in which it started from a small domestic enterprise, then became a foreign-owned enterprise and finally became a domestic enterprise being at the same time a multinational enterprise (Svetlicic, 2008).

elections. In June 1991 Slovenia declared independence. Although it came into an armed conflict with the "Yugoslav Federal Army", the battle was soon suspended by the European Community's mediation. Three months later Slovenia gained de fact independence. The former Yugoslavia broke up completely, triggering fierce ethnic conflicts which took place mainly in Bosnia and Herzegovina from April 1992 to November 1995. At the time of independence Slovenia incurred some casualties and physical damages, but its sacrifice was smaller than other republics.

This country accomplished a double transition: from self-managed socialism to a capitalist market economy and from a regional to a national economy. In 1991 the newly independent Slovenia adopted Tolar as the national currency. However, due to the secession and independence, Slovenia lost the former Yugoslav market which had been well protected from the external world. Economic ties with Western Europe were rather close in the socialist period, but Slovenia had to make efforts to penetrate further West European markets in order to compensate for the lost market.

In the transition to a market economy the country was not always faithful to advice by international financial institutions such as the IMF and the World Bank. The initial depression in this country was not so severe as elsewhere. Therefore, it was less susceptible to pressure from the IMF, and partly as a result, the country was able to pursue a gradualist approach to economic transformation (Crowley and Stanojevic, 2011, p. 8).

Ownership transformation was not so dramatic. In November 1992 the privatization law was adopted. From 1993 through 1997 about 1,500 socially-owned enterprises entered the process of the ownership transformation, which was carried out in a gradualist way. In contrast to other post-socialist countries, the privatization with priority given to insiders was carried out in Slovenia, and social property was distributed among the state, managers and workers. The basic outcome in the ownership is 60% of the shares in the hands of insiders (managers and employees) and 40% in the hands of external owners (Kristensen and Jaklic, 1998, p. 22). Workers received important shares, even majority stakes, but mostly in the cheapest, labor-intensive and most conflict-affected companies (Stanojevic, 2012, p. 7). There were no major changes in the position of enterprises managers.

After the transition to a market economy "hard budget constraint", genuine market competition and efficiency became the first priority. Localities helped their companies by accepting wage freezes and longer working hours. A job in the official economy remains the cornerstone of the risk-sharing system but at the same time it has ceased be guaranteed (Jaklic, Zagorsek and Hribernik, 2009, p.248). In the first half of the 1990s when the country was in the "transformational depression" an early retirement scheme was enforced. In early 1992 the most important challenge at that time was to suppress hyperinflation (approaching 200% per year). The March 1992 general strike, called in response to the government's unilateral wage freeze, sent a strong signal to all future governments that the issue of inflation could not be resolved without the prior approval of trade unions. Together with trade unions and employers, the center-left coalition government, which was formed after the resignation of the center-right coalition government, pursued a policy of negotiated wage constraint. Although its coverage rate declined a little, trade unions still had a significant mobilizing power. This early case of the proto-political exchange strongly contributed to the pacification of the strike movement at that time. It announced the possibility for trade unions to be included in processes of public policy-making and their transformation into responsible, constructive co-creators of the social order – neocorporatist, intermediary organization (Stanojevic, 2012, p. 7). In the first social pact of 1994 the government, representatives of trade unions and employers not only set the parameters for income policy for that year but also established the Economic Social Council (ESC) where an increase in wage within an increase in labor productivity was to be agreed every year. In this way, trade unions accepted labor intensification and wage moderation.

A European-wide survey, which compared working conditions by respondents' perceptions of the intensity of work in their workplaces, report that in 2005 the work intensity in Slovenia was among the highest in the EU (Stanojevic, 2012, p. 12). Along with the intensification of work, flexible labor market was pursued. The one is students' mini job[14], and another is employees with short-term contract. Thus emerged dual labor markets consisting of core workforce employed under rigid and better protected contract and workers with temporary contract. In the 2000-2005 period the share of temporary contract increased from 13.7% to 17.4% of all contracts, ranking Slovenia among the EU countries with the highest share of temporary workers, with only Spain, Portugal and Poland being ahead (Jaklic, et al, 2009, p. 251). The size of the shadow economy in Slovenia was estimated at 29.4% of GDP in 2002. Just like in the late 19th century the Slovenian shadow economy subsidized the official sector by topping-up workers' incomes and allowing companies to pay quite meager wages which

[14] According to the 2007 Eurostudent research project, 65% of all Slovenian students work an average of 17 hours per week. Jaklic, Zagorsek and Hribenik (2009), p. 252.

were necessary for the companies to stay internationally price competitive (Ibid, pp.260-261).

As we have seen, in spite of various changes and challenges ranging from the abolition of feudalism in 1848, the communist revolution in 1945 and restoration of a market economy in 1991, the fundamental logic of the traditional Slovenian business system was left intact (Ibid, p. 248). Already in their paper written in 1995 and published in 1998, however, Kristensen and Jaklic (1998) predicted that the privatization and increased international competition would frustrate numerous middle managers and workers and thereby create divided valley communities, not to mention mutual inter-valley competition (p. 23). Next, let us examine the impact of the EU accession on the Slovenian society.

EU Accession

Slovenia's admission to the EU in 2004 was an epoch-making event in its history. It may fairly be said that with its EU accession the transition to a market economy in this country has been completed. Accession negotiations began in March 1998 and lasted till 2002. In these negotiations Slovenia was required to harmonize its domestic laws with Acquis Communautaire (the legal system of the EU). The next task after the EU accession was to participate in the EMU (Economic and Monetary Union) and adopt the euro. In order to accomplish this, new EU member states (NMS) are required to satisfy the Maastricht convergence criteria. Namely, the countries are no longer allowed to devalue their exchange rates with the aim of improving their export competitiveness. In addition, they are required to make efforts to curtail budget deficits, reduce inflation rates and lower interest rates.

Pressures from the EMU standard were felt already before the EU accession. In January 1999 the EMU started with the euro as a common currency and in January 2002 banknotes and coins of the euro came to be circulated. The emergence of a single financial market and a single currency, the euro, intensified international competition among banks in Western Europe, resulting in a decrease in profit rates of banks. In order to survive, West European banks advanced to Central and East European Countries (CEECs). Exceptionally in Slovenia, the market share of foreign-owned banks has been small, and domestic banks have had about 60% of the total assets. However, they were also involved in this storm of competition.

The competition among enterprises was intensified. The requirement of low inflation for the euro adoption as well as the exchange rate policy not to devalue the national currency has brought changes at micro level. As mentioned above, gradual upgrading of labor intensity within the formal economy proceeded, narrowing the scope of the informal economy at micro level. Enterprises in labor-intensive sectors formed "survival coalition". These enterprises experienced "ultimate self-exhaustion" before the EU accession. After the EU accession the breakdown of "survival coalition" was inevitable due to its internal contradictions. Companies started to engage a cheap workforce in the form of temporary, precarious employment (Stanojevic, 2012, p. 14).

Jaklic, et al (2009) points out the limit in reinforcing the traditional business system and advocate the necessity for switchover from investment-led to innovation-led economic development, saying "The traditional subsistence-oriented business system and efficiency-based competitiveness of the Slovenian economy became exhausted by the end of transition since cost competitiveness could no longer be maintained and work intensity had reached it high point" (p. 294). Enterprises have lost the low cost foundation necessary for price competitiveness. It has become almost impossible to stay in a "hard work" path of the traditional business system and work harder, i.e. to extend working hours and improve its efficiency. According to Jaklic et al (2009), case studies show that there are some successful enterprises which moved beyond the subsistence-oriented approach and entered a path of innovation-led and knowledge-led competitiveness. Some companies have already arrived there. Yet, on the macro level, the Slovenian economy and society are still in the midst of the transformation into the development led by innovation (Ibid, p. 281).

In October elections in 2004 the center-left coalition government, which stayed in power for 12 years, was defeated to Democratic Party, the opposition, and a center-right coalition government was formed. According to Stanojevic and Klaric (2013), the newly-formed center-right coalition government launched radical neoliberal reforms. In 2006 the government attempted to dismantle the neo-corporatist coordination network deliberately. The Chamber of Commerce, which represented employers, was based on mandatory membership in the 1990s. Its mandatory membership was changed to voluntary by the revision of the law. The government got employers' consent by suggesting the sale of big companies' share which government possessed. With this change, the ESC practically ceased functioning. It is considered that there were above-mentioned changes in society at the root of the change of government in 2004 and the attempt to dismantle the neo-corporatist network[15]. Thus Slovenia went off development path hitherto taken, i.e. persistent efforts at producing and exporting goods and services[16]. Soon after its EU accession, in June 2004 Slovenia joined the ERM II (Exchange Rate Mechanism II) as a precondition for membership to the EMU (i.e. adoption of the euro). The country adopted the euro in January 2007. In 2004, however, already before its official adoption of the euro, interest rates in Slovenia began to decrease. Within a very short time from 2005 through 2008 Slovenian banks borrowed a huge amount of funds at low interest rates on the international wholesale financial markets and provided companies with a large quantity of loans, thus causing a bubble. Then the country was hit hard by the Lehman shock in September 2008. The banking sector came to have a huge amount of non-performing loans. As the government was obliged to rescue the banking sector, the government came to have substantial amount of debt (as a result of the injection of public funds into the banking system, the general government budget deficit in 2013 amounted to 14.7% of GDP). Now the country needs fresh capital. This country, which was previously cautious about accepting foreign capitals, is now forced to change its attitude to inviting inward FDI actively. In accordance with recommendation by the European Commission and the IMF, in June 2013 the government announced a new privatization program and the parliament approved it. The program was to sell government's share which it holds in 15 infrastructure-related enterprises (airline, airport, seaport, road, etc.). Later, however, strong dissatisfaction with the sale of infrastructure was expressed even within the ruling party, and finally in May 2014 this party was split, followed by the Prime Minister's resignation and early elections. Thus the economic crisis turned into a political crisis.

Conclusion

From the above consideration, we can conclude the following points: First, Kristensen and Jaklic (1998) distinguish two institutions, i.e. "background institutions" and "proximate institutions". In spite of many changes in political regime and economic system, "background institutions" lasted for 150 years. They view such social cohesion as an outcome of the close relationship between village communities and industrial enterprises (p. 2).

[15] To my inquiry via an e-mail whether neo-corporatism has collapsed or it is collapsing Professor Stanojevic replied, "it is collapsing but it has not collapsed yet because trade unions in Slovenia have still higher mobilizing power compared with those in other CEECs (July 2014).

[16] See Koyama (2015), Chapter 10.

Instead of the word "localities" where rural communities and industrial enterprises in cooperation, they use "valley communities" despite the fact that many localities in Slovenia are not situated in a valley. Viewed from this perspective, we can understand that the business system in which the subsistence-oriented informal sector in valley communities has been combined with the official sector with the former supporting the latter's development has been existing.

Second, studies by Jaklic and others tell us that after World War II the partisans' network adapted themselves to valley communities and combined self-managed socialism with the traditional business system in valley communities. This network contributed to the economic development through the absorption of foreign technology and its dissemination as well as mutual assistance. Directors of enterprises in valley communities gave first priority to stable employment of their employees, which fixed employees in the same enterprises enabling them to develop firm-specific skills. It is considered that in addition to the legacy from the Habsburg Empire such stable employment has made Slovenia a richer and internationally competitive post-socialist country.

Third, traditionally the social cohesion has been very strong in "valley communities". Enterprises in the "valley communities" have provided various services in order to meet needs of local residents. The social cohesion, which has been maintained in this way, helped people get through difficulties at the time of Slovenia's independence and the subsequent transformational depression. The strong social cohesion was reflected in the fact that Slovenia satisfied the Maastricht Conversion Criteria thanks to cooperative efforts by the government, employees and employers, and introduced the euro earlier than any other NMS.

Fourth, in the Yugoslav period Slovenian enterprises could afford to assure their employees stable employment and provide local people with various services. Although they operated under the "soft budget constraint", their operation was maintained thanks to "lax monetary policies which was used as ultimate risk-sharing tools" and their advantageous position in the former Yugoslav markets which were better protected from an external environment. Even after the system change Slovenia was able to maintain the business system for a while. However, already before its EU accession the pressure from the EMU standard was strongly felt in Slovenia, and the intensity of work within the official economy was gradually strengthened. Workers accepted an extension of working hours and the intensification of work to "survive", but as they experienced "ultimate self-exhaustion" the reinforcement of the traditional business system reached its limit. It is considered that there was such a change in the society at the root of the change of government in autumn 2004 and a move to dismantle the neocorporatist coordination network. I would like to add that the latest study by Jaklic and others was published in 2009 and it deals with the period up to 2007. Naturally, Slovenia's economic and political crises after the 2008 global financial crisis are not discussed in this study. I think that if they take up the issue of the Slovenian society after the global financial crisis directly, they could not escape from mentioning a substantial change in Slovenia's business system.

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Capital adequacy of the selected banks in Poland on the background of the guidelines of Basel III Regime

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Abstract

The recent financial crisis has exposed the weaknesses in the regulation of capital requirements for banking institutions. A wide range of government bailouts, comprising mainly recapitalization of the entities with the liquidity problems, has made a contribution for redefining the categories of the bank's equity capital and gradual tightening of the rules of the calculation methods and the acceptable minimum level of banks' solvency ratios. The article presents the methodology of measuring capital adequacy standards in the context of the evolution of requirements formulated by the Basel Committee. In order to verify the capital needs of Polish banking sector in response to the requirements of the Basel III Regime, the author has analyzed the capital adequacy of five Polish commercial banks with the lowest indicator of solvency. The obtained results allow to conclude about their sufficient capital equipment, the absence of the need to introduce significant changes in the liability structure and the relative stability of the Polish banking sector.

Keywords: capital adequacy, Basel III, regulatory capital, leverage ratio, Tier 1
JEL Classification: G21, G28, G31, G32, G38

Introduction

Capital, in addition to land and labor, is considered by the classical theory of economics as a key resource in determining the scope, growth and development opportunities as well as the competitiveness of the company. Multidimensionality of the definitions of capital translates into a number of its classifications. Nowadays it is often emphasized that capital associated with the potential of human resources seems to become very important. In banking sector entities, which will be the subject of the research presented in this paper, the concept of capital, however, is identified primarily with financial capital, understood as the sum of liabilities which are a source of financing assets.

The specific role that banks play in the economy, the severe effects of global financial turmoil and the existence of a wide range of banks' stakeholders require the in-depth analysis of the optimal capital structure of these institutions. It should, on the one hand, ensure their solvency in the adverse economic environment, on the other hand, however, it should not hinder the business development by generating higher than necessary costs of raising equity. Therefore, the issue of bank capital equipment is subject to strong regulation, both at the level of international supervisory bodies, as well as in the context of national legal regimes.

The paper presents the evaluation of the so-called capital adequacy of banks constituted by the Basel Committee in the Capital Accords developed since 1988. Firstly, the author will characterize the elements included in assessment. Then there will be defined the most important categories of bank capital, which should be the starting point for estimating adequacy ratios and there will be presented the evolution in the approach of determining their minimal level. The final section describes the results of a study of the capital adequacy ratios of five commercial banks operating in Poland, which at the end of June 2013 were characterized by the lowest capital adequacy ratios. The assessment will reflect the situation of banking sector on one of the biggest central Europe emergency market with poorly developed banking innovations.

The study is designed to determine the capital needs of Polish banks in the context of the implementation of the Basel III Regime. The results prove a sufficient capital base of domestic financial institutions and allow the presumption that the tightening of the requirements in this area shall not require the recapitalization neither generate significant adjustment costs. Analyzes focused on the entities with the lowest solvency ratio entitle to find that none of the commercial banks operating in Poland should have any problems in complying with the new requirements.

The essence of capital adequacy issue

The concept of minimum capital requirements as a standard of enhancing security and stability of the financial sector was initiated in the early 80s of the twentieth century in the United States. Its primary assumptions related to the relationship of share capital (including reserves for bad debt) to the average value of assets [Cicirko, 2012, p. 48].In accordance with statutory regulations, this ratio was at the level of 5-6% depending on the size of the bank [Illing, Paulin, 2004, p.5]. The basic weakness of this requirement was that it didn't take into account the various risk factors relating to the activities of individual entities concerned, which should imply the division of assets due to the risks associated to them.

The solution of this issue involving the assignment of "risk weights" to the particular categories of assets was first proposed in 1986 by the Federal Reserve and the Bank of England [Uyemura, VanDeventer, 1997, p.38]. The calculation method of Risk Based Capital (RBC) that those two institutions came up with, can be regarded as the prototype of the current capital adequacy standard. But the very concept of 'adequacy' was for the first time defined by the Basel Committee in 1988 in the so-called Basel Capital Accord [BCBS,1998].

The 1988 Basel regime aimed at strengthening the stability of the international banking system through the adoption of common standards for capital level. The proposed solutions were, among others, diversifying the capital requirements for the different risk profiles of individual banks and taking into account the off-balance sheet items when calculating the ensuring solvency capital level [Zombit, 2007, p.53].

Further development of the methodology of estimating and determining the accurate value of the banks' capital indicators was included the New Basel Capital Accord (Basel II), approved by the Basel Committee in 2004 and subsequently adopted by the European Commission in the form of directives (Directive 2006/48 / EC). However, the experiences of the subprime crisis became a contribution to further restrictions, that were proposed in 2010 in the Basel III agreement. It contains guidelines which were then transposed into EU law by the Regulation of the European Parliament and of the Council on prudential requirements for credit institutions and investment firms (Regulation of the European Parliament and of the Council CON / 2012/5) and are currently being gradually implemented in the EU countries.

Focusing the work of the Basel Committee on regulations related to the quality of bank capital as well as nearly immediate implementation of the proposed solutions by the EU authorities seem to confirm that the capital adequacy standards are crucial for stability of the entities in the financial system.

A comprehensive assessment of capital adequacy requires moving away from the traditional balance sheet-based method of calculation of the capital. It is necessary today to provide a clear definition of terms such as regulatory, economic and internal capital- which are related primarily to the form of capital, the bank's risk strategy, as well as the assessment of risk determined by the external circumstances. The proper capital-to-risk relationship is in fact a key condition for safety of the operations undertaken by the bank. Figure 1 presents schematically the areas of evaluation of capital adequacy.

The assessment of bank's capital adequacy is based on the analysis of the level of equity, which consists of regulatory, economic and internal capital, as well as on the information about the solvency ratio. The value is then compared with the capital adequacy standard and the possible shortage of capital required for risk covering is estimated.

The term ‘capital adequacy standard’ is not defined explicitly by the Polish Financial Supervision Authority (KNF). Annex 20 to the Resolution 76/2010, however, obliges banks to immediately notify the KNF about exceeding the norm of capital adequacy, which means that the supervised bank experiences a shortage of capital to cover potential losses arising from the different types of risk.

Types of the bank's capital

The specificity of the activities of the banking sector is associated with the characteristic structure of liabilities, which consist mostly of the debt (see. Figure 2). The primary sources of funding are liabilities to depositors, which represent more than 75% of total liabilities. However, the issue that plays a key role in assessing competitiveness, safety and building confidence of market participants is the level of equity. It is also the main measure of capital adequacy. All crucial terms such as the regulatory, economic and internal capital as well as the adequacy ratio are connected with the equity level.

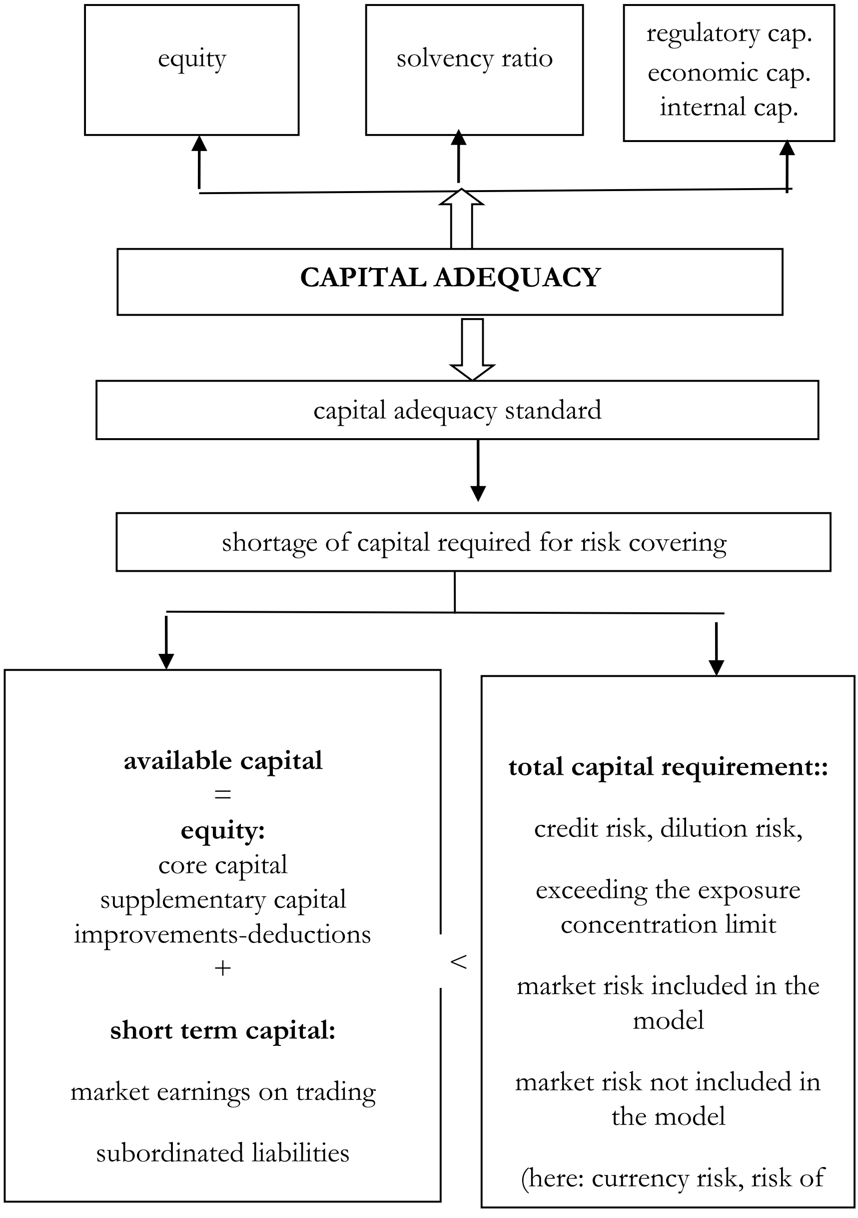

Figure 1. Elements of the bank's capital adequacy assessment.
Source: Self study based on: [Capiga, 2010, p.97] and Resolution No. 76/2010 KNF, Appendix 20.

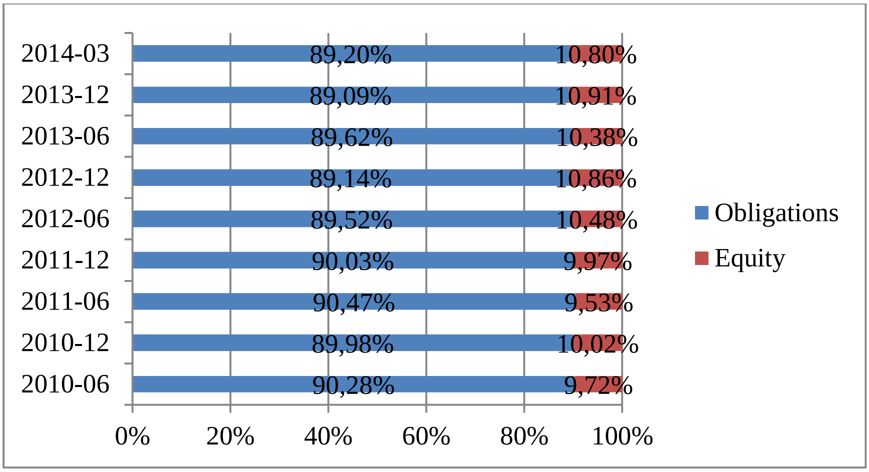

Figure 2. The structure ofliabilitiesof the banking sector.
Source: Self study on the basis of NBP data.

The distinction of equity to the regulatory and economic capital is the result of the New Basel Capital Accord. In simple terms it can be assumed that the level of regulatory capital is conditioned on the fulfillment of the requirements of the first pillar of Basel II, and the amount of economic capital is a reflection of the guidelines contained in the second pillar. Currently implemented Basel III changes the scope of sub-categories included in regulatory capital, but the definition itself remains unchanged-it can be recognized as a minimum level of specific components of equity, required from the financial institutions to meet prudential norms. The standards are the result of the method of calculating the capital adequacy ratio, which determines the minimum relationship of some categories of equity to risk-weighted assets and off-balance sheet liabilities.

Economic capital, as defined in the second pillar, is determined by internal procedures of individual entities, which should include all real-occurring risks faced by the bank operating in a particular economic environment. Thus, the economic capital can be understood as the overall level of capital that the bank should have to ensure the solvency (or absorb unexpected losses) at a given level of confidence in a given time horizon [Schroeck, 2002, p.159]. The requirement of estimating the level of economic capital involves conceiving some internal procedures and risk measurement models, having regard to the provisions of the second pillar.

Internal capital is sometimes equated with economic capital but some publications clearly distinguish between these two categories [see. BreBank, 2008; Capiga et al., 2011; GINB, 2005]. General Inspectorate of Banking Supervision defines internal capital as "the capital determined by the bank, aiming to cover all identified material risks occurring or likely to occur in the business and the external environment" [GINB, 2005]. It is sometimes described as the economic capital required to cover losses arising from significant measurable risks plus capital to cover the losses resulting from risk which is difficult to measure [BreBank 2008].

Schematically, the classification of capital used to determine the bank's capital adequacy is shown in Figure 3.

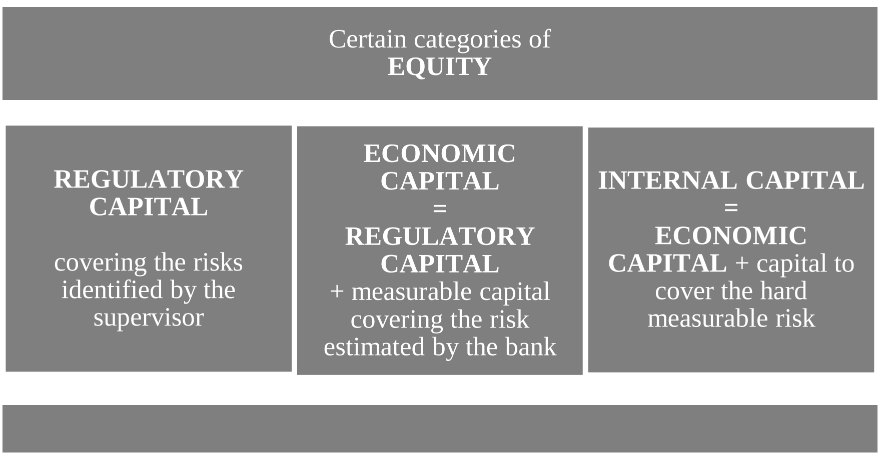

Figure 3. Types of bank capital- classification due to the degree of risk absorption. Source: Self study.

On this basis it can be assumed that the internal capital is the equity capital sufficient to cover losses, the occurrence of which is associated with all the relevant risks. It is worth noting that this definition implies the need for ongoing monitoring and response to changing internal and external conditions that may generate variability of risks arising from the phenomena occurring in the bank and in its surroundings.

Evolution of the methods of calculating the capital adequacy ratio

Capital adequacy ratio(Cook's coefficient, CAR), in addition to the equity and internal capital, is recognized by The National Bank of Poland (NBP) as the basic prudential criterion for banks[NBP, 2007, p.2]. The methodology of CAR estimation was first presented by the Basel Committee on Banking Supervision under the leadership of Peter Cook in 1988 [Iwanicz-Drozdowska, 2004, p.90]. Originally, this ratio was calculated using the formula:

$$\mathrm{CAR} = \frac{\mathrm{Tier\ 1+Tier\ 2}}{r_{\mathrm{cred}}} \geq 8\% \qquad (1)$$

where:

CAR - capital adequacy ratio
Tier 1 - permanent shareholders' equity (issued and fully-paid ordinary

shares/common stock and perpetual non-cumulative preference shares) and disclosed reserves (BCBS 1988, pp. 15-16)
Tier2 - undisclosed reserves, revaluation reserves, general provisions/general loan-loss reserves, hybrid (debt/equity) capital instruments, subordinated term debt
r_{cred} - credit risk exposure

To estimate the credit risk exposure, the Basel Committee defined the weight assigned to each group of credit receivables, dividing them into four types depending on the status of the creditor, collateral type, etc. The minimal capital adequacy ratio was set at 8%, with the additional condition according to which the risk-weighted assets and off-balance sheet items have to be covered with at least 4% of the Tier 1 capital [Iwanicz-Drozdowska, 2004, p.90].

The amendment of the Basel I in 1996 and the New Basel Capital Accord adopted in 2004were both associated with significant modifications in methods of calculation of the solvency ratio. A new category of equity-Tier 3 was added to the formula. It includes short-term subordinated debt that meets certain conditions [Iwanicz-Drozdowska, 2004, p.93] and includes additional risks, i.e. market and operational risk. Thus, a new formula for calculating the solvency ratio takes the form:

$$CAR = \frac{Tier1+Tier2+Tier3}{r_{cred}+12,5\times(r_{oper}+r_{mrkt})} \geq 8\ \% \qquad (2)$$

where:

CAR - capital adequacy ratio, r_{cred}-credit risk exposure
r_{oper}-exposure to operational risk, r_{mrkt}-exposure to market risk

The Basel Committee has also changed the method of estimating the level of credit risk. It is possible to choose between two methods - a standard one and Internal Ratings Based (IRB) method. Modifications have also been introduced in the standard method-the entities that decide on it are obliged to provide individual risk weights on the basis of belonging to a particular class of debtors and external rating given to them by the credit rating agencies [Capiga, 2002, p.30].

Banks using the IRB approach, basing on the stress-tests performed, have to specify the following parameters: the probability of default, the ratio of credit exposure that would be lost in the event of insolvency and the value of the credit exposure at default [GINB, 2005, p.12].

Also in this case, there are additional requirements regarding the proportion of each category of capital. Tier1 value cannot be greater than Tier2, subordinated debt may not exceed 50% of Tier1, and Tier3 may not represent more than 250% of this part of Tier1, which covers market risk exposure [Capiga et al. 2011, p.50]. The adoption of Basel III package in December 2010 is considered to be the opening of a new period in the history of measuring capital adequacy [Cicirko, 2012, p.65]. The reform proposed by the Basel Committee was directed to increase the capital security with the "strongest" Tier 1 capital. New regulations have thus reduce using the debt-based transactions for the purpose of credit expansion without compromising the solvency ratio (that was the common practice in the period prior to the subprime crisis). The new guidelines strongly emphasize the importance of the share capital, known as a component of the highest quality [BCBS, 2010, p.2]. Furthermore, they introduce a distinction between two categories of Tier1 and exclude illiquid capital - Tier 3 of regulatory capital [FOR, 2011, p.1]. The above described new regulatory capital regulations will therefore consist of [Kochaniak, 2011, p. 156-157]:

1. Tier 1 (going-concern capital) - the capital used to cover losses in terms of the solvency of the bank, which includes:

- Common Equity Tier 1 (CET1) - common shares, stock surplus, retained earnings and accumulated other comprehensive income and other disclosed reserves
- Additional Tier 1 capital - instruments issued by the bank that meet the criteria for inclusion in Additional Tier 1 capital (and are not included in CET1); stock surplus resulting from the issue of instruments included in Additional Tier 1 capital; instruments issued by consolidated subsidiaries of the bank and held by third parties that meet the criteria for inclusion in Additional Tier 1 capital and are not included in Common Equity Tier 1

2. Tier 2 (gone-concern capital) - capital that becomes important in the situation of losing solvency or liquidation of the bank. It consists of the instruments issued by the bank that meet the criteria for inclusion in Tier 2 capital (and are not included in Tier 1 capital); stock surplus (share premium) resulting from the issue of instruments included in Tier 2 capital; instruments issued by consolidated subsidiaries of the bank and held by third parties that meet the criteria for inclusion in Tier 2 capital and are not included in Tier 1 capital and certain loan loss provisions such as general provisions/general loan-loss reserve In addition to changes in the quality of capital components included in regulatory capital, there are also changes in the required levels of adequacy ratios relating to particular categories of Tier1 capital. In connection with a strong emphasis on the role of share capital, the CET1 to total risk-weighted assets ratio should beat the level of 4.5%.This implies an increase in the level of totalTier1 ratio to 6%. But the requirement of 8% of the overall relationship of regulatory capital (Tier1 and Tier2) to risk-weighted assets did not change. These changes are to be introduced gradually until 2019 (Table 1).

Table 1. Schedule of the implementation of minimum capital requirements (Basel III)

Minimum capital requirements */** (as % of RWA)	end of 2012	since 2013	since 2014	since 2015	since 2016	since 2017	since 2018	since 2019
CET1	2.0	3.5-4.5	4.0-4.5	4.5	4.5 (5.125)	4.5 (5.75)	4.5 (6.37)	4.5 (7)
Tier 1 (CET1+addition al Tier 1)	4.0	4.5-6.0	4.5-6.0	6.0	6.0 (6.62)	6.0 (7.25)	6.0 (7.78)	6.0 (8.5)
Total equity (Tier 1 + Tier 2)	8.0	8.0	8.0	8.0	8.0 (8.62)	8.0 (9.12)	8.0 (9.87)	8.0 (10.5)
* depending on qualitative changes in the definition of equity components ** in brackets, including the Capital Conservation Buffer								

Source: [FOR 2011, p. 2].

Table 1 also includes the values of so-called capital buffers (Capital Conservation Buffer and Countercyclical Capital Buffer). They provide additional regulatory capital that enables banks to cover losses in crisis situations. It was assumed that banks will create a capital buffer to the amount of 2,5% of risk-weighted assets with the highest quality capital during the prosperity period [Kochaniak, 2011, p. 158]. It can be used then during the recession to prevent the reduction of capital adequacy ratios. Rebuilding the buffer is provided by the obligation of retaining the profit or getting the payments from shareholders in the conditions of normalization of the macroeconomic situation. This solution causes that the ability to pay dividends is dependent on the level of CET1 ratio. It should be noted that until CET1 ratio reaches 4,5% the entire net profit should supplement the capital buffers (see. Table 2). The decision on the introduction and the level of the countercyclical buffer shall be made up by national governments on the basis of the analysis of the credit growth dynamics with the reference value at 0-2,5%.

Table 2. Earnings retained for a given levelofCET1

CET1 Ratio	Ratio of earnings retained (in %)
to 5,125%	100
to 5,750 %	80
to 6,375%	60
to 7,000 %	40
more than 7,000 %	0

Source: [Kochaniak 2011, p. 159].

Basel III has introduced also another indicator not included in the bank's capital adequacy assessment presented in Figure 1. It is the leverage ratio given by the formula [BCBS 2010, p.4]:

$$LR = \frac{\text{Tier 1}}{A}, \qquad (3)$$

where:

LR - leverage ratio
A- assets and off-balance sheet items (not risk-weighted)[17]

Due to not using the weight of risk in the formula, the leverage ratio becomes independent to possible incorrect selection of weights. It is planned that the leverage ratio will be initially monitored by the Basel Committee and the Financial Stability Board [Kochaniak, 2011, p. 162]. EU regulations oblige banks to publish their leverage ratio since 2015, and from 2018, the European Commission is to introduce its legally binding maximum level [FOR, 2011, p.2]. It is emphasized that the effects of estimating the maximum level of leverage under the new formula are not obvious. The indicator will apply to all institutions regardless of the risk taken by them. On the one hand, it will

[17]assets must be reduced with intangible assets, as they are also deducted from equity when calculating Tier 1 [D'Hulster, 2009, p. 2]

therefore protect against excessive debt resulting from the underestimation of risk. But on the other hand it can generate improving balance sheets by increased sales of derivatives. It can also weaken the incentives of carefulness as the same requirements will be applied to the high risk and low risk operations[FOR, 2011, p.4]. Nevertheless, the leverage ratio should be considered as a new and important element in the assessment of capital adequacy of banks [see: Cicirko, 2012, p.73].

Basel III and capital equipment of Polish commercial banks

Research on the capital resources of commercial banks have become important in the 1980s, after the Savings and Loans Crisis (S&L) in the United States. International Lending Supervision Act enacted in1983 entitled federal banking agencies to set the minimum required level of capital adequacy of financial institutions, which caused a discussion on the optimal structure of liabilities [Mitchell,1984, p.17]. Further gradual tightening of regulations by the Basel Committee intensified research directed to determine the most advantageous equity-to-assets relation and the methods of assessing the risk associated with different categories of assets.

The analysis in the area of banks'capital equipment are mainly an attempt to estimate the optimal level of equity and to work out the impact of prudential regulations on the actual level of security, financial performance, return on shares and competitiveness. Santos has demonstrated, for example, that compliance with the standards of capital requirements of banks improves stability and leads to an improvement in the sense of Pareto [Santos, 1999].Barrios and Blanco demonstrated that the guidelines for regulatory capital levels are one of the most important factors (apart from the market forces) that contribute to the decisions to increase the level of capital in Spanish banks [Barrios and Blanco, 2003]. Estrella pointed out the weakness of regulatory capital estimation methodology based on risk calculation with using the VaR (Value at Risk) indicator [Estrella, 2004]. He analyzed the US banks data and proved that VaR methodology can deepen the cyclical fluctuations, for example by limiting the supply of credit during the recession and excessive credit expansion during the prosperity. Kretzchmar, McNeil and Kirchner also confirmed the weakness of the Basel guidelines, particularly in the area of calculating risk in terms of the second pillar. According to the authors, they were a significant cause of undercapitalization of banks in the period prior to the subprime crisis [Kretzchmar, McNeil, Kirchner, 2010].

An interesting research, in terms of the legitimacy of stricter capital requirements, is the Van Hoose's article, presenting an overview of the scientific research justifying the introduction of Basel I and Basel II. It shows that the effects of reforms are not clear, and increasing rigor in this area should be preceded by detailed monitoring of the market and a careful analysis of the behavior of the banking sector institutions [VanHoose's , 2007]. These conclusions are confirmed by Hyun and Rhee who use the simple model showing that banks which have to increase the solvency ratio are willing rather to take actions towards reducing the level of assets than increasing the capital base through the issue of shares [Hyun, Rhee, 2011]

The above presented studies can be a motivation to analyze the effects of the introduction of the Basel III regulation in the banking sector in emergency markets with limited number on financial innovations. This issue is analyzed by Kochaniak who referred the current structure of Polish banks' funds to the new Basel requirements. On the basis on aggregated data of bank entities she notes that changing the regulations of capital structure developed by the Basel Committee does not have a significant impact on the most important capital components in banks operating on the Polish market [Kochaniak, 2011, p. 163].The results of European Banking Supervisors [CEBS, 2010] are different, however. They include data of 246 banks from 21 countries monitored by the CEBS. According to this survey the European banks need to be recapitalized for the purpose of meeting the new requirements - at the time of the study the shortage of capital due to the redefinition of Tier 1 and raising the level of capital adequacy ratio amounted to 291 billion Euro[CEBS, 2010, p.3].

Aggregation of data in the above studies, however, does not allow to identify the entities for which the implementation of the new rules will have to be associated with taking action to increase the capital base. According to Kochaniak's paper, it seems to be reasonable to assume that Polish banks will not have significant problems in complying with the new guidelines.

This study verifies the above thesis. The author analyzes five Polish commercial banks, for which there is most likely a necessity of improving capital adequacy ratios as a result of the new standards. These are banks with the lowest capital adequacy ratio estimated by the Polish Financial Supervision Authority at end of June 2013 [UKNF, 2013, p.54]. Financial data regarding the value of each category of capital and assets was derived from SNL Financial database. The values of particular elements of capital were corrected according to the Basel III regulations. It turned out that because of the relatively underdeveloped market of financial instruments in

Poland the current methodology (Basel II) used for estimating CET1 and additional Tier 1 in order to adapt to the new rules requires only a shift of preference shares and hybrid financial instruments from CET1, where they have so far been taken into account, to the additional Tier 1, where they should be added now. The methodology of Tier2 assessment does not require significant changes. For the calculation of assets risk weights there were taken into account: credit risk, market risk and operational risk, which is consistent with the formula developed by the Basel Committee.

Figures 4-6 presented below show a high level of equity in Polish banks. The dashed line indicates the required level of particular ratios, including the Capital Conservation Buffer, which is to take effectfrom2019. Considering the fact that the study subjects were characterized by the lowest level of the solvency ratio, it can be assumed that the introduction of new regulations will not change significantly the structure of liabilities in the domestic market. The analysis shows that each of the surveyed banks meets the postulated capital adequacy requirements.

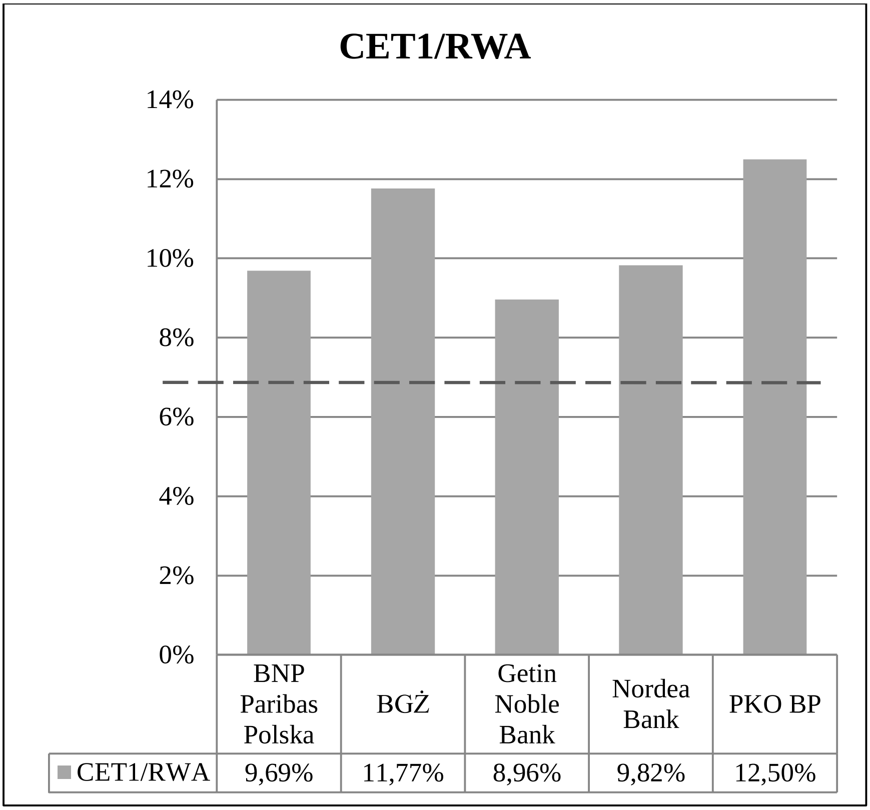

Figure 4. CET1/RWA Ratio (as for the end of 2013).
Source: Self study on the basis of SNL Financial database

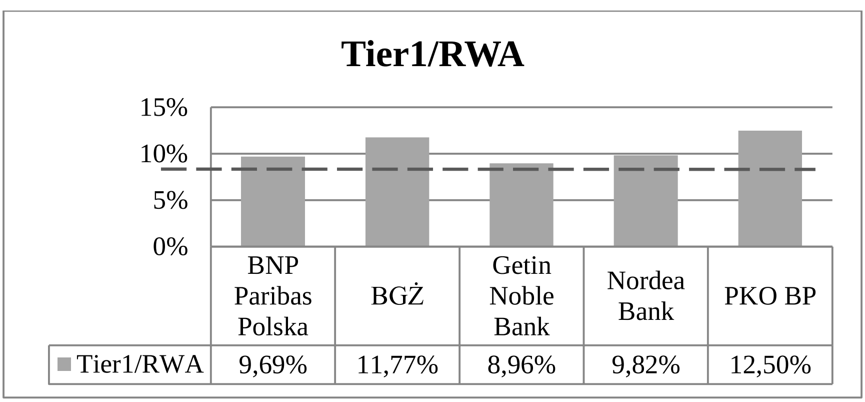

Figure 5. Tier1/RWA Ratio (as for the end of 2013.
Source: Self study on the basis of SNL Financial database.

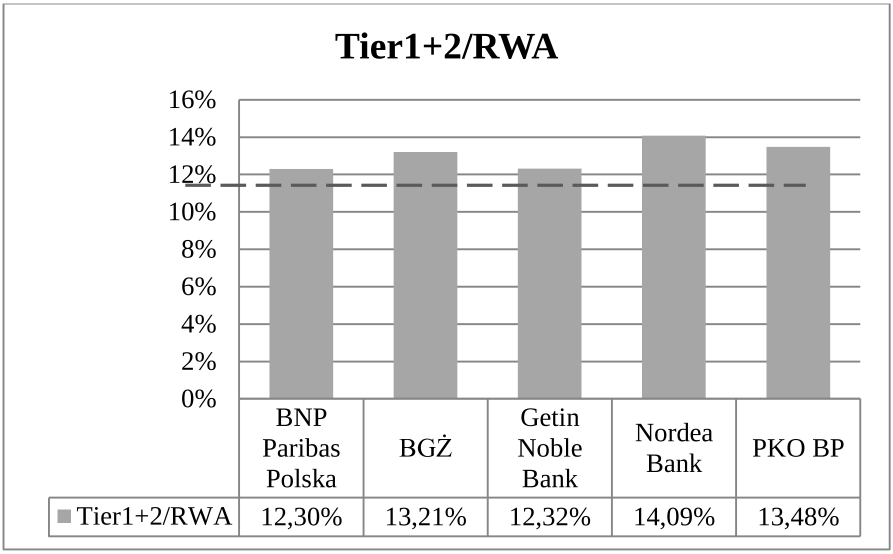

Figure 6. Tier/RWA Ratio (as for the end of 2013).
Source: Self study on the basis of SNL Financial database.

Requirements regarding the leverage ratio are varied depending on the national legal regimes. Although Basel III imposes a minimum value of the indicator at 3%, the Euro Banking Association is proceeding to work out the rules for European banks [EBA, 2014]. The analyzes carried out by the EBA show that currently average leverage ratio of banks operating in Europe is 3,3% (for banks with Tier 1 capital with assets excessing 3 billion Euro) and 3,9% for the rest (all Polish banks included in the study were among the second group). In the US, the Federal Reserve is considering raising the minimum requirement level of the leverage ratio to 5% or 6% for bank holding companies [Forbes, 2014]. Figure 7 shows a comparison of the leverage ratio in the analyzed entities (the dashed line indicates an average level for European banks classified in Group 2 by EBA[18]). Just as in the case of solvency ratios, all of the analyzed entities should be assessed as meeting the capital adequacy requirements, both in relation to the current European standards and stricter requirements requested by the FED.

[18] Group 1 banks are internationally active institutions with Tier 1 capital in excess of EUR 3bn under Basel II. All remaining institutions are classified as Group2 banks

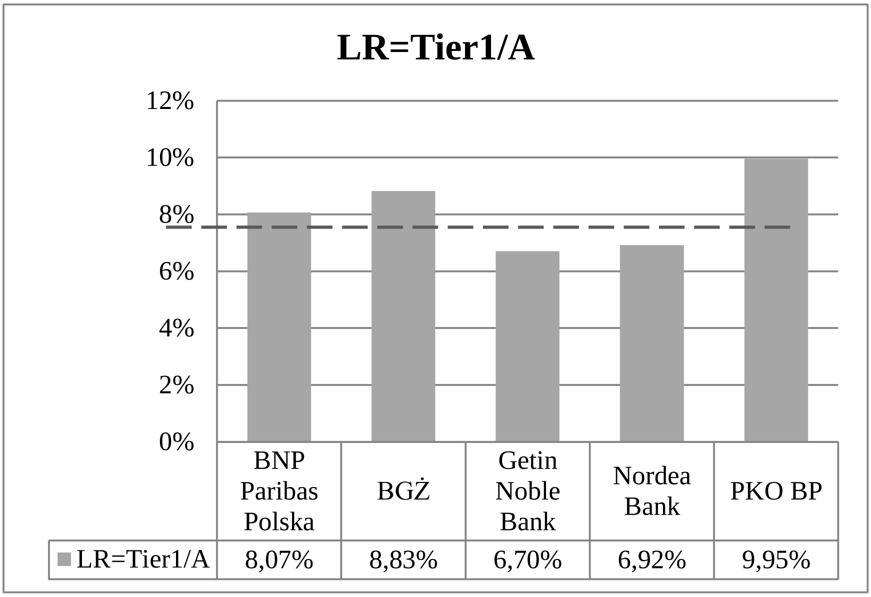

Figure 7. Leverage Ratio (as for the end of 2013)
Source: Self study on the basis of SNL Financial database.

Despite the results presented above it is not safe to conclude that the adjustment costs of the polish banking sector will be low. There are a few possible reasons for avoiding this kind of conclusion. Firstly, the research show, that banks usually hold capital buffers well over the regulatory minima [Bridges et al, 2014]. One could therefore suppose that the analyzed banks will react to the new regulations with raising the capital even if they already fulfill the rules. Berben et al. [2010] suggest that the bank capital surplus[19] (which falls as the target ratio raises) is compensated in two-thirds by reducing (the level of risk of) assets and the other third by raising additional capital. Both of these reactions are connected with bearing costs. Raising the capital, usually by issuing shares, needs to be backed up by sufficient financial means. The other costs, regarding the changes in assets structure, may be related to raising rates on lending, requiring higher collateral or rationing credit at existing rates [Francis and Osborne, 2009]. This may lead to changes in macroeconomic outcomes - according to BIS [2010] the credit supply

[19] the difference between the available capital and target capital

constrains have significant negative effect on GDP. While estimating the costs of adjustment all the above mentioned factors should be taken into account. This may lead to conclusion that the costs will not be as low as it seemed after rough Figures 4-7 analyzing.

Conclusions

The assessment of capital adequacy in selected Polish commercial banks confirms the hypothesis of a sufficient level of equity in the context of the requirements of the Basel III Regime. An application of the proposed standards to banks representing the lowest solvency ratios permits us to conclude that in terms of relative stabilization of macroeconomic conditions the adjustment costs of the Polish banking sector (*ceteris paribus*) would be low. It should also be assumed that the introduction of the new guidelines will not lead to the limitation of the dividend payments required by the need to create a protective capital buffer.

The only situation in which individual institutions will need recapitalization can occur in the event that the national supervisory authority decides to introduce counter-cyclical capital buffer to a level close to 2% of risk-weighted assets. It should be recalled, however, that the buffer should be, in principle, retained during the prosperity period. Moreover ,its maximum possible level is 2,5% of RWA. Thus- firstly-the banks with insufficient level of the buffer would have a relatively favorable conditions to fill gaps and – secondly - capital deficits, even in the case of the adoption of the maximum allowable level of the buffer would not be significant[20]. It should be also remembered that the full implementation of the directive which tightens the requirements is set up to 2019 and by that time banks are likely to gradually make appropriate adjustments in the structure of their liabilities.

There are some open questions remained, however. Some of them were mentioned at the end of the previous section and are related to the practical reaction of banks on the new regulations. The other concern the real effect of stabilization caused by the Basel guidelines. Studies presented in the article do not justify a clear evidence confirming the validity of proposed regulations. Looking back at the reasons of the recent financial crisis, which most important is the unreliability of internal risk assessment models, it becomes a legitimate demand to focus rather on this particular area of operation of financial institutions.

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20 according to the data at the end of 2013 – 0,54% of RWA for a bank with the lowest CET1 Ratio (see Figure 4)

Also, some research indicate the opposite of the intended effect of adequacy standards. Stiglitz, for example, argues that although this kind of regulations impose the risk reduction while maintaining relatively high equity capital resources, the result is totally opposite. Banks increase the risk of actions undertaken in an attempt to regain losses occurred due to imposed standards [Stiglitz, 2001].

Nevertheless, given the scale of recapitalization transfers made by the governments during the recent financial crisis, strengthening the equity base of banks and thereby increasing their capacity for self-covering the losses, seems to be fully justified. Optimizing the structure of liabilities is directed towards minimizing the likelihood of state intervention and stabilizing of the banking sector. Results presented in this paper can therefore be regarded as a proof of the safety of the Polish financial institutions.

The relatively good standing of the Polish banking sector results from few issues. The very important one is that the emergency banking markets are quite undeveloped in terms of trading with the innovational risky assets (the so-called "toxic assets"). That improves the level of the adequacy ratios. Moreover, despite most of Polish banks are the subsidiaries of international holdings, they conduct conservative prudential policy compatible with the recommendations of Polish Financial Supervision Authority. It is worth to mention that even during the 2007 financial crisis all banks with participation of foreign investor allocated the profits to increase their core capitals. In addition, during the period 09.2008-09.2009 fourteen banks reported an increase in equity as a result of support from the parent company, granted in the form of a capital increase or subordinated loans [Wierzba et al., 2014, p.58].

For a full sector analysis there should also be taken into account the situation of cooperative banks. The author withdrew to assess their capital adequacy because of their relatively small market share (8-10%) and the specific reporting requirements that hinder the diversification of the certain categories of capital in these kind of institutions. Based on the aggregated data Kochaniak's research, show that the cooperative banks in most cases meet the new requirements of the Basel Committee, confirming the thesis of the stable position of the Polish financial system.

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Bankruptcy Forecasting Methods Used in Practice by Polish listed Companies

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Abstract

Corporate failure is one of the most serious problems that concerns modern enterprises. The article presents the results of a survey on bankruptcy forecasting methods used by Polish listed companies. As macroeconomic factors and legislation change over time, it is necessary to develop new methods of corporate bankruptcy prediction. The main purpose of this article is to present a multiple discriminant analysis model, which was developed by the author using financial statements from Polish listed companies. Fifty-one financial reports from bankrupt companies and the same number of reports from financially stable companies were used to develop this model. In addition to the multiple discriminant analysis model, two models using classification and regression trees are briefly discussed in the article. Results of the study show that all the mentioned models turned out to be reliable and have a good potential for the purposes of corporate failure prediction in Poland.

Keywords:Corporate bankruptcy, corporate failure prediction, discriminant analysis, classification and regression trees models, causes of bankruptcy

JEL Classification: G32, G33, G34

Introduction

Corporate failure is one of the most serious problems that concerns modern enterprises. As macroeconomic factors and legislation change over time, it is necessary to develop new methods of corporate bankruptcy prediction which may be used by Polish entrepreneurs and foreign businessmen doing business in Poland, one of the largest EU countries. The main objective of this paper is to present a multiple discriminant analysis model, which was developed by the author, using financial statements from Polish listed companies. This paper also presents results of the research on frequency and methods by which Polish enterprises analyze their own risk of bankruptcy as well as the failure risk of their stakeholders. This was achieved by conducting a survey by questionnaire.

The survey questionnaire aimed at achieving the following objectives:

1) an analysis of the potential causes of enterprise bankruptcy as well as determination of the symptoms of looming bankruptcy,

2) determination of whether Polish companies monitor their financial situation, the methods used for this purpose and the frequency with which this monitoring is conducted,

3) evaluation of the usefulness of financial ratios for predicting bankruptcy.

The survey by questionnaire was financed by a research grant for young scientists.

1. Results of survey by questionnaire on corporate bankruptcy in Poland

The survey consisted of 37 questions. The first five questions were aimed at obtaining information about the entrepreneur who filled out the questionnaire (legal form, type of business activity, employment statistics, revenue, total assets). The remaining 32 questions were concerned with the factors affecting the financial situation of the company, the methods and frequency of financial self-assessment as well as the methods and frequency of evaluating business partners.

1.1 Causes and symptoms of corporate bankruptcy in Poland

The frequency and methods by which Polish enterprises analyze their own risk of bankruptcy as well as the failure risk of their stakeholders have been examined. Lists of the causes of corporate bankruptcy were compiled and their contents were ranked according to importance. This was achieved by conducting a survey by questionnaire.

The survey consisted of 37 questions. Some questions allowed for the possibility of marking more than one answer.

The survey achieved the following objectives:

- the evaluation of the influence of Poland`s admission to the EU on the financial situation of Polish enterprises,

- learning the attitudes of Polish managers concerning possible introduction of the euro currency in Poland,

- ascertaining and ranking, according to importance, the internal and external causes of bankruptcy,

- compilation of a list of factors which pose threats to companies` existence and well-being,

- determination of the best strategies of asset financing according to Polish managers,

- examination of the methods and frequency with which the assessment of the financial situation of companies and their stakeholders is conducted,

- determination of the financial ratios which are most useful for the purposes of corporate failure prediction,

- survey of the percentage of companies utilizing modern prognostic tools for corporate failure risk evaluation.

The questionnaires were sent by mail to 703 joint-stock companies listed on the on the regulated market of the Warsaw Stock Exchange (Giełda Papierów Wartościowych w Warszawie, GPW) or on NewConnect (an alternative stock exchange run by the Warsaw Stock Exchange, having mostly small companies). However, only 32 completed questionnaires were send back which is roughly 4,5% of all sent questionnaires. Although the response rate was low, it is still worth presenting the results of this research because it may provide useful indications for people and institutions involved in predicting corporate failure. Polish companies are not willing to provide detailed information for researchers, especially on issues as sensitive as bankruptcies and assessment of their own economic situation.

Entities whose employees completed the survey, were engaged in manufacturing, electricity, gas, steam and air conditioning supply, construction, transportation and storage, information and communication, real estate, healthcare and social work and other service activities (by Classification of Business Activities in Poland, PKD 2007). As mentioned before, the questionnaire was returned by 32 companies, of which 30 had fewer than 1,000 employees, and only two enterprises had more than 1,000 employees. Annual sales for the 26 companies did not exceed € 50 million, and the balance sheet amount did not exceed € 43 million. Only 6 entities generated sales revenues over € 50 million and had assets greater than € 43 million. Detailed data on employment, income and total assets are presented in Tables 1, 2, and 3. Only eight of the respondents admitted that their employers were using modern methods of corporate failure prediction.

Table 1. Proportion of companies utilizing modern methods of bankruptcy prediction as categorized by size

Number of employees	Companies applying modern methods of bankruptcy prediction	All companies within given category
Less than 9	0	6
10 - 49	0	8
50 - 249	2	8
250 - 999	6	8
1000 - 2999	0	2
3000 or more	0	0

Source: The author’s own study based on the results of the survey.

Table 2. Proportion of companies utilizing modern methods of bankruptcy prediction as categorized by annual sales

Annual sales	Companies applying modern methods of bankruptcy prediction	All companies within given category
less than 2 million euro	0	8
less than 10 million euro	0	6
less than 50 million euro	4	12
50 million euro or more	4	6

Source: The author's own study based on the results of the survey.

Table 3. Proportion of companies utilizing modern methods of bankruptcy prediction as categorized by total assets

Total assets	Companies applying modern methods of bankruptcy prediction	All companies within given category
less than 2 milion euro	0	10
less than 10 million euro	2	8
less than 43 million euro	4	8
43 million euro or more	2	6

Source: The author's own study based on the results of the survey.

None of the respondents stated that the situation of the company where he was employed has worsened after Polish accession to the European Union. The financial standing of almost 44% (14) of companies that sent back filled in questionnaires (32) has not changed since the accession whereas the financial situation of 37.5% (12, including 4 firms that use modern methods of forecasting bankruptcy) of companies has improved. Detailed information is provided in Table 4. Most entrepreneurs optimistically saw the possible introduction of the euro currency: 16 respondents saw this as an opportunity, 10 as a threat, and 6 of the respondents had no opinion on the matter.

Table 4. Evaluation of changes in financial standing of companies after the Polish accession to the EU

Has the financial standing of company improved after Polish accession to the EU?	Companies applying modern methods of bankruptcy prediction	All companies covered by the survey
Yes	4	12
No	0	0
it hasn` t changed	4	14
don`t know	0	0
the company was set up after Polish accession to the EU	0	6

Source: The author's own study based on the results of the survey.

Most important external causes of bankruptcy ranked, according to importance, in the opinion of the respondents include: fluctuations in supply and demand for certain products and services, the poor economic situation of the company`s business partners, political and economic crises in the world or region, and fierce competition from other companies (see Table 5). None indicated inflation and only 2 pointed out corruption.

Table 5. Most important external causes of bankruptcy ranked according to importance

Most important external causes of bankruptcy	The number of respondents who indicated the specific cause of bankruptcy [a)]
fluctuations in supply and demand for certain products and services	22 (6)
the poor economic situation of company`s business partners	20 (6)
political and economic crises in the world or region	18 (4)
fierce competition from other companies	18 (2)
inadequate monetary and fiscal policies of state	12 (4)
lack of control over the imports of goods from abroad	12 (2)
unexpected changes in business law and tax system, sudden changes in economic or political system of the state	12 (2)
technological change, shortening product life cycle	8 (2)

a) answers given by the employees of companies that use modern tools of bankruptcy prediction are shown in parentheses.
Source: The author's own study based on the results of the survey.

Most important internal causes of bankruptcy ranked according to importance by the respondents are listed in Table 6. No one indicated the difficulty in finding suppliers, employees, or the low staff competencies as important internal causes of corporate failure.

Table 6. Most important internal causes of bankruptcy ranked according to importance

Most important internal causes of bankruptcy	The number of respondents who indicated the specific cause of bankruptcy [a)]
improper financial policy, leading to a high level of debt	24 (4)
complete lack of a clearly formulated business strategy	20 (4)
inadequate financial control of commercial contracts	14 (4)
carrying out excessively large investment projects	12 (2)
excessive level of debt	12 (2)
difficulties in raising capital	12 (4)
inconsistency in the implementation of business strategy	8 (2)
inadequate monitoring of the level of working capital, which may lead to liquidity problems	8 (4)
fierce competition from importers in sales market for the company`s products	8
carrying out commercial activities in excess of the actual needs	6 (6)
losses in market share for the company`s products	6 (2)

a) Answers given by the employees of companies that use modern tools of bankruptcy prediction are shown in parentheses. Source: The author’s own study based on the results of the survey.

The respondents were also asked to state the five most important factors that most threaten the existence of their company. These factors are listed in

Table 7. Factors most threatening - according to the respondents – to the existence of the companies in which they were employed

Factors that could threaten the existence of the companies in which respondents worked	The number of re-spondents who indicat-ed certain answers
bad legislation	20 (2)
fierce competition from other companies	20 (4)
excessive taxation	18
the poor financial standing of buyers and suppliers	16 (8)
frequent changes in the law	12 (2)
legislation that favors other companies operating in the same industry	12 (2)
dependence on a single buyer or supplier	12 (6)
insufficient purchasing power of the population	10 (4)
insufficient access to distribution channels	10 (4)
unfair competition from other companies	10 (2)

Source: The author's own study based on the results of the survey.

The respondents were also asked to answer what percentage of assets should be financed with equity. Their opinions in this matter are very important, since we can compare them to general attitudes on asset financing [see Kopczyński, Kopczyńska, 2011, p. 258]. The majority (28) of the respondents concluded that the optimal equity to assets ratio ranges from 20% to 59% (see Figure 1).

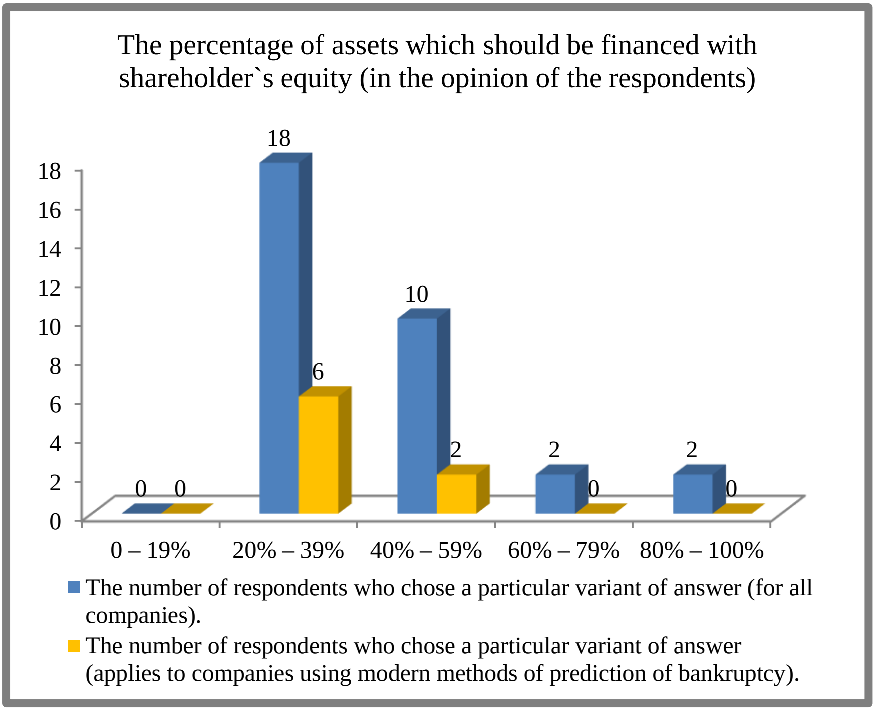

Figure 1. Percent of assets, which - according to the respondents - should be financed through equity.
Source: The author's own study based on the results of the survey.

1.2 Methods of corporate failure prediction applied in Polish business practice and frequency of carrying out evaluation of financial standing

The respondents were also asked who is responsible for carrying out the assessment of the financial health of companies. Answers to this question are presented on Figure 2. In case of the three-quarters of companies (including 4 firms that use modern methods of forecasting bankruptcy), the CEO or financial director is responsible for carrying out the evaluation of the financial situation or such evaluation is carried out under their direction.

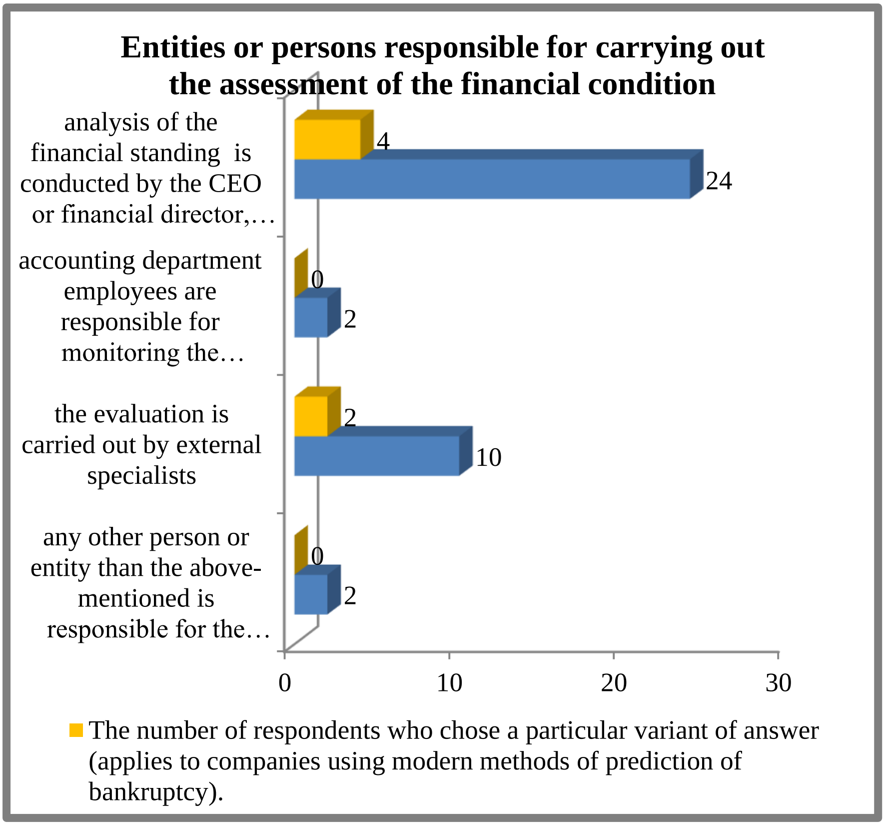

Figure 2. Entities/persons responsible for monitoring of the financial standing of the companies in which respondents work.
Source: The author's own study based on the results of the survey.

The evaluation of financial standing of companies in which respondents were employed is carried out at least once a month in roughly 56% of companies and at least once a quarter in the remaining 44% of firms (see Figure 3).

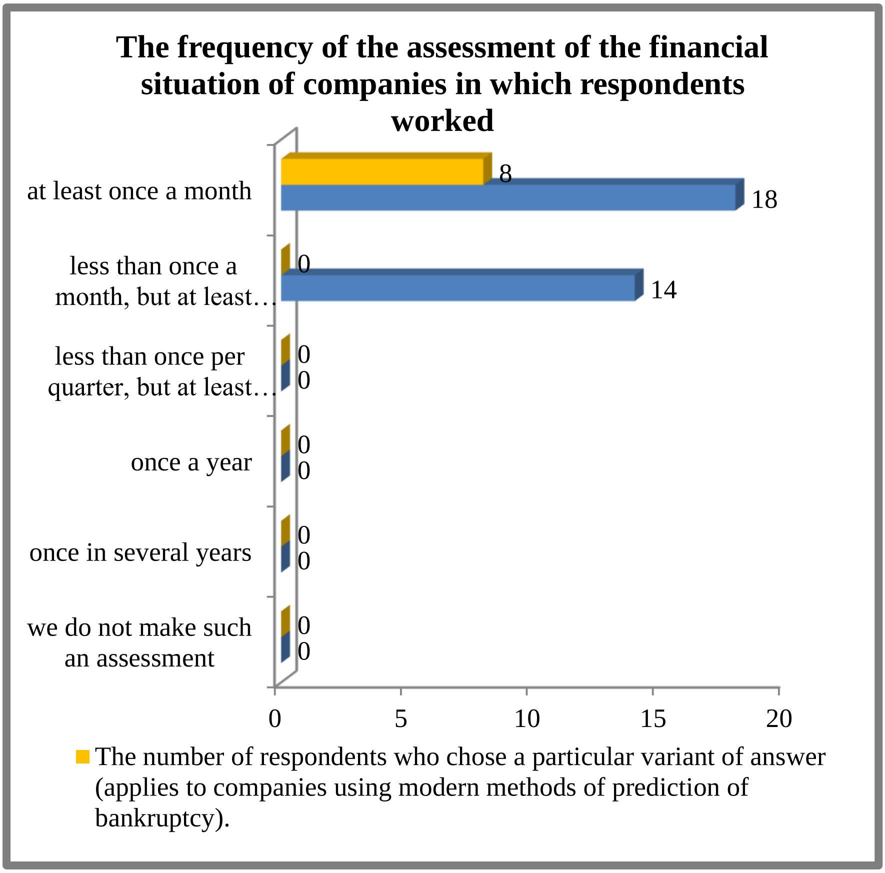

Figure 3. The frequency of the evaluation of financial standing of companies in which respondents were employed.
Source: The author's own study based on the results of the survey.

Firms should monitor not only their own financial situation, but also analyze the financial situation of their business partners. The evaluation of financial condition of the key stakeholders of companies in which respondents work is carried out at least once a month in 12,5% of firms. Such assessment is conducted at least once a quarter in 37,5% of companies whereas 18,75% of firms do not monitor their partners` financial standing at all (see Figure 4).

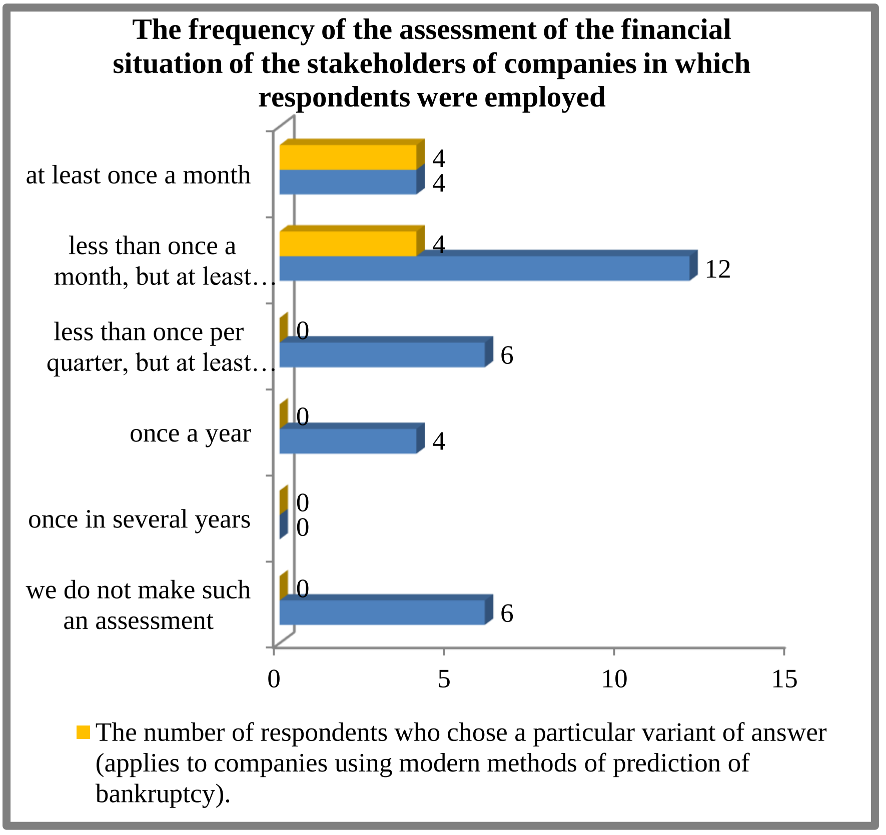

Figure 4. Frequency of assessment of the financial condition of the key stakeholders of companies in which respondents were employed.
Source: The author's own study based on the results of the survey.

The respondents were also asked to name the most useful categories of financial ratios which can be applied for predicting bankruptcy. Roughly 44% of respondents believe that liquidity ratios are the most useful whereas 37,5% of them feel that it is not possible to predict corporate failure using a single category of financial ratios (see Figure 5).

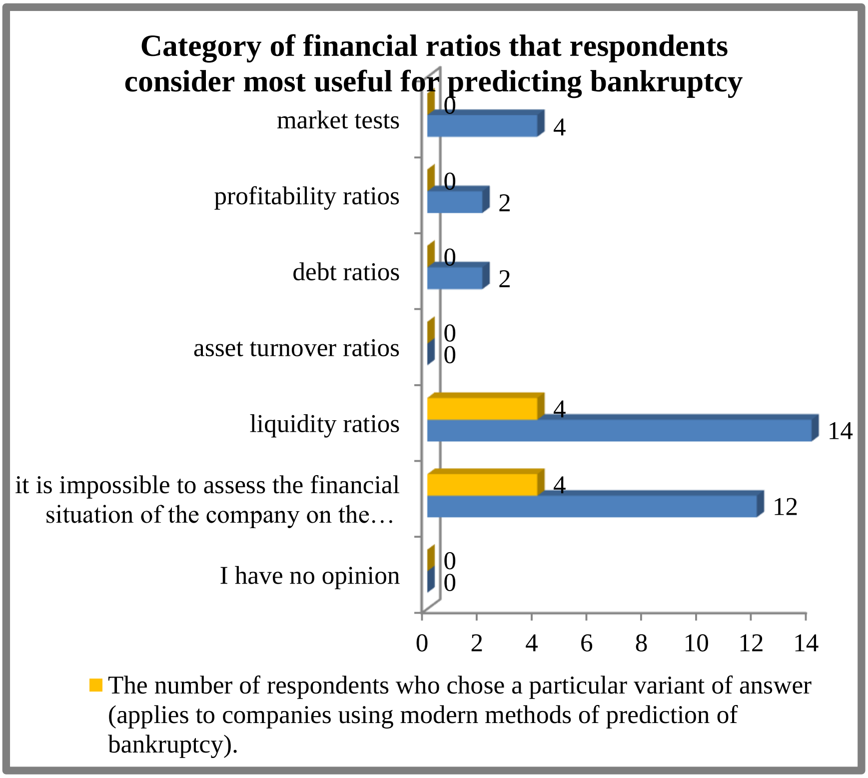

Figure 5. Most useful categories of financial ratios which can be applied for predicting bankruptcy (in the opinion of respondents).
Source: The author's own study based on the results of the survey.

Only one quarter of the 32 listed companies that sent back questionnaires used modern methods of corporate failure prediction (they were described as univariate and multiple discriminant analysis models in the questionnaire and will be further referred to as modern methods of corporate failure prediction in this article). Figure 6 shows the reasons for non-use of such tools.

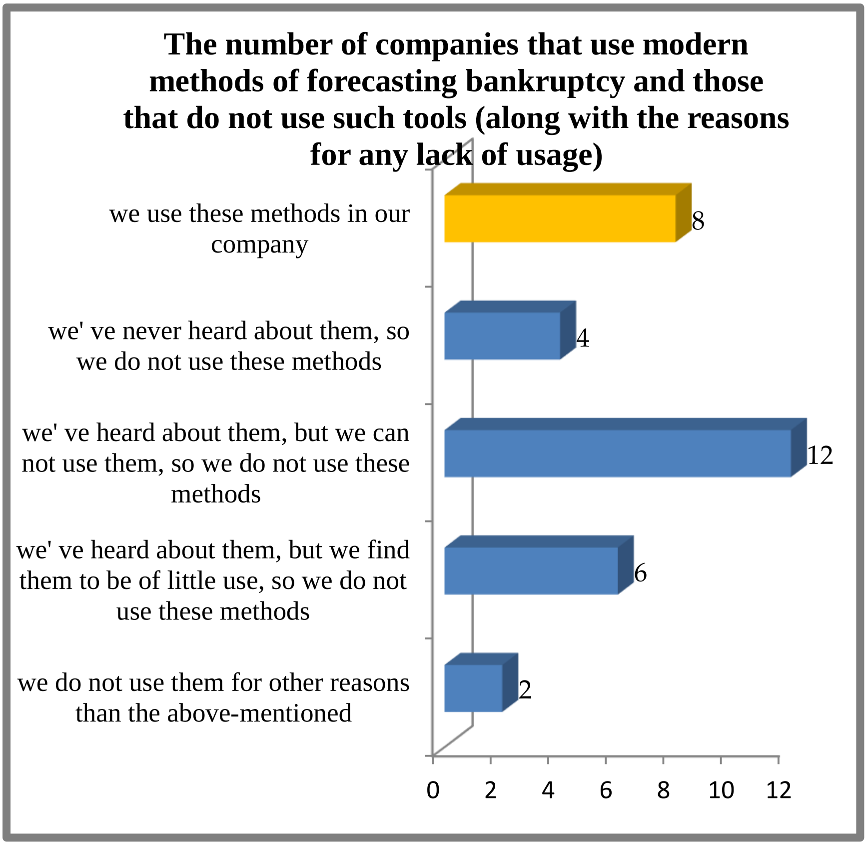

Figure 6. The number of companies using modern methods of predicting bankruptcy and those which do not use such methods (together with the reasons).
Source: The author's own study based on the results of the survey.

Only one quarter of the listed companies used modern methods of predicting bankruptcy. However, this data may even be overstated. The author of the study sent 704 questionnaires by post. Employees of surveyed companies also had the opportunity to receive a questionnaire by email. Only 32 questionnaires were sent, which gives a tiny rate of return of 4,5%. Although the survey covered the entire population of companies listed on the Warsaw Stock Exchange regulated market and on NewConnect (an alternative stock exchange), its results may not be representative of the entire population. Listed companies must gain the trust of investors and do not want to risk hurting their reputation. Their stakeholders expect that they will act in a prudent manner, while maintaining high standards of management, resulting in a reliable appraisal of their own investments, monitoring their own financial situation and analyzing the financial standing of their partners. However, this is not always the case in practice. Listed companies want to be positively perceived by their stakeholders, so they may try to avoid disclosing adverse information about themselves. Perhaps many of them did not want to admit that they do not use modern methods of forecasting bankruptcy. Thus they were reluctant to fill out the questionnaire.

Despite the small number of filled out and returned questionnaires, the author was able to gain much valuable information. In addition to creating new, more up-to-date bankruptcy forecasting tools tailored to the Polish economic environment, one should not forget the importance of the popularization of modern methods of bankruptcy prediction among business practitioners. Entrepreneurs should also encourage regular assessment of their companies` financial standing. Such practices would reduce the number of bankruptcies. The last part of the questionnaire (questions 25 - 32) was filled out only by respondents who have marked answer "a" in question 24, thus indicating their company`s use of modern methods of predicting bankruptcy. This group encompasses only eight (out of 32) companies. None of the respondents indicated that their company applies univariate models. Only multivariate discriminant functions were used by the surveyed companies.

Although all eight respondents claimed that only multiple discriminant analysis models were applied by their companies, one of them marked B. Weibl`s model while the other D. Wędzki`s model. These functions are univariate. Perhaps some respondents completed the survey in a careless way, ignoring the explanations and hints contained within it, or did not distinguish univariate from multivariate functions, which would indicate a poor knowledge of these methods. Eight companies used multiple discriminant analysis methods for predicting bankruptcy. The E. Altman`s model turned out to be the most popular choice as its use was confirmed by 6 respondents. However, it was developed over forty years ago for corporate failure prediction in the USA. Hence its current use in the cases of Polish enterprises is risky; it can contribute to the formulation of erroneous predictions [see Hołda, 2001, p. 307, Zdyb, 2000, Grice, Dugan, 2001, p. 164-5, Palepu, Healy, Bernard, Peek 2007, p. 419]. It is often presented and discussed in the literature on the issue of bankruptcy which enhances its reputation and attractiveness. Gajdka`s and D. Stos` model, B. Prusak`s model and A. Hołda`s model were each marked two times. Four companies indicated that they created original models for predicting bankruptcy and were using them in their business practice.

Respondents were also asked to answer whether the forecasts obtained using multivariate discriminant models were the same as the forecasts obtained using the traditional methods of financial analysis. Six of them were not able to answer the question. Perhaps companies using multivariate models ceased use of traditional methods of financial analysis. Therefore they could not compare them with multivariate models. Two respondents said that the forecasts were not the same.

The survey also aimed to discover whether different models provided the same forecasts. Four respondents answered that the forecasts obtained using different models were the same. The other four said that they were not able to answer this question, because their companies only used one multivariate model. Survey respondents were also asked to indicate three multivariate models, which provide - in their opinion - the most reliable forecasts. E. Altman received four votes. Two people ranked Gajdka`s and D. Stos` model among the best, another two included B. Prusak`s model in their list, and another two considered their company`s original model to be among the most reliable.

2. The multiple discriminant analysis model, which was developed using financial statements from Polish listed companies

Some international commonly known studies and discriminant models are those of E. Altman who utilized 22 financial ratios to developed a famous five-variable Z-score model [Altman, 1968, p. 594], Altman, Haldeman and Narayanan who constructed the new seven-variable ZETA model [Caouette, Altman, Narayanan, 1998, p. 123-4], Altman, Hatzell and Peck who modified the Altman Z-Score model to develop the EMS (Emerging Market Scoring) model for credit rating purposes in emerging markets [Altman, 2005, p. 313], Altman and Lavallee who examined 11 ratios to develop a five-variable ZC model for Canada [Altman, Narayanan, 2003, p. 10-16]. Cindy Yoshiko Shirata from Japan developed the CART model which is a decision tree, with independent variables having high branching weight [Shirata, 2003, p. 13-15].

The main purpose of this paper is to present a multiple discriminant analysis model which may be applied for corporate failure prediction of Polish companies. The financial statements of 102 listed companies were used to develop this multiple discriminant analysis model as well as two other classification and regression trees models. Half of these companies (51) filed for bankruptcy in court, while the other 51 continued business. All of these companies were listed either on the Warsaw Stock Exchange regulated market or on NewConnect (an alternative stock exchange run by the Warsaw Stock Exchange). The exception was Zamojskie Fabryki Mebli SA which was listed on the OTC market CeTO. A large number of listed companies filing for bankruptcy has provided a wealth of financial data from which new models for corporate failure prediction may be developed. Such up-to-date models may be used by managers and investors.

2.1. The ZK discriminant model

The study uses the financial statements of 51 bankrupt companies. They filed for bankruptcy between 2002 and 2013 (five companies declared bankruptcy in 2002, 3 in 2003, 4 in 2004, 3 in 2005, 1 in 2006, 2 in 2007, 8 in 2009, 6 in 2010, 1 in 2011, 10 in 2012 and 8 in 2013). These companies were paired with companies still in business. The aim was to ensure that the partners of each of the failed companies were from the same sector and had similar average sizes of assets at the moment of bankruptcy and throughout the last 3 years prior to bankruptcy. In E. Altman's sample (development of the Z-Score model (1968)), the failed group consisted of 33 bankrupt manufacturing companies, and the non-failed group constituted a paired sample of manufacturing firms still in business chosen on a stratified random basis [Caouette, Altman, Narayanan, Nimmo, 2008, p. 143]. In the case of research on the development of the new ZETA model carried out by E. Altman, R. Haldeman and P. Narayanan, two samples of firms consisted of a group of 53 bankrupt firms and a matched sample of 58 non-bankrupt entities which were matched to the failed group by industry and year of data [Altman, Haldeman, Narayanan, 1977, p. 31, Altman, 2000].

The usefulness of 32 financial ratios for the purposes of corporate failure prediction was examined. The average value of each ratio was calculated for the 3 years prior to bankruptcy, using the financial reports from four reporting periods prior to filing for bankruptcy in court. This was necessary because the calculation of certain ratios (e.g. asset turnover ratios or profitability ratios) necessitates the use of financial data from the beginning and from the end of a given year. Financial data of bankrupt and non-bankrupt companies were extracted from the database Notoria Serwis, which is available on the University of Lodz Library's website. In cases of missing data, the financial reports were supplemented by data from the subjects` corporate websites. One of the ratios (interest coverage) was rejected since it could not be calculated for a number of companies.

The value of each ratio was calculated on the basis of financial reports from the first, second and third year prior to bankruptcy (e.g. if the company declared bankruptcy in 2012, ratios were calculated for each year during the period 2009-2011 and financial data from 2008 was used to compute the average values of some financial statement items needed to calculate ratios for 2009). Then average values of each of the 32 ratios were computed for three years prior to bankruptcy. The intention was to develop a model which would predict bankruptcy at an early stage of corporate distress (more than one year prior to failure).

As mentioned before, the study used 102 subjects. These subjects were divided into two groups: bankrupt (51) and non-bankrupt (51). They constituted the dependent variable (the failed companies were assigned an arbitrary value of 0, while the healthy companies were assigned an arbitrary value of 1). The dataset of 102 companies was randomly divided into a training dataset comprising 80 entities (40 businesses in the "bankrupt" and 40 in the "non-bankrupt" group) and into a testing dataset (22 companies; 11 in each group).

The final variable dataset consisted of the following eight financial ratios (the ratios in bold constitute the variables of the ZK model):

X1	**book value of shareholders` equity / debt**
X8	**working capital / total assets**
X11	short-term investments / current liabilities
X13	cash flows from operating activities / profit (loss) on business activities
X14	**cash flows from operating activities / average total assets**
X18	**sales / average total assets**
X23	365 / accounts receivable turnover
X29	net profit (loss) × 100% / sales

The model was developed in 4 steps. The following variables were introduced successively: X8, X14, X18, X1. The Wilks' Lambda statistic for the entire model is equal to 0.599 (its value is always between 0 and 1; the closer to 0 the value is, the better the discriminant power of the model).

The ZK discriminant function consists of four financial ratios and a constant. This function is presented below:

$$ZK = 0{,}029 \times X1 + 1{,}311 \times X8 + 6{,}966 \times X14 + 0{,}472 \times X18 - 0{,}736$$

The cutoff score between the two groups is 0. If the output of the ZK function is less than 0, the company is considered to be at risk of bankruptcy (it is in the "distress zone"), and if it's greater than 0, the business entity is likely to stay in business (it is in the "safe zone"). The accuracy of categorization of business entities into two groups using the ZK discriminant multivariate model was scrutinized by the leave-one-out method. Financial statements of companies from the training dataset (40 bankrupt companies and 40 non-bankrupt entities) were used to accomplish this. The average values of the four financial ratios that make up the model were calculated by using data from the three years prior to a given company`s bankruptcy. The calculation was conducted this way to mirror the procedure used to develop the model (the average values of the ratios have been used).

The results of the validation turned out to be favorable: 70% of bankrupt companies and 92,5% of non-bankrupt companies from the training dataset were classified correctly. The overall classification accuracy was 81,25%. Leave-one-out cross-validation technique provided the following results: 67,5% of bankrupt business entities and 92,5% of non-bankrupt firms were classified accurately (see Table 8.). In the case of a study conducted by Altman (Z-score model (1968)) 94% of the bankrupt companies and 97% of firms still in business were classified correctly (taking the initial sample of 33 entities in each of the two groups whose financial statements were used by Altman to develop his model and using data from one financial statement prior to bankruptcy). Classification accuracy dropped when data from two years prior to bankruptcy was used by Altman to test his own model (72% of the bankrupt companies and 94% of firms still in business were classified correctly) [Altman, 1968, p. 599-600]. In three tests performed by Altman and other authors subsequent to the development of the Z-Score model, 86 distressed companies from 1969 to 1975, 110 bankrupts from 1976 to 1995, and 120 bankrupts from 1997 to 1999 were examined. It was found that the

Z-Score model was between 82 percent and 94 percent accurate taking data from one year prior to failure into account [Altman, Hotchkiss, 2006, p. 244].

Table 8. Classification results from the training dataset

		Group	Classification results and accuracy		Total
			0	1	
The original dataset	Quantity	0	28	12	40
		1	3	37	40
	%	0	70,0	30,0	100,0
		1	7,5	92,5	100,0
Leave-one-out cross-validation	Quantity	0	27	13	40
		1	3	37	40
	%	0	67,5	32,5	100,0
		1	7,5	92,5	100,0

Source: The author's own study based on the results of the survey.

The classification accuracy of the ZK model was also tested on the data from the testing dataset (22 companies, 11 in each group). Table 9 presents the classification matrix for the testing dataset. Eight firms (72,7%) from the bankrupt group and 10 companies (90,9%) from the non-bankrupt group were classified correctly. The ZK model works better for cases of non-bankrupt companies (see Table 9).

Table 9. Classification results from the testing dataset

		Group	Classification results and accuracy		Total
			0	1	
The testingdataset	Quantity	0	8	3	11
		1	1	10	11
	%	0	72,7	27,3	100,0
		1	9,1	90,9	100.0

Source: The author's own study based on the results of the survey.

2.2. Classification and regression trees models as possible alternatives to discriminant analysis models in corporate failure prediction

Two classification and regression trees models, utilizing CHAID and CART algorithms, were developed to predict corporate failure. It was discovered that the classification and regression trees models, performed even better than ZK multiple discriminant analysis model.

The model utilizing the CHAID algorithm performed very well in terms of classification accuracy, as 90% of enterprises from the training dataset (both bankrupt and non-bankrupt) were classified correctly. All 11 bankrupt business entities and 10 out of 11 non-bankrupt companies from the testing dataset were classified accurately. This proves that classification and regression trees should be employed more often in a regular business practice for the purpose of corporate failure prediction.

Conclusions

The article presents the possible causes of business bankruptcies in Poland and methods of corporate failure prediction utilized by Polish listed companies. Only one quarter of the listed companies uses modern methods of bankruptcy prediction such as multiple discriminant analysis. The main reason that companies do not use these methods is due to their lack of knowledge in its usage. The ZK discriminant analysis model presented in this paper may be applied for the purposes of corporate failure prediction of both listed and non-listed companies. Financial data of listed companies were used to develop the model. However, only such categories or ratios that could be calculated for non-listed as well as listed companies were used (market test ratios were deliberately omitted). Due to this, the ZK model has a more universal application. The application of multiple discriminant analysis model and classification and regression trees models to predict corporate failure will improve the management of companies and increase the financial security of business.

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Abbreviations

CEO - chief executive officer

CeTO - Centralna Tabela Ofert (current name: BondSpot S.A.)

EMS Model - Emerging Market Scoring Model

GPW - Warsaw Stock Exchange (WSE), Giełda Papierów Wartościowych w Warszawie SA

OTC - Over-the-counter trading

PKD - Classification of Business Activities in Poland, Polska Klasyfikacja Działalności

ISBN: 978-91-87531-30-9

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