St. Petersburg University

Graduate School of Management

Master in Corporate Finance

THE RELATIONSHIP BETWEEN HUMAN CAPITAL OF FEMALE MEMBERS OF BOARD OF DIRECTORS

AND FINANCIAL PERFORMANCE INDICATORS: RUSSIAN EVIDENCE

Master’s Thesis by the 2nd year student:

Concentration – Corporate Finance

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ЗАЯВЛЕНИЕ О САМОСТОЯТЕЛЬНОМ ХАРАКТЕРЕ ВЫПОЛНЕНИЯ

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| Описание цели, задач и основных результатов | Цель данного исследования - исследование взаимосвязи между человеческим капиталом женщин-представителей в совете директоров и финансовыми показателями российских компаний. Для достижения основной цели были поставлены следующие задачи:  - проанализировать предыдущие исследования интеллектуального капитала женщин-представителей в совете директоров и его связь с результатами деятельности компании и выявить новые возможные направления исследования;  - изучить особенности совета директоров в России;  - определить роль человеческого капитала женщин в совете директоров;  - разработать модель регрессии для оценки взаимосвязи между человеческим капиталом женщин-членов совета директоров и финансовыми результатами;  - получить необходимые данные для эмпирического исследования;  - предложить управленческие рекомендации на основе достигнутых результатов.  Результаты, полученные в ходе исследования, показали, что количество лет опыта работы в отрасли и диплом PhD женщин-членов совета директоров положительно влияют на рентабельность активов и рентабельность собственного капитала, в то время как наличие опыта работы в отрасли, количество лет такого опыта и количество лет в качестве члена совета директоров оказывают положительное влияние на рыночную капитализацию. |
| Ключевые слова | Человеческий капитал, совет директоров, финансовые показатели компании, женщины-члены совета директоров |

# ABSTRACT

|  |  |
| --- | --- |
| Master Student’s Name | Anastasiia R. Butyrina |
| Master Thesis Title | The Relationship Between Human Capital of Female Members of Board of Directors and Financial Performance Indicators: Russian Evidence |
| Main field of study | Corporate Finance |
| Year | 2017 |
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| Description of the goal, tasks and main results | The goal of this research is to investigate the relationship between human capital of female representatives in board of directors and financial performance of Russian companies. In order to achieve main goal, the following objectives are set:  - to analyze previous studies of intellectual capital of female representatives in BoD and its relationship with company’s performance and find research gap;  - to study the specifics of board of directors in Russia;  - to define the role of human capital of women on board;  - to develop the regression model to estimate the relationship between human capital of female board members and financial results;  - to obtain necessary data for the empirical study;  - to suggest managerial implications of the achieved results.  The result obtained in the study showed that number of years in industry working experience and PhD accomplishment by a female board member positively influence ROA and ROE, while the existence of industry working experience, number of years of such experience and board tenure have positive impact on market capitalization. |
| Keywords | Human capital, board of directors, financial performance, female board membership |

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# INTRODUCTION

The presence of women in the management and on boards of companies has a positive impact on economic performance. Based on previous research, better performance of companies is achieved with more diverse top management and board of directors (Smith et al., 2005). Recent reports found the correlation between higher diversity on boards and better financial performance (Joecks et al., 2013). For example, in 2015 companies with highest coefficients of racial and ethnic diversity were 35 percent more likely to be above national median in firm performance. Moreover, companies with highest gender diversity percentage were 15 percent more probable of having better financial returns than their respective national industry median (McKinsey, 2015).

It is believed that more gender diverse companies tend to perform better in decision-making due to the higher level of creativeness and different backgrounds of employees. In addition, gender diversity brings higher returns because women managers can provide wider understanding of customer behavior and improve company’s customer orientation.

One of the main board of directors’ (BoD) role is monitoring top management and supervising decisions in the company. Gender diversity on board is considered to improve monitoring, corporate governance and ethics. Studies have shown that companies which have higher percentage of women on boards show stronger organizational and financial performance.

However, existing research suggests that women are still significantly underrepresented in executive positions and in the boardrooms of public companies, though recent studies have found a positive relationship between the presence of female directors and firm performance. Leaders of many organizations are beginning to understand that a balanced participation of men and women in business management is extremely important to achieve high results. However, in most countries the problem of guaranteeing gender balance in the management is not frequently among the strategic priorities of the companies.

There is a number of European Union countries, which are now adopting gender quotas for corporate boards of directors. One of the first countries to adopt this law was Norway in 2006. As the later conducted results have shown, within three years, short-run corporate profitability declined after the quota was announced. These forced changes actually decreased firm value and resulted in the worse performance. Such result is consistent with the idea that boards are chosen optimally to maximize firm value and not due to the forced law on board composition (Ahern & Dittmar, 2009).

The rationale of studying the relationship of female board members’ human capital and company’s performance is driven by the fact that if potential female directors were selected on the basis of their human capital: proper education, prior experience, knowledge, skills and abilities, in long-term, companies would benefit from following the quotas law. However, these laws have strong opponents, considering this as a tokenism with respect to gender diversity. It is also considered that election of women only under the pressure of laws on quotas can lead to conflicts inside of management.

The goal of this paper is to investigate the relationship between human capital of female representatives in board of directors and financial performance of Russian companies. In order to achieve main goal, the following objectives are set:

* to analyze previous studies of intellectual capital of female representatives in BoD and its relationship with company’s performance and find research gap;
* to study the specifics of board of directors in Russia;
* to define the role of human capital of women on board;
* to develop the regression model to estimate the relationship between human capital of female board members and financial results;
* to obtain necessary data for the empirical study;
* to suggest managerial implications of the achieved results.

The subject of the study is the relation between human capital characteristics of female board members of Russian companies and the financial performance of companies.

The main method used in this study is multivariable linear regression model, which is applied to the sample of 100 Russian joint-stock companies with female board members. The set of independent variables remains the same, while ROA, ROE, Tobin’s Q and company’s market capitalization act as dependent variables.

This paper is expected to prove the relationship of human capital of female board members and financial results of Russian joint-stock companies. This relationship is estimated on the basis of specialized econometric software Stata, which is commonly used to conduct quantitative analysis.

The main sources of the theoretical background for the study are academic articles devoted to the intellectual capital of board of directors, its characteristics and empirical studies about intellectual capital relations with financial results. In addition, recent articles concerning laws on gender quotas are used in this research. Data for the empirical research is collected from the annual reports of Russian companies, databases and official websites of the companies.

This paper consists of two chapters. In the first chapter, author introduces the definition and characteristics of intellectual capital of board of directors as well as peculiarities of Russian boards of directors. In addition, here are analyzed previous empirical researches on the relations of human capital of board of directors and firm performance and the role of female board members in shaping company’s efficient performance. In the second chapter, the research framework is established, econometric model and variables are stated as well as the results of the carried analysis are shown and discussed.

# 1. CHAPTER 1. THEORETICAL BACKGROUND AND LITERATURE REVIEW

# 1.1 Intellectual capital of a company: definition and characteristics

With the development and extensive rise of knowledge-based economy, intellectual capital (IC) has become a crucial part of company’s assets and the most valuable resource. Intellectual capital is usually described to be the same as intangibles, researchers rarely differentiate these definitions. Many authors tend to suggest that intangible assets and intellectual capital are synonymous definitions as the defining name differences only accordingly to the studied field – in accounting it is ‘intangible assets’, in management – ‘intellectual capital’ (Lev, 2004; Lonnqvist & Mettänen, 2002).

Company’s assets in general include tangible and intangible assets. Tangible assets are the ones, which are visible and materialistic – plants, property, equipment, land; intangible assets are embedded in company’s culture, its employees and are results of their work and knowledge. Intangible assets are those, which are not physical by nature and include intellectual property, goodwill and brand recognition.

Another common definition of intangible resources classifies them as ‘assets’ by themselves and ‘skills’. Thus, intangibles are divided to assets, which can be measured by accounting standards and skills. Assets which company owns include such intellectual property as patents, trademarks, copyright and registered designs, as well as contracts, trade secrets and databases. Skills are the know-how of the employees, and the corporate competences which integrate into organizational culture. From this point of view, during the acquisition process, the acquirer is definitely buying the company’s intangible resources like patents (‘assets’), but he cannot be certain to also acquire the intangible resources of know-how, organizational culture, because they are embedded in employees and management (Hall, 1992). The difference between book value and market value of a company is often ascribed to intangible assets and intellectual capital (Edvinsson & Malone, 1997). It is very common for such technology and knowledge intensive industries as pharmaceutical, financial and IT industries.

As there are many definitions of intellectual capital, in this research the following definition will be used, which encompasses the most important characteristics of IC. According to Volkov and Garanina (2007), intellectual capital or intangibles is the combination of intangible assets, where an intangible asset is any asset which does not have physical or financial shape but belongs to the organization and brings future economic benefits to this organization.

Intellectual capital is a broad aspect, which is divided by scholars to human capital, structural capital and social capital (Hsu & Fang, 2009; Martinez-Torres, 2006; Subramaniam & Youndt, 2005).

Picture 1 Types of intellectual capital

Source: created by author

Human capital cannot be managed by company and fully belongs to employees. It encompasses their knowledge, creativity, innovational abilities, teamwork experiences, know-how, motivation etc. According to (Cabrita & Bontis, 2008; Edvinsson & Malone, 1997; Nonaka & Takeuchi, 1995), human capital can be considered as the key element of intellectual capital and is one of the most influential drivers for maintaining competitive advantage of the company.

Structural capital, sometimes also referred to as organizational capital, is the combination of all processes and mechanisms, which help the company to gain economic profits from the knowledge and information, which are embedded in company’s culture (Volkov & Garanina, 2007).

Structural capital covers two types of intellectual assets: technological or innovational capital and infrastructural capital. Innovational capital is the intellectual property company possesses such as patents, trademark, author rights, while infrastructural capital includes corporate culture, company values, and management strategies – in general organizational processes in the company (Castro et al., 2011). Structural capital assets comprise individual assets of workers into group assets of company as a whole; these are the processes, which are left when workers leave the company (Edvinsson & Malone, 1997).

Relational (social) capital is connected to the external relations of company with its customers, suppliers and other agents. For instance, this could be brands, customer loyalty, distribution channels, franchises, business contracts with other organizations. This type of intellectual capital is effective in providing market knowledge, needs and opportunities of the market as well as competitors’ trends.

Many researchers (Dean & Kretschmer 2007; Castro et al., 2011) agree that intellectual capital has become a key resource in obtaining a competitive advantage in a company. While managers realize that intellectual capital of the company is a driver for success, this topic has not been studied from all perspectives yet.

The issue of intellectual capital has started to be researched only a few decades ago but has already proved its importance and relevance. In 1997 Edvinsson, who was one of the first practitioners to try to identify and measure IC, dedicated the research paper to the development of intellectual capital in financial services company Skandia AFS. This company was the first organization to establish an Intellectual Capital function managed by a Director of Intellectual Capital in 1991. Management of Skandia AFS understood that for sustainable long-term performance it is crucial to manage, maintain and develop resources to stimulate creativity and development.

Management of intangibles is different and sometimes more difficult than managing the financial capital but it is as significant in achieving better performance. According to resource based view, which states that it is more advantageous to use external possibilities applying internal resources and capabilities instead of trying to get new skills for different outside opportunities, particularly intangible resources are expected to add more in gaining and maintaining firm’s competitive advantage and high performance (Barney, 1991).

To achieve and sustain competitive advantage, intellectual capital should be strategically managed. Knowledge, experience, skills, organizational culture and intellectual abilities should be developed and harnessed within the organization (Nasseri, 1996). Every organization, which aims to achieve competitive advantage, should analyze the present condition of its intellectual capital and work out on how to improve it to the desired level. This can include introducing a learning system, well carried out information infrastructure, employees have to be constantly motivated and sponsored for training and personal growth programs.

Intellectual capital of a company is created through different sources: employees, business processes, stakeholders of the company that are not necessarily under any contract with the company. Board of directors is one of these bodies, which is not always employed by the company but it generates intellectual capital and increases long-term competitive advantage in a company.

# 1.2 Board of directors and its functions

Board of directors is one of the main mechanisms in the public company. It protects shareholders’ interests and acts as a connecting body between management of the company and the owners.

Monitoring top management and controlling shareholders’ interests’ fulfillment is one of the main functions of board, according to the agency theory, which states that interests of management and shareholders of the company confront each other (Fama & Jensen, 1983).

Thus, corporate governance bodies intend to guarantee shareholders that managers act in the best interests of owners. Board of directors should be structured in the effective way in order to provide appropriate remuneration systems, while the ownership of the company should be structured in such a way that managers would be better controlled (Shleifer & Vishny, 1997).

If these internal methods are not effective, then external mechanisms are in action. These include the stock market and market for corporate control (Walsh & Seward, 1990). Board of directors is an internal mechanism of governing the company and it plays a significant role in investors’ understanding of the current control quality in a company by ensuring the protection of their interests.

Monitoring is one of the main board of directors’ role. Authors believe that this role is crucial because of the potential costs obtained when managers seek opportunities to fulfill their interest at the expense of shareholders’ concerns. Nowadays, when ownership and management of the company are separate bodies, managers may pursue their own interests at the cost of maximizing the profit, which means they create “agency” costs (Berle & Means, 1932). Agency costs can be decreased by efficient board of directors’ monitoring and this can increase firm’s performance (Fama, 1980).

Picture 2 Board of directors’ functions

Source: created by author

Board’s activities can be divided in three major roles. The first one, already mentioned, is monitoring. In the scope of monitoring function, researchers usually define such aspects as monitoring the CEO (Boyd, 1995), evaluating and rewarding the CEO and top managers of the firm (Conyon & Peck, 1998). Other important roles of board are strategy and service (Zahra & Pearce, 1989). Service function is connected to augmenting company brand and reputation, communicating with external stakeholders, helping and advising executives. Strategy role is about the effective engagement of directors in defining the company’s strategy while counseling the CEO and proposing different alternatives.

Another theory concerning board of directors, which will be mentioned in this paper, is resource-dependence theory. Pfeffer (1972) proves in his works that the influence of external environment on company’s activity and dependence on external resources determine a major number of outside directors in board’s structure. Other researchers showed the relationship between the size of board and company internalization as a factor of external resources’ dependence (Sanders & Carpenter, 1998). It is essential in forming a board of directors to include directors who are “rich with resources”, meaning for instance that they are directors at several boards (Berezinets et al., 2013). The directors’ reputation makes a huge contribution to company reputation as a whole. There is often a strong investment activity in companies with a high number of outside directors, who occupy more than three director’s seats (Ting & Huang, 2009).

In the fundamental work of (Mintzberg, 1983) he identifies in a deeper analysis seven key roles of board of directors as following:

* Selecting a general director and corporate officers
* Monitoring and controlling during crisis situations
* Monitoring the actions of managers and their performance
* Providing resources from the external environment
* Establishing funding opportunities
* Maintaining the reputation of the company
* Acting as an advisor for management

Later scholars pointed out other main function of board of directors as controlling (Nicholson & Newton, 2010), evaluation and remuneration of top management (Hillman & Dalziel, 2003), leadership and goal-setting (Ingley & Van der Walt, 2001).

# 1.3 Specifics of board of directors in Russian companies

Corporate governance institutions have specific features in different environments, likewise in Russia. During the beginning of 1990s, Russian economy and policy changed which resulted in the introduction of corporate governance in Russia.

The transformation of socio-economic relations required the rise of new institutions, the forming of the appropriate infrastructure and structural changes. However, due to peculiarities in the Russian economy, corporate governance institution was confronted by the market relations on the early stage of formation, meaning there was decrease in production, budget deficit, lack of some goods and services etc. Moreover, economy structure was feeble because of the deficiency in consumer goods, low level of service products development and dominance of military-industrial establishment. High ownership concentration and insider model of corporate governance were prevalent at that time because situation in politics was unstable and protection of the property rights was absent.

Dulyak Y. in her work, dedicated to corporate governance in Russia, suggested that the development of board of directors in Russia can be analyzed in three parts (Dulyak, 2013). First one is the boards’ activities in 1990-1998 years. It starts with the privatization program carried out by the state in year 1992. Privatization of the companies and liberalization were being introduced along with the market-oriented system. After the new law the companies were reorganized into joint stock ventures, workers and managers were able to get the first right to acquire the shares of the companies (Andreff & Kalyuzhnova 2003). In two years, another step of privatization came in power, which tried to decrease the insiders’ control and shares started to be sold for money. However, managers secured the rights to control the biggest part of shares by formal and informal methods.

In this first period of boards of directors’ existence in Russian economy, they played completely formal role, management and ownership of the company were not separated. Here it is also important to mention that mostly management bodies did not want to implement any innovations, including usage the board of directors in a right way (Radygin et al., 1995). The owners with biggest stakes in the company controlled companies and boards were also fully under their control.

After the economic crisis of 1998, started the second period for boards of directors’ development, when the role of the boards changed. Different market conditions of a new economy needed novel corporate governance principles. Thus, in 2002 the Corporate Governance Code was applied and finally identified the proper composition and structure of board of directors for public companies.

Russian companies started to make initial public offerings to get more investments and that required in addition the compliance with international standards of corporate governance to increase their appeal to investors.

One of the important issues in the corporate governance rules is the presence of independent directors; therefore, more directors that were independent were selected on boards. In addition, the number of managers holding directors’ seats reduced as well. In order to have better control over big companies, the roles of management and shareholders were beginning to get separated, but still boards of directors were largely influenced by owners, since the number of individual shareholders who held the majority of the shares was high (Dolgopyatova et al., 2009).

The third period mentioned by the researchers is after year 2008, when the market fell as a result of financial crisis of 2008. Stocks were redistributed; ownership was fully separated from top management. Financial crisis showed that the present system was flawed and proper regulations and laws were needed to control the corporate governance bodies. In 2014 new Code of Corporate Conduct was adopted in Russia. The new Code contains advanced standards and helps Russian companies to move to a new level of corporate governance. Some improvements connected to ensuring the rights of shareholders were made, including the procedure for preparing and holding general meetings of shareholders, dividend policy.

According to Russian federal law “about joint stock companies” (1995), board of directors is a managing entity, where directors are elected by shareholders annually. It is important to mention that board of directors is obligatory for a company with more than fifty shareholders.

Russian policy in issues related to board of directors is different from the international practice. However, recent surveys show that a lot more attention is now paid to selection, election and nomination of directors by government and businesses (PricewaterhouseCoopers, 2013). Directors in these surveys also mention that their work as board members has become more attractive due to the increasing ability to add value, challenging and interesting tasks as well as rising expertise of the board participants. However, this increasing interest and emerging role of the boards puts higher requirements and more strict control on the board composition and entering participants.

More than one fourth of the board cannot be presented by members of executive management and the CEO of the company cannot be at the same time the chairperson. The number of directors on board is determined by the general meeting of the shareholders, but should not be less than five, for those companies with more than a thousand of shareholders, board should consist of at least seven members and for those with more than ten thousand voting shares – at least nine members. Russian Code of Corporate Conduct states that while determining the number of board members, organizations should find such an optimal number of directors, which will enable the company to have productive and efficient board meetings, organize its work effectively and have rational decisions carried out.

According to the survey conducted by PricewaterhouseCoopers (PwC) in 2013, Russian public companies on average have ten board members with four independent directors. In addition, in alignment with federal regulations, none of the companies has chief executive officer and the chairperson being the same person. Most of the successful Russian companies have stated in their internal documents the minimum number of independent directors; it varies from one to five. The objectivity of board’s decisions is also enhanced by the fact that different officials occupy CEO and board chairperson positions.

The chairperson is always elected at the first meeting of the board. Functions of chairperson include responsibility for strategy and initiating changes in the company, as well as the planning of board activities – frequency of board meetings, meeting’s agenda etc.

Board of directors is responsible for overall management of the company, information disclosure, shareholders’ rights abidance. According to Russian Corporate Code of Conduct, the main functions of board of directors include:

* strategic development of the company and maintaining competitive advantage;
* adoption and verification of financial plan;
* control of the executive body and the financial results;
* regulation of the relations with stakeholders;
* supervision of company’s goals achievement;
* decisions concerning the increase of capital by additional issue of shares, placement of bonds and other equity securities;
* prevention and regulation of corporate conflicts.

In general, the main role of Russian boards is dealing with strategic issues such as organizational development, control of major transactions. Moreover, board is in control of financial policy formation, conducting internal control and audit, determining the remuneration of top management of the company (Berezinets et al., 2013).

In 2014 the main trends of Russian boards, as pointed out by PricewaterhouseCoopers reports, were:

* working as a member of board requires more time than previously;
* directors tend to make the board meetings less formal and suggest discussion that is more open;
* the content is now more important in assessing the effectiveness of boards than the alignments with formal standards;
* board of directors still lack professionals with required knowledge and experience;
* directors see their work on board as an interesting and dynamic environment for self-realization and development rather than the way of earning money (PricewaterhouseCoopers, 2014).

It is worth mentioning that according to PricewaterhouseCoopers report, which includes top fifty Russian public companies, in 2015 directors assessed the effectiveness of the boards significantly lower than in 2013. This may reflect a general trend, where directors become more demanding towards themselves because of the growing expectations regarding their role in running the business. Thus, in 2015 very few directors gave the highest evaluation of the effectiveness of the boards of directors they belong to. As in 2013, directors believe that boards of directors of Russian companies are more effective in monitoring the reliability of financial reporting: in 2015, 55% of directors (against 69% in 2013) said that the boards of directors of their companies are performing effectively. Moreover, in the opinion of 40% of the directors, the boards of directors to which they are included are quite capable of coping with such functions as defining a strategy and monitoring its implementation. At the same time, 19% of directors recognize that strategic planning is an area in which the boards of directors clearly do not meet their expectations. For most of the boards of directors, such vital functions as evaluating the performance, remuneration of top management, crisis management, monitoring the effectiveness of the risk management system and internal control appear to be areas for further improvement.

Russian companies are now implementing the Corporate Governance Code approved by the Board of Directors of the Bank of Russia on April 21, 2014. According to PwC survey of 2016, the overwhelming majority (47%) of companies are still working to implement the principles and provisions of the Code or plan to start it in the near future (16%).

The number of directors who answered that the practice of corporate governance of their companies already complies with the Code doubled compared to 2015 and amounted to 16 percent. Third of these companies are under direct or indirect control of the state. It is important to mention that the Code is recommendatory in nature, and its provisions are primarily addressed to public companies and large companies with state participation.

It is worth mentioning, that the Russian Code of Corporate Conduct suggests that every company should formulate the necessary criteria for board members. The OECD (Organization for Economic Co-operation and Development) principles also recommend disclosing experience and background of every candidate for board nomination. With the execution of this suggestion, companies can find potential conflicts of interest and understand if there are interlocking boards, meaning the same individual is a director in several boards at the same time.

Moreover, Russian Code imposes that the board should be formed in a way that optimizes its efficiency to the fullest. It states that the shareholders should be able to be confident in the members of the board the elected. Any personal characteristics of the directors should not emerge any hesitation if they are pursuing the interests of the shareholders or not.

# 1.4 Intellectual capital of board of directors: definition, characteristics and structure

Every company has in its possession tangible and intangible assets, which contribute to firm performance and sustain the competitive advantage. Traditionally intellectual capital of the company is thought of as the IC of its employees. However, researches already showed that such governing entities as board of directors and top management are also the ones generating intellectual capital and applying it in future increase of the company value.

Board of directors is responsible for company’s strategy and its development, which attributes to the long-term competitive advantage and in general sustains company’s value creation (Berezinets et al., 2016).

Definition of intellectual capital of board of directors provided by Berezinets et al. (2016) encompasses the whole idea of board IC and is as follows: “The IC of the company’s Board of Directors is the ability of the Board to extract future economic benefit from the intangible resources possessed by members of the Board (their knowledge, experience, skills, networking resources, etc.)” (Berezinets et al., 2016, p. 637).

Board capital as a term was first mentioned in Hillman and Dalziel (2003) work, who defined it as the combination of social and human capital, where social includes the relations between board members and with other stakeholders and human capital as knowledge and skills. This way, board of directors consists of each director’s experience, knowledge, connections and resources. When the company appoints a new director to the board, it assumes to get along with the director all of his/her resources to use them in the future for strategic development of the company. Board of directors’ capital as a whole comprises both human and social capital of each director (Kor & Sundaramurthy, 2009).

One of the first survey by PricewaterhouseCoopers (2012) points out that knowledge, skills, and experience of directors on board are the most significant drivers for company’s efficiency. These factors as parts of human capital are considered by directors to be the most important.

A study by PricewaterhouseCoopers (2015) suggests that industry experience and knowledge are the most important attributes to directors on board, as 58 percent of directors pointed out. Knowledge and experience in risk management as well as understanding of finance issues are crucial for board members. It is noteworthy, that previously in 2012 and 2013 international experience was one of the leading priorities for board members’ election, but due to economic downturn and crisis in 2014, companies are now more localized and thus less interested in international expertise of directors. However, the significance of knowledge of information technologies and experience in high tech companies is growing from year to year and in 2015, 30 percent of directors considered this part of human capital to be extremely important while 47 percent said that it is important enough (PricewaterhouseCoopers, 2015). In addition, skills and expertise in marketing field are getting more attention because a lot of Russian companies are diversifying their businesses and expanding. In 2014 only 10 percent of directors said that marketing experience is very important for board members, while in 2015 this figure rose up to 30 percent. Even more extreme rise can be observed in HR management: in 2014 only 3 percent of respondents thought of the high significance of human resources practices, but in 2015 already 28 percent admitted the importance of HR experience (PricewaterhouseCoopers, 2015).

Overall tendency of directors’ views on importance of human capital in last two years is consistent with what we could see in 2012, however, there are some peculiarities caused by recent economic crisis and downturn in Russian economy.

As the authors of these reports state, with the difficulties in economic conditions in which boards of Russian companies exist and the lack of directors, who have the qualifications, experience and knowledge necessary to address occurring problems, it is expected that boards’ structures will change in these upcoming years as the business will change itself. For example, 77 percent of board directors of top Russian public companies want to elect directors who have prior knowledge and experience in information technologies.

One of the most important aspects of social capital is the relationship of board directors with government. Hillman (2005) analyzed the relationship of the directors’ interactions with government and financial performance of companies, and stated that relations with government improve firm performance because of the better possibilities to get the necessary resources. In addition, going back to the reports by PricewaterhouseCoopers (2015), 68 percent of directors were expecting the composition of boards to change in the favor of electing more high level state officials because tighter relationships with government allow companies to sustain their competitive advantage even during crisis.

The similar conclusions can be found in the study by McKinsey Company, which states that the professional expertise of board members often does not fulfill the expectations of what should be human capital of the board. This discrepancy results in less effective decision-making as well as overall performance (McKinsey and Company, 2006).

Board of directors often include financial consultants, lawyers, CEOs of other companies, marketing specialists, managers with government work experience and other directors who bring their own knowledge, skills and capabilities to employ in board’s roles of strategy, service and monitoring (Baysinger & Butler, 1985; Gales & Kesner, 1994). Both human and relational capital are crucial in advising and counseling of management. For example, Carpenter and Westphal (2001) showed in their research that boards which have members connected to strategically related organizations are better at advising management and thus bring positive impact on firm performance. The prestige and the reputation of the board can also facilitate increase in company’s value and improve firm’s performance at their initial public offering (Daily & Dalton, 2001).

Intellectual capital of board of directors presents opportunities to communicate and exchange the information between the company and the external environment. Such parts of social capital as director’s relations with government can increase shareholder value, because they decrease the transaction costs of handling the uncertainties in the external environment with the faster and more accessible connection to the government (Hillman et al., 1999).

The most effective board should include both executive directors and outside directors, the former ones are able to bring their business knowledge and experience while the later can broaden the vision of the company.

In the recently conducted survey, directors explained that they see board as a “product of synergy and teamwork”, and the outcome is the best when members have different capabilities and expertise (PricewaterhouseCoopers, 2013). Most of the respondents also have said that special experience, knowledge and competences, like industry experience and risk management knowledge, are absent in their current boards.

# 1.5 Empirical research on human capital of board of directors and company’s performance indicators

As it was specified before, the value of the company depends on its physical assets and intangible resource. Intellectual capital is unique for every company; one company may include in its intellectual capital some characteristics while other company may consider them unnecessary.

In the current study author focuses on the human capital of board of directors. Human capital is one of the parts of intellectual capital and is usually considered as the biggest and most influential part of IC. Human capital is the combination of intangible resources of the employees in the organization. It is a major driver of competitive advantage, company’s growth and success. Most of the IC researchers consider human capital to be a key element of intellectual capital (Cabrita & Bontis, 2008; Edvinsson & Malone, 1997).

It is crucial to understand that a company cannot own human capital; it is embedded in its workers. According to previous literature, Castro suggested to analyze human capital from the perspective of its three core elements. First one is knowledge, here authors include education, trainings, MBA, experience, personal development (Castro et al., 2011), qualifications. Second element is abilities; this is connected to expertise of employees, their knowledge of how to do the work. Abilities can be categorized as workers’ proficiency, talents, which they develop, based on their experience and work – teamwork, communication, leadership. The last type is behaviors; this type characterizes the initial sources of workers’ capabilities, which lead employees to perform their responsibilities this, or that way. Here one can identify self-motivation, loyalty, values, inspiring teamwork, creativeness, and feeling of belonging. Talking about professional service companies, some scholars established three key drivers of human capital: individual experience and abilities, which are vital for fruitful work in the firm, professional growth (promotions, benefits and incentives, job satisfaction) and stability (Alama, 2008). Last element concerns retaining the best employees in the company with enhancing their talent and experience.

It is important to mention that human intellectual capital of board members is considered the key factor for advanced innovative activity of any business. The intellectual capital of an employee and as a result of a team of workers is vital for generating pioneering ideas (Fedotova, 2016). Human capital together with external relations can stimulate innovative capabilities. Moreover, this interaction of human and social capital can have strong impact on firm performance. Human capital stimulates creativity in a company and thus contributes to firm performance (Bozbura, 2004).

Intellectual capital facilitates the relationship between organizational and managerial activities and firm performance. As already mentioned human capital as a major part of IC has contributes a lot to company’s capital and facilitates company’s success. Moreover, nurturing workers’ capabilities, their personal and professional development, as well as proper work of HR department in recruiting and selection, providing better working conditions - this all increases intellectual capital and positively influences firm performance (Yang & Lin, 2009).

Moreover, scholars also proved the positive influence of primary human resources practices, such as training, compensation and benefits based on knowledge and talents, enhancing teamwork and contribution on social and structural capital, which in turn increases firm’s innovative capability (Wang & Chen, 2013). Other authors also added that these actions are important in facilitating firm performance (Youndt & Snell, 2004).

Seleim, Ashour, and Bontis (2007) analyzed in their study the influence of human capital on performance in software companies and found that human capital has a positive impact on performance indicators. Dooley (2000), who found a significant positive correlation between the quality of developers and volume of market shares, also supported this. Human capital indicators enhance the organizational performance directly or indirectly.

Chen, Cheng and Hwang (2005) in their study concluded that investors are more willing to value higher companies, which show intellectual capital effectiveness, and these companies also show increasing productivity and revenue growth. Authors also stated that intellectual capital, especially human capital, is crucial in corporate and national growth of developing countries.

Narrowing down to board of directors, we mentioned already that board capital consists of human capital and social capital. In resource dependence researches, scholars empirically proved the relationship between board capital and firm performance (Boyd, 1990; Dalton et al., 1999; Pfeffer, 1972).

Later researches have shown that these two theories can be integrated and can be applied in the analysis of board capital influences deeper and more coherent. In practice, boards provide, as well as monitor, the resources, so these two functions are related to firm performance (Korn/Ferry, 1999). Theorists of these two approaches examined in their correspondent researches only one of the functions, either monitoring or the provision of resources at the expense of the other, which led to not full understanding of how boards influence firm performance (Hillman & Dalziel, 2003).

Human capital parts as education, experience, leadership abilities, reliability are vital for board efficiency and also important in decision making development (Broome et al., 2010). Similar reports suggest the relevance of expertise derived from financial, industrial, leadership or international experience (Spencer Stuart 2013).

Carpenter and Westphal (2001) proved that prior experience and knowledge of directors, obtained in companies with similar corporate strategy in similar environments, has a positive effect on the firm performance in their current companies. In addition, Carpenter (2003) suggested that firm’s revenue abroad might be influenced by board members’ international experience.

Study concerning local government performance, showed that human capital is a basis of higher performance. Carmeli and Tischler (2004) proved that those local authorities, which pay more attention to strategic human resource management practices and as a result retain qualified, trained and loyal employees, have better performance than organizations neglecting implementation of such practices.

Lin, Wei and Chen (2006) proved that human capital of board of directors, especially loyalty of employees and their commitment, has positive influence on organizational performance. Khanna, Jones and Boivie (2014) established that firms that have stronger and more valuable human capital of BoD showed higher performance.

As the recent study of Volonté and Gantenbein (2016) shows, board members have developed considerable human capital through their education and experience, and their expertise is also one of the main reasons why they are selected on the board primarily. Authors also suggest that better organizational performance is tightly linked with human capital of all directors on board. Relationship between directors’ human capital and firm performance is identified by the firm’s strategy. Human capital’s value depends on the firm’s diversification and internationalization, which are the parts of firm’s overall strategy. Here authors also state that international experience is positively linked to firm performance. However, they remind that the firm’s environment must be taken into account when the board is evaluated, because every company is different in its strategy goals and human assets.

In summary, firm performance is greatly influenced by different aspects of intellectual capital through interrelations of IC with other factors. Human capital as a major part of it has impact on organizational activities, human resources practices and vice versa. Moreover, through this interaction, human capital helps to achieve higher financial performance indicators and company’s growth (Leitner, 2011).

After analyzing researches dedicated to influence of board capital, particularly human capital on organizational performance, it is obvious that board human capital is a driver of competitive advantage in a company through implementation of strategies, advising the executives and maintain strong reputation and company image.

# 1.6 Empirical research on the role of female members of board of directors and company’s performance indicators

Boards of directors should be elected based on the distinction of its potential members. Moreover, now well-known international companies show that appointment of directors should be also based on the possible future benefits of diversity. Diversity is considered to be a significant driver of board’s effective activities, forming a wider range of opinions and points of view. The UK Code for example, states that diversity should be recognized while electing directors, especially gender diversity.

It is believed that board and top management diversity encourages creativeness, more efficient leadership and decision-making. Diversity offers different points of view and suggests various ways of problem solving. Milliken and Martins (1996) suggest that board of directors of a public company should reflect the diversity in society. Female directors might have exclusive qualities that may enhance effectiveness of the board and performance of the company. In addition, if female directors are a minority on the board they are likely to monitor managers more carefully (Carter et al., 2010).

Authors suggest that female directors’ professionalism and expertise can add significant value to the broader views on the board (Hillman & Dalziel 2003; Adams & Ferreira 2009). They are also proved to have stronger and good views on how to monitor, evaluate and remunerate managers in order to guide them in company’s benefit (Daily & Dalton 2003). Women are more likely to work out conflicts and find compromises as well as they are more willing in general to work in a team. Thus, they provide more effective communication between boards and other stakeholders (Konrad et al.,2008). Female directors are considered to suggest more detailed and concrete plans for future of the company at the same time providing solutions to occurring problems (Westphal & Milton 2000).

Recent McKinsey report “Women as a Valuable Asset” states that leaders of many organizations are beginning to understand that a balanced participation of men and women in business management is extremely important to achieve high results. However, ensuring gender balance in the management is very rarely among the strategic priorities of the companies. Report states that unless comprehensive measures are taken to increase the proportion of women in top management, this situation will not change for the better. This report shows that companies whose managerial positions are occupied not only by men but also by women, show higher operating profit and market capitalization in their industry. Women and men are characterized by different styles of leadership, and only a combination of the most effective management methods can increase the value of the company. According to data from 2007-2009, the return on equity in companies with diversified board was 41% higher than for companies with exclusively men team, profit margins were 56% higher (McKinsey, 2009). Women can more clearly explain what they expect from their colleagues and subordinates, while men often make decisions alone. This kind of qualities are winning if they are united and teams with synergy of characteristics are in the winning positions.

There are studies that show the relationship between the gender characteristics of the board of directors and the performance of companies. For instance, Higgs (2003) suggested that greater gender diversity increases company’s value.

Burgess and Tharenou (2002) reviewed the state of women’s representation on boards of directors and summarized the reasons as to why women are needed on company boards. Their paper suggests that the selection process for company directors is likely to be informal, through personal references and networking, rather than depending on unprejudiced measures or a uniform procedure. They state that change to a more official set of rules on electing directors can shift the tendency from appointing directors who are similar to current ones.

Smith, Smith and Verner (2005) in their research of the 2500 largest Danish firms over the period 1993-2001 analyzed empirically whether the proportion of female top CEOs or directors on boards influences firm performance. The results of conducted study show that the positive performance effects are mainly related to female managers with a university degree while female directors who have not obtained a university degree have a reduced effect on firm performance. They proved that women directors elected by the owners have positive impact on organizational performance. However, in other boards, the effect was negative; this may be explained by the fact that a significant part of the women directors on boards was appointed because of presence of family members in the board.

Joecks, Pull and Vetter (2013) suggested that a more gender diverse board composition would only enhance performance if diversity is sufficiently large, meaning more than 10% of female representation. In addition, for boards with more than 30 % females (more than 3 women on the board), performance would be above the one of boards consisting of male representatives.

Danga and Nguyen (2014) used in their study a panel of French listed companies. They showed that board gender diversity affects positively the return on assets.

In the last decade, European countries started to adopt gender quotas to increase the number of female directors on the board and stimulate gender diversity. Norway was the first country to require by law in 2006 that female directors represent the 40 percent of boards of all public companies by 2008. At the time of adoption of this law, women were presented by only 9 percent of boards’ members. Those companies boards, which did not conform to this law by January of 2008, were forced to dissolve. The main aim of this law was to reach a board of directors composed in a balanced way with no proper consideration of how it could influence or change firm’s performance, because it was not the primarily goal. While the law stated that companies might not have the full information available about potential female directors, government created a database of all women who were interested in being a board member. Before adoption of this rule, companies, which were choosing female members voluntarily, usually were inclined to choose those women, which were similar to men directors. After the law came to power, the demand for such professional women increased dramatically, while the supply stayed the same. That meant that this quota forced firms to elect directors that they would not have chosen in any other case.

Ahern and Dittmar (2009) based their research paper on this issue of required quota for Norwegian companies and they came to conclusion that these forced changes actually decreased firm value. This is actually consistent with the notion that boards of directors are elected optimally to maximize company’s value. The quota led to the fact that boards were not chosen optimally and this decreased firm performance, authors justify this hypothesis with the empirical data based on the panel of 130 publicly listed Norwegian firms from 2001 to 2007. To avoid sanctions, Norwegian companies had to urgently hire young and inexperienced newcomers to the boards of directors. For example, the Norwegian oil company DNO International, in 2007 appointed two women to the board of directors, none of them had previously worked in the oil industry[[1]](#footnote-1).

According to French law of 2011 concerning gender quotas, by 2017, 40% of the seats on the boards of directors of public companies, which form the CAC 40 list, should be occupied by women. For those companies, which fail to comply with this quota, serious sanctions will be carried out. In this case, the appointment of male directors would be considered illegitimate.

However, now France is already ahead of other countries in percentage of women on boards[[2]](#footnote-2). In United States, in 2015 female directors held only 19 percent of board seats in S&P 500 companies. While in Germany, 22 percent of the seats were occupied by women in the beginning of 2016, despite of the fact that by that year the law required to have at least 30 percent of female directors[[3]](#footnote-3). In Belgium, law requires a 33% female representation on board by 2018. Failure to fulfil with these criteria will result in cancelled nominations and suspended remuneration of board members. Other countries, which adopted gender quotas, include the Netherlands, Italy, Spain, Israel, and Iceland.

However, there exist some arguments against applying gender quotas. Some directors are against them. As PricewaterhouseCoopers survey (2013) and McKinsey reports suggest, some directors are afraid that these quotas would lead to selection of not-qualified specialists. Wiersema and Mors (2016) in their article have acknowledged that Denmark officials and directors are strongly against the gender quotas. For example, the minister of equality and the vice-director of the Danish confederation of industries, both women, believe that the quota will result in selection of not professional directors and may be based only on gender criteria. Some experts think that it is better and more profitable for companies to promote women to the top management themselves with proper support, trainings and helping to balance personal and professional lives[[4]](#footnote-4).

Gender diversity in Russian companies is not yet a trend. In the recent PricewaterhouseCoopers survey (2013) of top fifty Russian public companies, only 7% of all board members are female directors with maximum of three women on board, while 43% of companies did not have women of their boards in comparison with only 9% of S&P 500 companies.

However, the number of women on Russian boards is gradually growing. More than half of responded directors said, that high loyalty to the company is the advantage of female candidates in the eyes of employers (Malychin & Goncharova, 2012).

In the recent study by Garanina and Muravyev (2017), authors examined the increase of the share of female members on boards of Russian public companies from 1998 to 2014. They came to conclusion, that this proportion rose from 8 percent in 1998 to 14 percent in 2014. However, in 2014 around 35% of Russian companies did not have any female members on board. Authors also found that male members of boards are on average five years older than female; they also have larger shares in the companies and are members on boards in more companies than women. Study also shows the influence of more female members on the better financial performance. It is noteworthy, that before the economic crisis of 2008, in 2006 the share of women on board was 13% and in 2007 – 12 percent, however, already in 2008 the number dropped to 10 percent but then again the proportion of women directors started to rise (Garanina & Muravyev, 2017).

In the PricewaterhouseCoopers survey (2013), most Russian directors said that they are against quotas in general, but this could be a good practice at the early stage of increasing the number of women on board. Such policy will help in increasing demand and providing needed driver for developing a base of female professionals. Nowadays, not many Russian companies are intending to encourage gender diversity on boards. None of the top 50 Russian companies has a formal policy on female representation on the board.

To conclude, it is important to state that even though the overall number of women on boards is gradually increasing, mostly due to gender quotas; a few companies actually look thoroughly through profiles of these female directors and mostly elect them to comply with the laws. As recent empirical evidence suggested such behavior results in decreasing company’s value and overall performance. However, if potential female directors were selected on the basis of their suitable education, experience, knowledge, skills and abilities, companies would only gain in a long-term prospective. Diversity on the board of directors is beneficial for a company because women tend to be more risk-averse and careful in making decisions. This would bring companies the opportunity to consider issues from different points of view and to make important strategic decisions in a more sterling approach.

# 2. CHAPTER 2. EMPIRICAL STUDY

# 2.1 Hypotheses development

Human capital is the driver of company’s efficient performance; it stimulates innovations and creativity, facilitates company’s success. As it was mentioned in the previous chapter, human capital of board of directors represents their expertise, knowledge and skills through their education and experience. A lot of studies have already shown the existence of positive effect of human capital of board members and the presence of female members on firm performance, however a few studies were focused particularly on relationship of human capital of female directors and financial performance of the company. For example, Smith et al. (2006) found that the positive influence of female members on firm performance depends on their qualifications.

Human capital can be measured by different characteristics. Considering specifics of board of directors, education is an important part of its human capital. Here it is possible to include accomplishment of MBA and accomplishment of PhD by a female board member. Experience is essential for board directors as well, thus, presence of working experience in the industry and number of years of such experience can be human capital indicators. In addition, number of years a female director has been a member on board is also essential.

Scholars usually analyze the relationship between specific characteristics of boards of directors’ intellectual capital and firm’s organizational performance, using two groups of measures of firm’s performance: accounting based indicators and market based indicators.

Market based measures (Tobin’s Q and market capitalization) are indicators of external performance that is estimated by a firm’s attractiveness to potential investors. Accounting based measures (return on assets and return on equity) are indicators of internal financial performance; these measures show how efficient company is in using its resources and investments.

*Accomplishment of MBA*

Human capital includes knowledge obtained through, for instance, education. Obtaining a MBA degree is often considered to be a competitive advantage for a manager because the main purpose of such a degree is to give students specific knowledge of business which is practically oriented. With this degree, directors are able to make decisions based on their practical education and they tend to be more effective.

Scholars prove this idea of positive influence of MBA degree on firm performance. For example, there was proven a positive relationship between completion of MBA degree by board members and company’s accounting based indicators, such as ROE and ROA (Carmeli & Tishler, 2004; Chen et al., 2008). This statement can be explained by the fact that board directors with special business education are more effective in taking strategic decisions, especially during the time of crisis.

MBA obtained by a female board member brings specific knowledge in monitoring top management, making strategic decisions and advising on company’s strategic policies. Thus, we expect a significant relationship between accomplishment of MBA by female director and financial performance. Moreover, we suggest that this relationship should have positive effect on firm performance.

**H1a**: Accomplishment of MBA of a female board member has a positive relationship with company’s accounting based measures

**H1b**: Accomplishment of MBA of a female board member has a positive relationship with company’s market based measures

*Accomplishment of PhD*

Directors on boards who have higher education qualifications and particularly those with PhD qualification, which implies a lot of research and analysis work, can offer a great source of innovative ideas that will help in developing strategies and policies with more logic, profound knowledge and thoroughness (Westphal & Milton, 2000).

Successful work of board of directors requires directors to have “high levels of intellectual ability, experience, soundness of judgment and integrity” (Hilmer, 1998, p. 62). Electing directors who have higher educational qualifications should be carried out with special attention to competences and expertise needed for firms, which face demands for more sophisticated talent to improve organizational effectiveness.

Boards with highly qualified members are more likely to have and sustain talents for effective and efficient decision-making (Milliken & Martins, 1996). With higher number of directors holding PhD degree, boards are more diverse, more knowledgeable in their corresponding industry and are more valuable. Those directors with higher educational qualifications tend to motivate other members of board to see the problems from different alternatives and make the board consider the solutions with more analytical approach (Cox & Blake, 1991). In addition, board, which does not include directors with higher educational levels, can lack innovative and critical thinking. Higher level of education of board members is a strategical resource in a company and will have an influence on company’s performance.

Directors with such high qualifications are significant for organizational performance (Smith et al., 2006). In comparison to the usual high education of first level, PhD degree suggests more analytical and deeper approach to problem solving and decision-making. Thus, it is expected that organizations, which have female board directors with PhD degree, will perform better than those, which did not elect members with accomplished PhD. So, we expect positive relation between female board members with PhD and firm performance.

**H2a**: Accomplishment of PhD of a female board member has a positive relationship with company’s accounting based measures

**H2b**: Accomplishment of PhD of a female board member has a positive relationship with company’s market based measures

*Working experience in the industry*

One of the board human capital features is the working experience in same industry (Tian et al, 2010). Working in one industry provides board member with a huge experience about what to expect in this field, which problems may arise, which laws or government policies company may face, what were consumer trends in past few years and what can be expected (Kor & Misangyi, 2008). This way director with industry experience is more accustomed to working in particular field and can provide more long-term suggestions on company’s strategy and policies.

As an industry expert, board member provides company with more experienced tools and practices for maintaining company’s competitive advantage and increasing company’s value. More industry experienced board can show potential investors that company is capable of maintaining more stable performance even during economic downturns. Carpenter and Westphal (2001) proved that experience in the same industry with similar environment has a positive influence on strategic decisions of the board as well as on firm performance. The rationale behind the following hypothesis is that a female board member, who is an expert in company’s operating area, is more knowledgeable in tendencies in this field and is able to make more sound judgments and balanced decisions. Thus, we predict a positive relationship between the presence of industry working experience and accounting based measures as well as market based measures.

**H3a**: Industry working experience of a female board member has a positive relationship with company’s accounting based measures

**H3b**: Industry working experience of a female board member has a positive relationship with company’s market based measures

*Years of working experience in the industry*

In addition to working experience in the industry, it was decided to consider number of years of working experience in the corresponding field as well. The reason behind this separation is the fact that experience can be of several months or even couple of decades and will be anyway considered as an experience. However, the results of the relationship analysis with firm performance can be different according to the closer attention to the years spent in the particular industry.

Female member of board with longer experience in the industry can have a valuable expertise and undeniable knowledge of the future trends in this industry. For such a director, it is easier to make some forecasts on consumer trends, future possibilities and threats company may face. Working in the same industry for years, makes a director a narrow specialist and brings positive effect to company’s sustainability.

With working experience of some period in one industry, a female director tends to have more specific practical industry knowledge, special expertise. She is able to assess all the information from the past months, years of working in the same area for making better forecast of future trends and problems in the industry and in a company itself. Longer period of working in the same industry positively influences effectiveness of decisions made and performance of board of directors’ main functions. Thus, we expect positive relation between number of years of industry working experience and performance indicators.

**H4a**: Years of industry working experience of a female board member has a positive relationship with company’s accounting based measures

**H4b**: Years of industry working experience of a female board member has a positive relationship with company’s market based measures

*Tenure as a board member*

Tenure as a board member is also a characteristic of human capital of board members. Although, the researchers’ conclusions on this subject vary. From one point of view, longer experience as a board member makes directors more knowledgeable about company’s internal structure and activities as well as specifics of its board of directors (Golden & Zajac, 2001). Some authors suggest that long period of board membership in an organization is resulting in stronger commitment and interest in this company and makes director more informed of the business and industry as a whole (Vance, 1983). On the other hand, directors who are working for the same company for a long time can have better relations with managers, which sometimes result in less monitoring and control. It can even bring lower firm performance and decrease in profitability.

However, the increase of firm performance with longer board tenure is more common. For instance, for director who spent some time on the company’s board, the loyalty to this company increases and the director is willing to bring company to its best (Buchanan, 1974). Also many directors become more connected to the company with buying its stocks and feel stronger after a few years of holding seat in the board of directors, thus their firm’s commitment increases. Since every company’s characteristics are individual, longer tenure on this company’s board means that board member understands more, has more profound knowledge (Kor & Sundaramurthly, 2009) and even knows her colleagues better and how to create great teamwork (Fisher & Pollock, 2004). A positive relationship of female members’ tenure as a board director with accounting and market coefficients is expected. Companies with stable board of directors are more attractive to investors and the more director knows about the internal characteristics of the company and has better relations with other board members, easier it is to reach compromise in strategic decisions, which leads to increase in performance.

**H5a**: Tenure as a board member of a female director has a positive relationship with company’s accounting based measures

**H5b**: Tenure as a board member of a female director has a positive relationship with company’s market based measures

# 2.2 Model specification

After we have specified the measures on firm’s financial performance and characteristics of female board members’ human capital, it is possible to specify the regression model, which will be used for it following estimation in the statistical software STATA. For all hypotheses, the regression will be the following:

(1)

where *Yi* represents dependent variables: return on assets (ROA), return on equity (ROE), Tobin’s Q and market capitalization. *MBA* is the dummy variable with value of 1 if the female director had obtained MBA and 0 otherwise; *PhD* is the dummy variable with value of 1 if the female director had obtained PhD and 0 otherwise; *exp* is the dummy variable of working experience in the industry, *y\_exp* is the average years of working experience, *tenure* is average time of being a board member; *bod*, *women*, *leverage* and *age* are control variables.

Full description of variables used in the analysis can be seen in the Table 1.

Table 1 Description of variables used in analysis

|  |  |  |
| --- | --- | --- |
| *Dependent variables* | | |
| ROA | Return on assets coefficient | roa |
| ROE | Return on equity coefficient | roe |
| Market capitalization | Value of all the company’s shares outstanding, taken as a log | markc |
| Tobin’s Q | Ratio of the company’s market value and replacement cost of its assets | tobin |
| *Independent variables* | | |
| MBA | Dummy variable, which takes a value of 1 if the female director had obtained MBA and 0 otherwise | mba |
| PhD | Dummy variable, which takes a value of 1 if the female director had obtained PhD and 0 otherwise.  We consider Russian PhD equivalent (candidate of science) and PhD as a degree obtained in western countries | phd |
| Working experience in the industry | Dummy variable, which takes a value of 1 if the female director had experience in the industry and 0 otherwise | exp |
| Years of experience in industry | Average period in years for all female members of BoD during which they worked in the industry | y\_exp |
| Board tenure | Average period in years for all female directors of BoD during which they have been members of board in this company | tenure |
| Board size | Total number of board members | bod |
| Percentage of women on board | Share of female directors on the board (number of female members divided by total number of directors on the board) | women |
| Leverage | Company’s ratio which shows total amount of debt relative to assets | lev |
| Company age | Time from the incorporation date till the date used in the analysis | age |

* *Return on assets*

Usage of this coefficient in our model will show how human capital of company’s female directors on board affects an overall return on the assets of the company.

ROA coefficients, used in this paper, are calculated based on the following formula:

(2)

* *Return on equity*

Return on equity (ROE) measures a company’s productivity by identifying how much profit is created with the investments of the owners. Higher ROE shows that the company uses its own assets to generate returns for investors more efficiently.

ROE as well as return on assets is expressed as a percentage and calculated as:

(3)

* *Tobin’s Q*

Tobin coefficient is one of the most popular measures of market attractiveness of firms. It is often used by scholars as an indicator of performance and effectiveness of traded companies (Berezinets et al, 2013). It also commonly used in studies dedicated to finding the relationship between intangible assets and financial performance (Hall, 1993).

In this paper, the formula of Tobin’s Q presented in a simplified formula by Chung and Pruitt (1994) will be used:

(4)

where

MVE – market value of equity,

Debt - the amount of long-term liabilities and current liabilities less current assets,

TA - total value of assets (Berezinets et al, 2013).

* *Market capitalization*

Another market indicator which will be used in this paper as a proxy of firm’s performance is market capitalization. It is the market value of the shares outstanding of a public company at particular time. This coefficient will help to identify the relationships of human capital characteristics and the market position of the firm in the market, its attractiveness for potential investors.

(5)

# 2.3 Sample description

The sample consists of all Russian public companies, listed on Moscow Exchange as on December 2013. Only public companies, which have board of directors, were initially chosen due to specifics of this study. All financial companies including banks, insurance organizations, and investment funds were excluded for the purpose of this research. The number of companies, which lack any financial information in free access sources, also shortened sample. Due to the specifics of our research all companies which do not have female representatives on their board of directors were also later excluded from the sample. A few companies out of 103 did not have any information provided about their female members of board, as well as it could not be found in any free access sources, so these companies also had to be dropped out. As a result, the final sample consisted of 100 Russian public companies and comprised 183 observations, not all companies had female board members during these two years. 56 companies from the sample are working in manufacturing industry, while 54 are from service, technology, media industries. Timeframe for our analysis is 2013-2014 years for information about board and human capital of their female members and 2014-2015 for financial results of a company as we are exploring the relationship of human capital on the next year firm performance.

The data for this study was obtained from different sources of secondary data. The selection of companies was built from SPARK database, because this database has information about all Russian companies and their boards of directors. Companies’ official websites were also used to find information about board characteristics, particularly female board members. Thomson Reuters Eikon database was used when there was not enough information in company’s annual reports. This database was also used to extract financial information about the companies. The companies included in the final sample are presented in the Appendix 1.

# 2.4 Model findings

As we conducted the estimation of the regression model, in this paragraph the results of the empirical study will be shown. First, descriptive statistics was obtained for all non-binary variables. The results are presented in Table 2.

Table 2 Descriptive statistics for regression analysis

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **Mean** | **Standard deviation** | **Min** | **Max** |
| **roa** | 2.6 | 13.68 | -92.1 | 70.67 |
| **roe** | -0.212 | 58.275 | -537.11 | 187.59 |
| **markc** | 16.15 | 2.58 | 10.63 | 23.35 |
| **tobin** | -1.5 | 1.107 | -8.46 | 5.23 |
| **y\_exp** | 6.504 | 4.76 | 0 | 21 |
| **tenure** | 2.906 | 2.38 | 0.5 | 12 |
| **bod** | 9.243 | 2.379 | 5 | 15 |
| **women** | 0.193 | 0.116 | 0.07 | 0.67 |
| **lev** | 34.434 | 74.26 | 0 | 541.85 |
| **age** | 16.05 | 6.04 | 7 | 25 |

MBA, PhD and industry working experience variables are not included in this table, since they are binary variables and have value only of 0 or 1.

For two years of observations, average industry working experience for women on boards of directors was 6.5 years. Some directors did not have any working experience in the industry they are currently working as board members, while the longest experience was 21 years. Tenure as a board member on average was 2.9 years, while the maximum years a female director was member of the board was 12, some directors were appointed just half year ago to the date analyzed. It is noteworthy, that in 2014 the average board tenure for all directors (male and female members) was 6.3 years (Spencer Stuart, 2016), meaning that in general the number of women on board has been increasing in last few years.

The number of all directors on board goes from 5 to 15 with on average 19 percent of women. A few companies have more than 60 percent of board represented by women. It is interesting, that in 2013 in Russian manufacturing companies, in a whole there were 81 female board members, while in 2014 the number decreased to 79. At the same time, in service industries in 2013 there were 65 female board directors, in 2014 already 73.

The average ROA of studied companies was 2.6 percent. Some of the companies are not efficiently using their assets to generate profits, the minimum ROA for the period studied was even -92 percent. Average ROE was also negative: -0.2 percent, companies were generating profit of -0.2 percent on average from the invested shareholders’ money. Considering market-based measures, market capitalization average was 16.15, while Tobin’s Q coefficient mean was -1.5.

According to correlation matrix presented in table in Appendix 2, there is no high correlation between the variables.

The data in the research is panel, because it contains observations of multiple characteristics of human capital obtained over multiple periods for the same companies. So, in this research, three standard panel data estimators are used: pooled ordinary least squares model (pooled OLS), fixed effects model, and random effects model. We estimate the type of the model for each of the hypotheses with the conduction of F-test, Breusch – Pagan LM test and Hausman test.

* *F-test*

It is used to find the better model for our data between fixed effects and pooled ordinary least square models. Null hypothesis states that there are no fixed effects. Thus, rejecting the null hypothesis indicates the existence of significant fixed effect and fixed effects model should be chosen (Greene, 2003).

* *Breusch – Pagan LM test*

Breusch – Pagan LM test helps to see if there are random effects in the model. According to the null hypothesis, it is a pooled OLS model and variance of the random effects is zero. Rejecting the null hypothesis in the favor of alternative suggests that random effects model is better (Greene, 2003).

* *Hausman test*

If after the first two tests, it is obvious, that there are both random effects and fixed effects in the data, we apply Hausman test, which helps to understand which of these two models better describes our data. Null hypothesis suggests that models errors are not correlated with regressors and are random. So if we reject null hypothesis, fixed effects model is preferred.

We perform these tests for the first set of hypotheses. Here, in F-test we reject the null hypothesis in the favor of alternative one, so fixed effects model is preferred. In Breusch – Pagan LM we also reject the null hypothesis in the favor of alternative, random effects are present. Now we perform Hausman test*,* we reject the null hypothesis here, because in all two variations of first hypothesis probability is less than 5%, so fixed effects model is chosen. The same procedure we undertake with the other hypotheses, fixed effects model is also chosen in all of them.

Now we proceed to the results of the regression analysis itself. The relation between human capital of female board members and accounting based measures can be observed in table 3.

Table 3 The relationship between human capital of female board members and ROA/ROE

|  |  |  |  |
| --- | --- | --- | --- |
| **ROA** | **coef** | **ROE** | **coef** |
| *mba* | -4.755 | *mba* | -15.146 |
| *phd* | 16.953\* | *phd* | 19.851\* |
| *exp* | 6.019 | *exp* | 34.578 |
| *y\_exp* | 1.683\*\* | *y\_exp* | 5.040\*\* |
| *tenure* | 0.054 | *tenure* | -1.860 |
| *age* | -1.442 | *age* | -0.920 |
| *lev* | 0.013\*\* | *lev* | .084\*\* |
| *bod* | 30.649 | *bod* | 20.062 |
| *women* | 3.771\* | *women* | 42.136\* |
| *\_cons* | -271.69 | *\_cons* | -228.12\* |
| *R2* | 0.197 | *R2* | 0.23 |

\*\*\* *p* < 0.10, \*\* *p* < 0.05, \* *p* < 0.01

As it can be seen in the table, coefficients *phd* and *y\_exp* are statistically significant in the model, it means that the model does capture the ROA and ROE in the studied sample. With higher coefficients, the higher is ROA and ROE accordingly, because the relation is positive. Other human capital characteristics are not significant in these models. It should be also mentioned, that control variables *lev* and *women* are also statistically significant.

Thus, we reject hypotheses H1a, H3a and H5a. Hypotheses H2a and H4a are not rejected and are proved by the performed regression analysis. PhD accomplishment and years of industry working experience have positive relationship with accounting based measures.

Hypotheses H1b, H2b, H3b and H4b were also estimated in our model. The results can be seen in the following table 4.

Table 4 The relationship human capital of female board members and market capitalization

|  |  |
| --- | --- |
| **market capitalization** | **coefficients** |
| *mba* | 0.148 |
| *phd* | -0.631 |
| *exp* | 1.378\* |
| *y\_exp* | 0.143\* |
| *tenure* | 0.160\*\* |
| *age* | 0.183\*\* |
| *lev* | 0.006\* |
| *bod* | -0.289 |
| *women* | -2.285\* |
| *\_cons* | 16.848\* |
| *R2* | 0.325 |

\*\*\* *p* < 0.10, \*\* *p* < 0.05, \* *p* < 0.01

Coefficients *exp*, *y\_exp* and *tenure* are statistically significant in fixed effects model. Thus, industry working experience, board tenure and number of years of experience influence positively market capitalization. With higher coefficients of these three human capital characteristics, market capitalization also increases. Other human capital characteristics such as PhD and MBA accomplishment are not significant in the model. It is noteworthy, that control variables *age* (age of the company), *lev* and *women* (share of women) are also significant.

The model of relationship between human capital characteristics and Tobin’s Q as a market-based measure was also estimated, but it was shown to be insignificant, meaning there is no relationship between any human capital characteristics studied in this research and Tobin’s Q. So the results of regression analysis with Tobin’s Q are not presented in the table.

# 2.5 Managerial implications

This paper has some direct implications for public Russian companies. As far as this empirical study of 100 Russian public companies has shown, female members of board of directors have important influence on firm’s performance. The main finding of this paper suggests that working experience, board tenure and accomplishment of PhD by female board members have a positive relation with company’s performance. Specifically, these human capital characteristics influence return on assets, return on equity and market capitalization. Higher education qualification like PhD and longer period of industry working experience of female board members influence accounting based measures of performance, more specifically – return on assets and return on equity. Electing on board of directors women, who are more inclined to analytical and in-depth analysis, suggesting different alternatives of actions and solutions to their co-workers; who have years of experience in the industry they are currently working in provides the board with directors who have great expertise and knowledge about the industry, trends, consumer expectations, challenges and possibilities. This is positively related to internal performance of the company, to the ability of board of directors to efficiently perform its roles that leads to more effective usage of company’s assets in generating profits. Female director with PhD degree and years of working experience in the industry also positively affects company’s return on equity, increases the amount of earnings firm creates with the shareholders money.

Presence of industry working experience as well as number of years of such experience and the period for which female director was member of the board – all this is positively linked with market-based measures, particularly market capitalization. This means that electing or reelecting a woman who has previous experience of working in this industry preferably for couple of years and who has been the member of this board, increases company’s attractiveness on market for investors, improves perception of the company’s activities in the market.

As the estimated model has shown, board tenure of female directors has also positive relation to market performance of the company. Board directors who have been holding these board seats for some time already usually tend to be more informed about different aspects of the company and be more knowledgeable of available resources. Stable board of directors is also an indicator of company’s profitability and it attracts investors who do not seek risky investments. Board tenure has been proved to be positively related to strategic decision making by board directors and firm performance (Golden & Zajac, 2001). Directors with some period of board tenure for the same company know more about available resources in the company and are more informed generally of internal affairs, which makes their work more effective.

In the previous studies, researchers also found the positive influence of industry experience on board’s strategies implementation which results in higher performance (Carpenter & Westphal, 2001). They argued that prior experience in similar companies which face similar problems and which run business in similar environments has positive influence on effectiveness in the current work of board members and as a result on organizational performance.

With more qualification and higher education, directors are able to make relevant to the current economic situation and company specifics decisions (Dalziel et al., 2011). Board members with bigger investments in their education, like accomplishment of PhD, are more likely to suggest creative solutions and innovative ideas (Wincent et al., 2010, Van der Vegt & Janssen, 2003).

However, according to our research, there is no relation between accomplishment of MBA degree and financial performance indicators like ROA, ROE and market capitalization. It may be concluded that in Russian public companies, directors with more narrow and specialized knowledge obtained through PhD degree are more needed and influence firm performance more, while those, who have broad MBA degree, do not show necessary knowledge and expertise in solving current problems in the economy and suggesting effective strategies in companies.

It is worth mentioning, that the analysis of all above mentioned human capital characteristics was also carried out with the aim to find any relation with Tobin’s Q coefficient, but this relation has not shown any statistical significance. This may be due to the specifics of the obtained data or because of the limited sample.

One of the limitations of this study is the restricted amount of data concerning information about female directors. Sample could be broadened by adding more years of observation and conducting a search about directors’ characteristics information in more closed sources. Secondly, as far as only Russian joint-stock companies have been analyzed, the results of the study conducted can be applicable only for Russia, however, these results show the worldwide trend in the studying of female directors’ human capital.

# CONCLUSION

The current study is focused on the relationship between human capital of female representatives in board of directors and financial performance of Russian companies. With the increasing tendency of diversifying board of directors and the emergence of laws concerning gender quotas on the boards of directors, it becomes vital to study intellectual capital of women directors on boards in order to understand which characteristics of directors stimulate effective firm performance.

In this paper, prior studies dedicated to intellectual capital of the company and particularly to human capital of board of directors were analyzed. In addition, peculiarities of Russian boards of directors were studied. Based on the theoretical review of human capital of female board members, the relationship between human capital of female board members and financial results was estimated. As human capital characteristics, author analyzed PhD and MBA accomplishment, presence and years of industry working experience and board tenure. As companies’ financial performance indicators such accounting based measures like return on assets and return on equity as well as market based measures – market capitalization and Tobin’s Q were taken.

The results of the study showed that PhD accomplishment, presence and years of working experience and board tenure have positive relationship with financial performance indicators. More precisely, according to estimated results, female board members who have some number of years in industry working experience and accomplished PhD positively influence ROA and ROE, while the existence of industry working experience of a female director in general, number of years of such experience and board tenure have positive impact on market capitalization. However, MBA accomplishment did not show any significance for financial results, also based on the performed analysis Tobin’s Q is not correlated to above mentioned human capital characteristics of women.

More attention is paid to election of women on boards, as they are considered to be more risk-averse, more willing to work out conflicts and find compromises, and often more attentive during board meetings than men directors. When nominating and electing potential female directors on board, owners and shareholders should consider special human capital characteristics of these directors. Specifically, PhD accomplishment, as it gives more deep understanding of company’s operations and ability to analyze more thoroughly company’s internal activities and external environment. Together with years of working experience in particular field, women directors gain important valuable skills, they can provide a great source of innovative ideas that will help in developing strategies and policies with analytical depth and thoroughness. Working experience makes the director an expert in this field and can suggest new ideas, especially in benchmarking, as she has a great experience in this area of industry. This will in its turn lead to increase of company’s value. This is also a benefit for investors, as they are likely to invest in companies with highly experienced directors who have sufficient expertise and ability to make relevant decisions.

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# Appendix 1. Russian companies included in the sample

|  |  |  |
| --- | --- | --- |
| № | Name of the company | Name of the company |
| 1 | ALNU | OAO "ALROSA-Nyurba" |
| 2 | ALRS | ZAO AK "Alrosa" |
| 3 | ASSB | OAO "Astrakhanskaya energosbytovaya kompaniya" |
| 4 | BLNG | OAO "Belon" |
| 5 | CLSB | OAO "Chelyabenergosbyt" |
| 6 | CNTL | OAO "Tsentral'nyy Telegraf" |
| 7 | DALM | PAO "Dal'energomash" |
| 8 | DASB | PAO "Dagestanskaya Energosbytovaya kompaniya" |
| 9 | DGBZ | PAO "Dorogobuzh" |
| 10 | DVEC | OAO "Dal'nevostochnaya energeticheskaya kompaniya" |
| 11 | GAZP | PAO "Gazprom" |
| 12 | UPRO | OAO "E.ON Rossiya" |
| 13 | GMKN | GMK Nornikel' |
| 14 | HYDR | PAO "RusGidro" |
| 15 | IRGZ | OAO "Irkutskenergo" |
| 16 | JNOS | OAO "Slavneft'-YANOS" |
| 17 | KAZT | OAO "KuybyshevAzot" |
| 18 | KBSB | OAO "Kuban'energosbyt" |
| 19 | KCHE | Kamchatskenergo |
| 20 | KGKC | Kurganskaya generiruyushchaya kompaniya |
| 21 | KMEZ | OAO "Kovrovskiy mekhanicheskiy zavod" |
| 22 | KRSG | Krasnoyarskaya GES |
| 23 | KUBE | Kuban'energo |
| 24 | LSNG | Lenenergo |
| 25 | LSRG | OAO Gruppa LSR |
| 26 | MAGN | OAO "Magnitogorskiy metallurgicheskiy kombinat" |
| 27 | MFON | Megafon |
| 28 | MGNZ | OAO "Solikamskiy magniyevyy zavod" |
| 29 | MGTS | OAO MGTS |
| 30 | MISB | Marienergosbyt |
| 31 | MRKC | MRSK Tsentra |
| 32 | MRKK | MRSK Severnogo kavkaza |
| 33 | MRKP | MRSK Tsentra i Privolzh'ya |
| 34 | MRKS | MRSK Sibiri |
| 35 | MRKU | MRSK Urala |
| 36 | MRKV | MRSK Volgi |
| 37 | MRKY | MRSK Yuga |
| 38 | MRKZ | MRSK Severo-Zapada |
| 39 | MRSB | Mordovskaya energosbytovaya kompaniya |
| 40 | MSNG | Mosenergo |
| 41 | MSRS | PAO "Moskovskaya ob’yedinennaya elektrosetevaya kompaniya" |
| 42 | MSTT | Mostotrest |
| 43 | MUGS | Murmanskaya TETS |
| 44 | NKNC | Nizhnekamskneftekhim |
| 45 | NPOF | NPO Fizika |
| 46 | NSVZ | Nauka-svyaz' |
| 47 | ODVA | Mediakholding |
| 48 | OGKB | OGK-2 |
| 49 | ENRU | PAO «Enel Rossiya» |
| 50 | OMSH | Omskshina |
| 51 | OPIN | Opin |
| 52 | OSMP | OMPK (Ostankino) |
| 53 | PAZA | Pavlovskiy avtobus |
| 54 | PHST | OAO "Farmstandart" |
| 55 | PIKK | Gruppa kompaniy Pik |
| 56 | PLZL | PAO Polyus |
| 57 | PMSB | Permenergosbyt |
| 58 | PRFN | OAO "CHZPSN-Profnastil" |
| 59 | PRIM | OAO PMP |
| 60 | PRTK | Protek |
| 61 | RBCM | PAO RBK |
| 62 | RLMN | GK Rollman |
| 63 | AQUA | PAO Russkaya akvakul'tura |
| 64 | RTSB | PAO "TNS energo Rostov-na-Donu" |
| 65 | RZSB | RESK Ryazanskaya energeticheskaya sbytovaya kompaniya |
| 66 | SARE | Saratovenergo |
| 67 | SIBN | Gazprom neft' |
| 68 | SNGS | Surgutneftegaz |
| 69 | STSB | Stavropol'energosbyt |
| 70 | SVAV | Sollers |
| 71 | TASB | OAO "Tambovskaya energosbytovaya kompaniya" |
| 72 | TATN | OAO "Tatneft' im. V.D. Shashina" (PAO TATNEFT') |
| 73 | TGKB | OAO "TGK-2" |
| 74 | TGKD | Kvadra |
| 75 | TGKN | OAO TGK 14 |
| 76 | TGKO | Taganrogskiy kombaynovyy zavod |
| 77 | TORS | OAO "TRK" |
| 78 | TRCN | Transkonteyner |
| 79 | TRMK | OAO "TMK" |
| 80 | TUZA | OAO "TZA" |
| 81 | UAZA | OAO "UAZ" |
| 82 | UKUZ | OAO "Yuzhnyy Kuzbass" |
| 83 | UNKL | Kombinat Yuzhuralnikel' |
| 84 | URKA | Uralkaliy |
| 85 | URKZ | OAO "Uralkuz" |
| 86 | VDSB | Vladimirenergosbyt |
| 87 | VGSB | Volgogradenergosbyt |
| 88 | VJGZ | Var'yeganneftegaz |
| 89 | VLHZ | VKHZ |
| 90 | VRAO | RAO Energeticheskiye sistemy Vostoka |
| 91 | VRPH | PAO "Verofarm" |
| 92 | VRSB | Voronezhskaya energosbytovaya kompaniya |
| 93 | VSYD | Vyborgskiy sudostroitel'nyy zavod |
| 94 | VTGK | Volzhskaya TGK |
| 95 | VTPR | OAO "Voltayr-Prom" |
| 96 | YAKG | YATEK |
| 97 | YASH | OAO "Yaroslavskiy shinnyy zavod" |
| 98 | YKEN | OAO AK "Yakutskenergo" |
| 99 | ZILL | AMO Zil |
| 100 | ZMZN | OAO ZMZ |

# Appendix 2. Correlation matrix for regression analysis



1. Smirnova Y. (2011), “Zolotye yubki”, available at: http://www.forbes.ru/karera/menedzhment/62151-zolotye-yubk[i](http://www.forbes.ru/karera/menedzhment/62151-zolotye-yubki) (accessed April 19, 2017). [↑](#footnote-ref-1)
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