CORVINUS UNIVERSITY of BUDAPEST

Doctoral School of Economics, Business, and Informatics

THESIS SUMMARY

To the doctoral dissertation

Lakatos, Zsolt

The analysis of the relationship between board characteristics and firm financial performance in the Central Eastern European region

Supervisors:

Dr. Medvegyev, Péter professor

Dr. Havran, Dániel associate professor

Budapest, 2022

Corvinus University of Budapest, Institute of Finance, Department of Corporate Finance

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1. Research Background and Research Relevance

1.1. Motivation for Research Topic Choice

In the dissertation, the author analyzes the relationship between corporate governance characteristics and firm financial performance measures in the Central and Eastern European (CEE) region among listed companies between 2006 and 2016. In addition, the author presents the results of two empirical published papers.

In the dissertation, the author presents the empirical results of two published papers. The title of the first paper is: Do larger boards improve shareholder value creation? – Effects of the board size on the business performance in Eastern Central Europe. In this research, the author analyzes the impact of board size on firm financial performance among listed companies in the CEE region.

The title of the second paper is: Does female presence on corporate boards impact firm performance? Evidence from Central Eastern Europe. In this research, the author investigates board diversity's impact on a firm's financial performance. In this research, board diversity means gender diversity, more precisely, the effect of female directors on corporate boards on firm performance.

Corporate governance is the system by which companies are managed and controlled. The board of directors is the highest decision-making body in a company and is responsible for the management of the company. The theory of corporate governance is that in public limited companies, particularly those listed on a stock exchange, there is a separation of control and ownership. The board of directors controls a company, but the shareholders own the shares. The board's main task is to protect the interests of the shareholders. Just as there is no single definition of corporate governance, there is no single corporate governance theory.

Regarding the financial performance of firms, the size, composition, and independence of the board of directors pay particular attention. Academic research focuses on the question of how and to what extent the structure of boards affects the performance of firms. However, researchers do not agree on how to measure and define the effects between corporate governance characteristics and firm financial performance.

While there are partial answers for the developed economies, there needs to be more knowledge about the economies of Central and Eastern Europe regarding the corporate

governance effect. The CEE countries have only been functioning as market economies for about 30 years, sufficient time for developing economic and legal frameworks. However, these countries have followed a different social change path than developed economies. This fact is particularly actual for listed companies with relevant economic power, where the institution of passive monitoring is significant alongside active monitoring. The value of a company can be increased if appropriate rules and policies are applied to the functioning and composition of company boards.

The primary motivation for writing the thesis is that no similar empirical studies have previously been carried out in the CEE region to examine the impact of board size and board diversity on corporate financial performance among the most important listed companies in this region.

1.2. Aim of the dissertation and characteristics of database

The dissertation aims to measure the impact of board characteristics on financial performance. In this dissertation, the author presents the results of two empirical studies. The database of these studies is based on secondary data. The author downloaded the financial data of the companies from the Bloomberg terminal available at the University of Budapest Corvinus. At the same time, the data on boards of directors and supervisory boards were obtained from the companies' annual reports of the companies. The author himself carried out data collection. The first of the two studies is a single-authored paper, while the second is a co-authored paper. In the latter study, the author was involved in assembling the data, mainly in the conceptualization, validation, formal analysis, and visualization of the data. The author completed the analysis with a separate chapter, which was not part of the published study.

The database consists of the 300 largest market capitalization companies in the CEE region (Bulgaria, the Czech Republic, Hungary, Poland, Romania, and Slovakia) excluding firms from financials and utilities. Financial data have been downloaded from the Bloomberg monitor system, while information on corporate boards have been collected manually from annual reports. Financial data are year-end data (December 31), while the size of the board (number of directors) reflects the status as of January 1 in the given year. The dataset covers years 2007 to 2016. Database consists of secondary data.

1.3. Corporate governance models

Corporate governance is the system by which companies are managed and controlled. The board of directors is the highest decision-making body in a company and is responsible for the

management of the company. The theory of corporate governance is that in public limited companies, particularly those listed on a stock exchange, there is a separation of control and ownership. The board of directors controls a company, but the shareholders own the shares. The board's main task is to protect the interests of the shareholders. Just as there is no single definition of corporate governance, there is no single corporate governance theory.

However, Bedő (2011) cites O’Sullivan (2000), who thinks that corporate governance is an advocacy system among a company’s stakeholders. Corporate governance determines the opportunity to participate in the decision-making process and the ability to access income. Corporate governance can also be understood as a struggle for advocacy. Bedő (2011) emphasizes that in Anglo-Saxon economies, the dominance of money and capital markets is the main reason the relationship of corporate governance is limited to the owner and the manager. However, in Germany, employee representativeness or France's traditionally vital role of trade unions influences the corporate governance model.

For companies, the two corporate governance structures are one-tier and two-tier. In a one-tier corporate governance structure, the board of directors is the highest governance body and consists of the company's managers, executive directors, and non-executive directors. In a two-tier governance structure, the board of directors consists of the company's directors and managers and is also known as the management board. In the case of a two-tier corporate governance structure, a supervisory board is mandatory, and its members are independent persons. Listed companies in Central and Eastern Europe may choose to operate under a single or two-tier corporate governance system, depending on the regulations in their countries.

1.4. Corporate governance theories

The main theories of corporate governance are agency theory, stewardship theory, resource dependence theory, and stakeholder theory. Each theory has a different view of the board's role and, thus, its size and composition.

According to agency theory, the board's primary role is to monitor management and protect the owners' interests. The aim is to maximize shareholder value. The main conclusion of the theory is that independent boards ensure that shareholders' rights are protected. The theory was developed by Jensen and Meckling (1976).

According to stakeholder theory, the board's role is to protect stakeholders' interests. Maximizing shareholder value is one of many objectives; the interests of all stakeholders should be equally protected. Freeman created this theory (1984, 2010).

According to the stewardship theory, the role of the board of directors is management empowerment and reputation. Controlled by corporate management, the board has the authority and responsibility to manage corporate assets. The theory is associated with Donaldson and Davis (1991).

According to resource dependence theory, the primary role of the board of directors is to complement the board (co-optation). A board with solid external connections is a cooperative mechanism for firms to access external resources. The theory originates in sociology and is associated with Pfeffer and Salancik (1978).

Bélyácz (2017) discusses the dysfunction of corporate governance. Bélyácz (2017) claims that the owner's role in corporate governance became more relative when the owner-entrepreneur model was replaced by a representative management based on the separation of ownership and control. Bélyácz (2017) thinks that there are limits to sustainably effective corporate governance, and he stresses the importance of the moral responsibility of the board of directors. Bélyácz (2017) emphasizes the shareholder value maximization principle versus stakeholder loss minimization.

1.5. Relationship between corporate governance and board of directors

Agent theory focuses on the control of the leaders and managers of the company. The company's managers are the agents, while the owners or shareholders are the principals. This theory explains the separation of control and ownership because the company's managers have the expertise and control of the company but typically do not own the company. On the other hand, owners need to gain expertise in managing the company and insight into day-to-day governance. The board's main task is to protect the owners' interests by monitoring the company's management. The need for this monitoring reflects the informal asymmetry between principal and agent, with agent theory considering managers to be self-interested.

According to the other three theories, company managers act in the owners' interest. There is no reason to assume otherwise. Kováts (2018) emphasizes the role of trust in comparing agent theory and stewardship theory. According to agent theory, an agent takes advantage of an opportunity to gain a financial advantage for himself at the expense of the principal. The principal can only prevent this by setting up monitoring and incentive systems. Kováts (2018) thinks the theory is therefore based on mistrust. Kováts (2018) cites Davis-Schoorman-Donaldson (1997), who argues that the essence of agent theory is the unwillingness to be

vulnerable. Kováts (2018) argues that agent theory thus contributes to the institutionalization of mistrust.

On the other hand, the theory of concern holds that agents are not self-interested and act in the interest of their principals. There is no fundamental conflict of interest between the agent, and the principal, Kováts (2018) argues that this is consistent with the motivational theories of people working in the public sector. Davis-Schoorman-Donaldson (1997) argues that this does not mean the agent always acts in the principal's interest in all circumstances. However, they argue that only in certain circumstances do agents become entirely self-interested. Kováts (2018) writes, "... in cases of conflict between the individual and community goals, and community goals may be preferred if cooperative behavior is of greater utility to someone." (p. 542-543) This phenomenon is more observable in the case of stakeholder theory.

1.6. Relationship between corporate governance and board size

On a theoretical approach, the agent theory prefers smaller boards, believing that larger boards lead to higher monitoring costs. The other three theories do not assume that managers are not acting in owners' interests and therefore consider larger boards to be more appropriate. In the case of larger boards, the knowledge of professionals from multiple disciplines leads to better decision-making. Beiner et al. (2004), based on a survey of Swiss companies, argue that the size of the board can also be seen as an autonomous (independent) corporate governance mechanism.

The main criticism of larger boards is that the decision-making mechanism slows down, coordination and communication failures occur, and responsibilities are less clear. Not to mention that larger boards are also more costly. At the same time, larger boards are more diversified in age, gender, nationality, expertise, and knowledge. More diversified boards are more sensitive to economic or social problems and can make more effective decisions. Diversity also ensures a stronger sense of belonging to the community. In larger boards, expertise is also pooled, the workload is shared, and more people can fill positions on committees.

The advantages of smaller boards include a more meaningful membership, clearer ownership, and a greater sense of ownership by board members due to the smaller size. In addition, while large boards can be prone to disengagement or cliques, smaller boards are less likely to do so.

As a result, there may be fewer members who will not attend meetings or no voting members or groups.

However, the size of the board is determined by the size of the company, the type of industry, strategic needs, and the stage of the business cycle, all contributing to determining how many board members the company needs to still be at its best performance. In addition, as companies change over time, they need to assess how many directors they need constantly. Regulatory and economic volatility and uncertainty justify the creation of larger boards by larger companies. Larger boards tend to have more diverse thinking and perspectives than smaller boards. Larger boards have a more comprehensive network of contacts, such as customers, creditors, and suppliers. Larger boards have greater access to industry experts such as investment bankers, lawyers, and consultants.

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1.7. Relationship between corporate governance and board composition

Researchers see the diversity of the board of directors as an advantageous characteristic. Board diversity refers not only to age, race, gender, education, background, skills, and experience but also to fewer tangible factors, such as personal beliefs and attitudes. Academic studies and research projects show a strong correlation between board diversity, financial performance, and value creation. In addition, diversity brings many benefits to the board. These include better decision-making, access to a broader range of talent, better customer insight, improved investor relations, a more substantial corporate reputation, and better-quality corporate governance.

Inclusive and diverse boards are more likely to be effective boards. Board diversity is a competitive advantage in a globalized economy and a key driver of growth and value creation. However, according to the 2018 PwC (PricewaterhouseCoopers) Annual Corporate Board Survey, directors value diversity but question the motivation to achieve diversity. Moreover, more than half of them believe that board diversity efforts are driven by political correctness.
The challenges to board diversity come from both inside and outside the board. Board members should be open to diversity and welcome a more diverse and heterogeneous Board. Diversity, a key component of good corporate governance, is also a challenge for boards to consider.

1.8. Main results of the impact of board size on firm performance in the literature

Yermack's paper (1996) in which the author showed that board size has a significantly negative impact on firm performance, regardless of, if firm performance is proxied with Tobin's Q or ROA, in OLS and firm fixed effects econometric methods on US data. Later, more researchers confirmed this negative effect, such as Vafeas (1999), Cheng et al. (2008), Coles et al. (2008) with US data, Bozec (2005) with the Canadian data, Conyon and Peck

(1998) with the Danish, Dutch, French and Italian data, Bennendsen (2008) with Danish data, Eisenberg (1998) with Finnish data, Postma et al. (2001) with Dutch data, Loderer and Peyer (2002) with Swiss data, Beiner et al. (2004) also with Swiss data, Mak and Kusnadi (2005) and Haniffa and Hudaib (2006) with Malaysian data, and Mak and Kusnadi (2005) with Singapore firm data, Guest (2008) with British data, Nguyen et al. (2015) with Australian data. However, relatively few researchers analyzed the relationship between board size and financial performance on data from the CEE countries.

Gugler et al. (2014) found a significantly positive relation between board size and Tobin's Q in Central Eastern European (CEE) countries. Moscu (2013) found an insignificant positive relation between board size and firm performance in Romania. Ionascu et al. (2018) found an insignificant negative between board size and ROA in OLS model, and an insignificant positive effect in firm fixed effects model in Romania. Moreover, Ionascu et al. (2018) found an insignificant positive relationship between market to book value ratio and board size. Dobija and Kravchenko (2017) found an insignificant negative relation between board size and firm performance (ROE, ROA) among Polish companies. Pintea et al. (2020) did not find a significant impact of corporate governance indicators on financial performance measures ((ROE, ROA, EVA, TSR), but a significant positive relationship for Tobin's Q. Achim et al. (2015) examined the relationship between corporate governance and business performance in Romania and found a positive correlation between corporate governance quality and the market value of companies measured by Tobin's Q. Przybylowski et al. (2013) examined the role of independent supervisory board members in Central and Eastern European countries. The authors found no evidence that the independence of the supervisory board members would increase the effectiveness of the company but to lower agency costs and to increase the safety of company operations in the long run. Bistrova and Lace (2012) examined corporate governance influence on firms' financial performance in CEE countries. The authors found that "the companies with the best CG ratings delivered below average profitability (Return on Equity, profit margin, operating cash flow to equity) and business efficiency (asset turnover)." Moreover, the authors found that worst companies (companies with worst corporate governance indicators) outperformed the other firms with financial performance.

1.9. Main results of the impact of board composition on firm performance in the literature

Hypotheses development of the analysis between board composition and firm performance is based on literature reviews and suggestions provided by Terjesen, Sealy, and Singh (2009) and Kirch (2018). Resource dependency, institutional and agency theories argue why gender

diversity is beneficial for firms. According to the resource dependency theory (Pfeffer/Salancik 1978), female executive leaders may bring new approaches into communication and business networks, or they may provide other advantages for corporations. According to the institutional theory developed by Bilimora (2000), a female board presence signals that a firm recognizes the high performance of its female employees. Beyond this indication of institutional quality, it also means that the selection of managers is less biased with respect to gender, inducing a better quality of the board. The agency theory (Fama and Jensen, 1983) applied by Aguilera, Filatotchev, Gospel, and Jackson (2008) states that gender diversity of directors may better facilitate the resolution of conflicts between the management board and the shareholders.

Several studies report positive impacts of board gender diversity on ROA, such as Carter et al. (2010) for the US, Liu, Wei, and Xie (2014) for Chinese firms, Oostveen, Dam and Hermes (2014) for 19 European states, and Terjesen, Couto and Francisco (2015) for a global sample with 47 countries. Ciavarella (2017) documents a positive relationship in the case of the executive boards in a sample of the five largest European countries (Italy, France, Germany, Spain, UK) between 2006 and 2016. Dang and Nguyen (2016) for France, Karayel and Dogan (2016) for Turkey confirm this positive role played by gender diversity. However, others do not find significant impacts for Spanish firms (Gallego-Alvarez/Garczía-Sánchez/Rodríguez-Dominguez (2010)), and for Indonesian listed firms (Darmadi 2013). Among the scant evidence of the non-listed firms, Daunfeldt and Rudholm (2012) report negative effects on ROA after two years on Swedish data. Alternative performance measures, such as return on equity (ROE) and return on sales (ROS) are usually applied for robustness checks (positive impact on ROE was found by Lückerath and Rovers (2013), Karayel and Dogan (2016), Ayuso, Rodriguez, Garcia and Ariño (2007)).

Many of the studies revealed negative effects on Tobin's Q, for US firms (Adams/Ferreira 2009, Carter et al. 2010), for the UK firms (Shehata/Salhin/Moataz 2017) or for Norwegian corporations (Ahren/ Dittmar 2012; Voß 2015). Further findings support this view, such as Dang and Nguyen (2016) for French, Darmadi (2013) for Indonesian, and Abdullah (2014) for Malaysian listed companies. However, on a European (Oostveen/Dam/Hermes 2014) or a global level (Terjesen/Couto/ Francisco 2015), evidence exists on the positive effects of board gender diversity. In Spain (Campbell/Mínguez-Vera 2008; Gallego-Alvarez et al. 2010), and in India (Jackling/Johl 2009), the relationship also seems to be positive. Numerous authors find an insignificant correlation in other European countries (Ciavarella 2017; Marinova/Plantenga/Remery 2015; Rose 2007).

Dunavölgyi (2016) provides an overview bout the literature on women and men in senior management. Dunavölgyi (2016) cites Alvesson and Billing (1997), who developed a framework to analyze the relationship between women and management. The four dimensions are ethical/political considerations, emphasis on gender similarities, emphasis on gender differences, and emphasis on organizational efficiency. The four approaches are equal opportunities, alternative values, meritocracy, and special contribution. Dunavölgyi (2016) presents basic concepts, definitions following papers. Definitions were defined for the concepts of sex (Broadbridge – Hearn, 2008), gender (Unger, 1979; Calás – Smircich, 1996; Archer – Lloyd, 2002; Powell – Graves, 2003; Lippa, 2005), gender stereotypes (Gherardi, 1994; Kite et al., 2008) and gender roles (Eagly et al., 2000; Wood – Eagly, 2010). Dunavölgyi (2016) reviews the literature on feminine leadership culture as comparative advantage, the ideal composition of management, meritocracy, and barriers to equal opportunities.

Only a little research has been done in the CEE region on the role of women in management. A special issue of Journal of east European Management (2020) presented the results of similar papers. Lipovka and Buzady (2020) investigated gender stereotypes about managers in CEE and Central Asian region. Wieczorek-Kosmala (2020) analyzed female representation in management and supervisory boards and risk management practices among Polish firms. Frankiene et al. (2020) reviewed women's political representation at local self-government in Lithuania. Griessbach and Ettl (2020) analyzed the entrepreneurial ecosystem and its impact on female managers in Georgia. Stan (2020) investigated time work practices of Forbes 50 Romania most influential women corporate leaders. Ainsaar et al. (2020) examined the influence of female municipal council members on child-friendly policy implementation during the 2009 economic crises in Estonia. Tokbaeva (2020) analyzed the role of female business owners and managers in the early 2000s and 2010s in Kyrgyzstan.

1.10. General opinion on increasing the share of female directors on boards

A generally accepted view is that more women on corporate boards are favorable for firms. For example, the By Women's Leadership Foundation summarizes what values women can bring to boards. The think that "Boards with more than one woman on their boards performed better than all-male boards." "Data argues good reasons to include women on corporate boards. Global companies with more than 1 woman on the board have better performance than those with zero women." Phillips (2017) mentions to build teams or organizations which are capable to innovate must be diverse. Phillips (2017) writes that "Diversity enhances

creativity. It encourages the search for novel information and perspectives, leading to better decision making and problem solving."

Moreover, the European Union urges its member states to introduce quota regulations in their national legislation. Ahern (2012) summarizes that Gender equality in governance code exists from 2004 in Sweden, from 2008 in Denmark, from 2006 in Spain, from 2009 in Australia, Belgium, Germany, Luxembourg, Norway, and the United States, from 2010 in Austria, Finland, France, the Netherlands, Poland, and United Kingdom. There is mandatory quota in Belgium (33%), Finland (40%), France (40%), Iceland (40%), Italy (30%), Netherlands (33%), Norway (40%), and Spain (40%). Central and Eastern Europe is unique in terms of women in management and female employment. After the Second World War, these countries were under socialist regime, and as part of the ideology, equality between the genders was on the agenda from the late 1940s. In developed economies, gender research has a vast literature but according to Rybnikova (2018), gender literature in CEE is relatively silent about organizational and management consequences of the unique gender relations.

2. Applied methods

The empirical part of the dissertation is based on two studies published in journals. In the first study, the author analyzes the impact of board size on corporate financial performance. In contrast, in the second, the author examines the impact of board composition on financial performance.

The database consists of the 300 largest market capitalization companies in the CEE region (Bulgaria, the Czech Republic, Hungary, Poland, Romania, and Slovakia) excluding firms from financials and utilities. Financial data have been downloaded from the Bloomberg monitor system, while information on corporate boards have been collected manually from annual reports. Financial data are year-end data (December 31), while the size of the board (number of directors) reflects the status as of January 1 in the given year. The dataset covers years 2007 to 2016. Database consists of secondary data.

For the study on the effect of board size on corporate financial performance, the author used two econometric methods: a fixed-effects panel regression method and a dynamic panel regression method of the GMM type.

The econometric methods used for the study on the impact of board size on corporate financial performance are the fixed effects panel regression method and the G2SLS-type

instrumental variables (IV) regression method. Using a probit model to estimate the predicted values of some explanatory variables.

For the study on the impact of board size on corporate financial performance, the outcome variables are Tobin-Q, market-to-book ratio, total shareholder return, and ROA.
In the case of the study on the impact of board composition on corporate financial performance, the two performance variables are Tobin's-Q and ROA.

In the case of the study on the impact of board size on corporate financial performance, the main explanatory variables whose effects and the relationship between board size and financial performance are the main targets of the regression models: the natural logarithm of board size (size here means number of board members), the so-called interaction regressor of board size multiplied by firm size (firm size here is the natural logarithm of total assets), the ratio of the number of board members to the sum of the number of board members and the number of board members.

In the case of the study on the impact of board size on corporate financial performance, the main explanatory variables whose effects and the relationship between board size and financial performance are the main targets of the regression models: the proportion of female directors (WOMB and WOSB), the number of female directors (WM, WS) on the management board and the supervisory board. For the number of female directors, there are more than one, two, or three female directors on corporate boards. As well as whether there are any female directors on corporate boards.

3. Scientific results

3.1. Hypotheses of the impact of board size on firm performance

The primary research question for the board size analysis paper is how board size affects firm performance. In this research, the author sets up the following hypotheses. According to Hypothesis 1, a negative relation between management board size and firm market performance measures can be expected. According to Hypothesis 2, a positive relationship between management board size and firm operational performance measures can be expected. Hypothesis 3 claims a positive relation between the outside director ratio and firm market performance measures can be expected based on the pairwise correlation. Hypothesis 4 claims a negative relation between outside director ratio and firm operational performance measures can be expected. Moreover, based on Guest’s paper (2008), using board size multiplied by

firm size interactive term, board size has a positive impact on firm performance. However, this interactive term has a negative impact on firm performance. This is the Hypothesis 5.

3.2. Interpretation of the results of the impact of board size on firm performance

The main results of the research show that the management board has a significant positive impact on both market and operational performance measures. However, this effect is limited, shown by the significant negative sign of the interaction term between board size and firm size. Firm performance cannot be improved if the management board size increases along with the firm size. The outside director ratio also has a positive impact on a firm's performance measures in dynamic regression models, and this effect is significant for Tobin's Q and the market-to-book value ratio. The interaction term between management board size and cash has the same effect on firm performance as the outside director ratio. These results indicate that larger cash can have a disciplining effect on the management board.

Testing the hypotheses, H1 is not supported, but H2 is. Controlling individual firm characteristics in firm fixed effects or in dynamic panel regression models, the impact of management board size on firm market performance is the opposite as the pairwise correlations would indicate. In the case of firm operational measures, this individual firm characteristic does not matter. H3 is only supported in the dynamic regression models, but H4 is rejected. Moreover, the outside director ratio has a positive impact on firm operational performance according to both regression techniques. H5 is supported by both regression techniques.

For countries, the dynamical panel regression models show that Bulgaria, the Czech Republic, and Poland's management boards positively impact financial performance. In contrast, for Hungary, the effect is the opposite. However, significant effects can only be observed in Bulgaria and Poland. Moreover, according to empirical results, a large management board is favorable for Hungarian firms, but the effect is not significant. Large boards for Bulgaria, the Czech Republic, and Poland negatively impact financial performance, but this effect is only significant for Bulgaria and Poland.

The outside director ratio has a positive impact on financial performance for Bulgarian and Czech firms but a negative for Hungarian and Slovakian firms. However, these effects are not significant. According to the results, large supervisory boards are favorable for Hungarian and Polish firms but small for Czech and Slovakian firms. The disciplinary effect of large cash on the management board can be shown for Czech, Polish, and Slovakian firms.

3.3. Hypotheses of the impact of the board composition on firm performance

For the board diversity study, the research questions are the followings. 1. Do female executive directors enhance or hinder firm performance? 2. What drives the appointment of female and male executive directors? 3. Does gender diversity count in monitoring activities? 4. Does glass cliff selection of female supervisory board members exist?

In this research, the author sets up the following hypotheses. Hypothesis 1 The greater the firm's proportion of female directors on its management board, the better its performance.

Hypothesis 2 The greater a firm's proportion of female directors on its supervisory board, the better its performance.

Hypothesis 3 The possibility of a new female (management/supervisory) director appointment is higher if (a) the firm's performance was previously weaker; and/or (b) the firm's gender diversity on its boards is higher; and/or (c) the sectorial average of the gender diversity of the boards is higher. The three arguments may explain a) glass cliff, b) homophily, c) network effects. According to the last, the members of female manager minorities invite each other to participate in their own boards.

3.4. Interpretation of the of the impact of the board composition on firm performance

In the case of the study on the impact of board composition on financial performance, the aim of the research is to investigate whether the number of female board members improves or worsens corporate performance in Central and Eastern Europe. Based on the results of similar studies, the effect is not clear.

Increasing the number of female directors on boards improves the financial performance of companies, and gender diversity on boards creates value. However, in the case of CEE firms, a glass-rock phenomenon can be observed, with the poor financial performance of firms predicting the appointment of female directors. In addition, a higher proportion of female directors on the board than the sectoral average of the previous year increases the likelihood of female appointments. However, a higher proportion of women on the supervisory board does not affect appointments, and the results suggest no significant relationship between the appointment of new female supervisory board members and past financial performance. The sectorial average of female members of supervisory boards and the firm average of female board directors has a significant positive effect on the appointment of female directors. Thus, a pro-women corporate environment positively influences the appointment of female directors to supervisory boards.

Based on the empirical results, the following research questions were answered.

1. Do female executive directors enhance or hinder firm performance?

The empirical results suggest that the presence of women on the board of directors has a significant positive effect on the ROA indicator, and that gender diversity on boards creates value. This supports hypothesis H1.

2. What drives the appointment of female and male executive directors?

Poor financial performance of firms is a predictor of appointments through the glass-rock phenomenon. Supporting H3/a.

A higher proportion of female directors on boards than the industry average in the preceding year increases the likelihood of female appointments. Support H3/b.

A higher proportion of women on the supervisory board has no effect on appointments, which does not support hypothesis H3/c.

3. Does gender diversity count in monitoring activities?

Only non-robust results can be observed, higher ROA through better monitoring activities of different boards if we do not assume that there is no endogeneity between past firm performance and the gender diversity of boards and no evidence of Tobin Q effects. This does not fully support Hypothesis 2.

4. Does glass cliff selection of female supervisory board members exist?

No significant relationship has been found between the appointment of new female board members and past financial performance. This does not support hypothesis H3 a) for the supervisory board. The sectorial average of female members on supervisory boards and the firm average of female directors on boards have a significant positive effect on the appointment of female directors. Thus, a pro-women corporate environment positively affects the appointment of female directors to supervisory boards. Hypotheses H3 b) and H3 c) are accepted.

The main findings are for the study of the impact of board composition on financial performance. An increase in the number of female directors on the board improves the financial performance of firms, and the gender diversity of boards creates value. However, for firms in Central and Eastern Europe, a glass-rock phenomenon is observed, with the poor financial performance of firms predicting the appointment of female directors. In addition, a higher proportion of female directors on the board than the sectoral average of the previous year increases the chances of female appointments. However, a higher proportion of women on the supervisory board does not affect appointments, and the results suggest no significant

relationship between the appointment of new female supervisory board members and past financial performance. The sectoral average of female members of supervisory boards and the firm average of female directors on boards significantly positively affect the appointment of female directors. Thus, a pro-women corporate environment positively influences the appointment of female directors to supervisory boards.

Repeating the fixed effects and IV regressions, the results are as follows. For ROA as a dependent variable, the percentage of women on the management board (WOMB) and the number of women (WM) has a positive impact on firm performance for Hungary and Slovakia but negative for Bulgaria, the Czech Republic, Poland, and Romania. For IV regression, the change in the sign of the WOMB from negative to positive is observed in the same way as for the entire database. For Tobin's Q as a dependent variable, the percentage of women on the management board (WOMB) and the number of women (WM) have a positive impact on firm performance for Bulgaria, Hungary, Poland, and Romania but a negative for the Czech Republic. For IV regression, the change in the sign of the WOMB from negative to positive is observed, but the Czech Republic, this change is positive, for Bulgaria and Poland is negative.

For ROA as a dependent variable, the percentage of women on the supervisory board (WOSB) has a positive impact on firm performance for Hungary, Poland, and Slovakia. In contrast, the number of women (WS) has a positive impact on firm performance for the Czech Republic and Poland. For IV regression, the WOSB's sign change from negative to positive is observed for Poland and Romania, but this change is negative for the Czech Republic

For Tobin's Q as a dependent variable, the percentage of women on the supervisory board (WOSB) has a positive impact on firm performance for only Hungary. The number of women (WS) has a positive impact on firm performance for only Hungary and Romania. For IV regression, the change in the sign of the WOMB from negative to positive is observed only for the entire database.

For ROA as a dependent variable, female presence on management board (DM) has a positive impact on firm performance for only Slovakia. Female presence on supervisory board (DS) has a positive impact on firm performance for Bulgaria, the Czech Republic, Hungary, and Poland. For Tobin's Q as a dependent variable, female presence on management board (DM) has a positive impact on firm performance for Bulgaria, Hungary, and Romania. Female presence on supervisory board (DS) has a positive impact on firm performance for Poland and Romania.

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Upcoming publications

Lakatos, Zs. (2023): ESG pricing in Europe between 2009 and 2022 (expecting publication date 2023. 4th quarter, Acta Oeconomica)

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