Nowoczesne Systemy Zarządzania
Zeszyt 19 (2024), nr 2 (kwiecień-czerwiec)
ISSN 1896-9380, s. 13-28
DOI: 10.37055/nsz/200424

Instytut Organizacji i Zarządzania
Wydział Bezpieczeństwa, Logistyki i Zarządzania
Wojskowa Akademia Techniczna
w Warszawie

Modern Management Systems
Volume 19 (2024), No. 2 (April-June)
ISSN 1896-9380, pp. 13-28
DOI: 10.37055/nsz/200424

Institute of Organization and Management
Faculty of Security, Logistics and Management
Military University of Technology
in Warsaw

In the boardroom spotlight: Examining the relationship between board size and profitability in Turkish family businesses with independent directors as key players

W centrum uwagi sali konferencyjnej: badanie związku między wielkością zarządu a rentownością w tureckich firmach rodzinnych z niezależnymi dyrektorami jako kluczowymi graczami

Kamran Jannatli
Jagiellonian University, Cracow, Poland
cennetlikamran@gmail.com; ORCID: 0009-0006-8650-8383

Abstract. This paper investigates the intricate relationship between board composition, particularly the number of independent members, and the return on assets (ROA) in Turkish listed family businesses. Building upon existing literature on family firm management, this research introduces a nuanced analysis by incorporating measures of board size and the presence of independent members to better understand their impact on ROA. Through a focused investigation, it endeavors to unveil the moderating role of independent board members in shaping the relationship between board size and ROA within the specific context of family firms. Specifically, it examines how the number of independent members moderates the relationship between board size and ROA within the context of family firms. Leveraging a regression-based moderation analysis, the study draws on a dataset encompassing information from 55 listed family firms traded on the Istanbul Stock Exchange during the year 2022. The empirical findings reveal a significant moderating effect of the number of independent members on the relationship between board size and ROA. These results offer valuable insights for shareholders of family businesses, providing them with essential indicators concerning the importance of independent members within the board of directors. By shedding light on the role of independent members, this research contributes to enhancing corporate governance practices within family businesses. The findings underscore the importance of balanced board compositions and the inclusion of independent voices in decision-making processes, ultimately enhancing firm performance and shareholder value. Moreover, the study enriches the understanding of governance dynamics within the unique organizational context of family businesses.
Keywords: moderation, family business, board of directors, independent directors, size of board

Abstrakt. W artykule zbadano skomplikowane relacje między składem zarządu, w szczególności liczbą członków niezależnych, a zwrotem z aktywów (ROA) w tureckich spółkach rodzinnych notowanych na giełdzie. Opierając się na istniejącej literaturze przedmiotu na temat zarządzania firmami rodzinnymi, badanie to wprowadza zniuansowaną analizę, uwzględnia miary wielkości zarządu i obecności niezależnych członków, aby lepiej zrozumieć ich wpływ na ROA. Przez ukierunkowane badania stara się ujawnić moderacyjną rolę niezależnych członków zarządów w kształtowaniu relacji między wielkością zarządu a ROA w specyficznym kontekście firm rodzinnych. W szczególności zbadano, w jaki sposób liczba niezależnych członków moderuje związek między wielkością zarządu a ROA w kontekście firm rodzinnych. Wykorzystując analizę moderacji opartą na regresji, badanie opiera się na zestawie danych obejmującym informacje z 55 notowanych w 2022 roku na giełdzie w Stambule firm rodzinnych. Wyniki badań empirycznych wskazują na istotny wpływ moderujący liczby niezależnych członków na zależność między wielkością zarządu a ROA. Wyniki te przynoszą cenne informacje dla akcjonariuszy firm rodzinnych, dostarczając im podstawowe wskaźniki dotyczące znaczenia niezależnych członków w zarządzie. Rzucając światło na rolę niezależnych członków, badanie to przyczynia się do poprawy praktyk ładu korporacyjnego w firmach rodzinnych. Wyniki podkreślają znaczenie zrównoważonego składu zarządu i uwzględniania niezależnych głosów w procesach decyzyjnych, co ostatecznie poprawia wyniki firmy i wartość dla akcjonariuszy. Co więcej, badanie wzbogaca wiedzę na temat dynamiki ładu korporacyjnego w unikalnym kontekście organizacyjnym firm rodzinnych.
Słowa kluczowe: moderacja, firma rodzinna, zarząd, dyrektorzy niezależni, wielkość zarządu

Introduction

The board of directors is a group responsible for making important financial choices that impact investors' funds, employees' stability, community economic health, and executives' authority and benefits. Despite external pressures from managers, the government, and interest groups, the board holds the highest authority within the company (Molz, 1985). The board of directors plays a crucial role in the internal management of the company and has the ability to directly influence the effective management and performance of the company (Amrah, Hashim, Ariff, 2015). The board of directors of companies also includes independent members who do not have any material connection with the company. These members are appointed by the shareholders to use their expertise in the day-to-day activities of the company in various fields. The optimal number of outside directors is determined in providing expertise in finance, management, HR, marketing and other parts of the company. According to Milton Harris and Artur Raviv (2008), there is a correlation between the size of the board, the number of independent members and the profitability of the company.

The management and board of family businesses have also been of interest to researchers in recent years. Despite their prevalence, the 'family component' has often been overlooked in organizational research. Board roles in family firms include strategy development, control, advice, arbitration among family members, networking, and disciplining management (Voordeckers, Van Gils, Van den Heuvel, 2007). The heterogeneity of family businesses also affects their management team. In particular, the presence of both economic and non-economic goals in family businesses and the role of family members in management, unlike non-family companies, the board of directors of family companies is more colorful (Nordqvist, Chirico, Sharma, 2014).

Scholars widely agree that a single corporate governance setup cannot meet the diverse requirements of companies operating in varied cultural, historical, and institutional contexts (Corbetta, Salvato, 2004).

Additionally, family businesses consider including independent members in the board of directors in order to keep up with the changes in the business world. In particular, family companies need independent members and their expertise when the company goes through any organizational changes, goes international or enters the stock market. Numerous studies suggest that having independent directors on the board of a family business can have an impact on performance, though the influence is not consistent in all cases (Samara, Berbegal-Mirabent, 2018; Brenes, Madrigal, Requena, 2011). Researchers attribute this to family businesses being a heterogeneous group with different governance structures (Nordqvist, Chirico, Sharma, 2014).

Scholars emphasize the importance of independent directors in corporate governance, particularly in the aftermath of corporate scandals, and discusses the changes in rules and regulations regarding board composition, highlighting the requirement for a majority of independent members (Harris, Raviv, 2008; Anderson, Reeb, 2003). Danny Miller and Isabelle Le Breton-Miller (2006) suggest that family--owned businesses incur lower monitoring expenses due to a reduced necessity for engaging external directors to supervise managerial activities. In simpler terms, they propose that family-owned firms can keep an eye on operations more cost-effectively compared to non-family-owned counterparts. Hence, family-owned enterprises enlist external members primarily to leverage their expertise and capabilities in managing business affairs, rather than engaging them in monitoring tasks.

Therefore, in this study, the effect of the presence of independent members on the board of directors in family businesses on the profitability of the company will be measured. Various researchers have investigated the effect of board size on company performance. For instance, in the Indian context, Rakesh Mishra and Sheeba Kapil (2017) found that board size is positively related to return on assets (ROA), suggesting that larger boards provide valuable resources and perspectives that enhance firm performance. On the other hand, David Yermack (1996) and Nancy Eisenberg et al. (1998) provided evidence of a negative relationship between board size and firm performance, particularly in smaller firms, where increased coordination costs may offset the benefits of larger boards (Mishra, Kapil, 2017). Further, in a study on Hungarian firms, Polina Bublykova (2014) highlighted that the impact of board size is more significant in small companies compared to large ones, where the need for expert advice outweighs the inefficiencies of larger boards. This is consistent with findings in the US, where larger boards in complex firms have been associated with better performance, particularly when a firm's complexity requires diverse expertise.

In contrast, a study focusing on US firms in the S&P 500 by Chu Y. Cao et al. (2021) found that board size is negatively correlated with firm performance, particularly in high-tech industries, where flexibility and faster decision-making are critical for navigating dynamic environments. However, investigating the effect of the number of independent members as a moderator on family company profitability will fill the research gap. The rest of the article is organized as follows. The second part provides literature review and hypothesis development. In the third part, the used methodology is described. In the fourth part, the obtained findings will be discussed, and a conclusion will be given.

Literature review

Corporate governance refers to the structure and guidance in managing a company, which involves coordinating the ownership, board of directors, and business management. According to Esteban Brenes, Kryssia Madrigal and Bernardo Requena (2011), corporate governance consists of three key components: the stockholders' assembly, the board of directors, and the top management team. The stockholders' assembly, composed of all company shareholders, convenes regularly to make decisions about the company, holding the ultimate authority. However, the specifics of corporate governance, including the selection and operations of the board of directors and their responsibilities, influence the functions and responsibilities of board of directors. In the end, the tasks to be done resulting from the decisions of the board of directors fall on the top management (Brenes, Madrigal, Requena, 2011).

The board of directors plays a crucial role in internal corporate governance, according to Paige L. Fields et al. (2010). They suggest that an effective board enhances the efficiency of a company, benefiting both creditors and shareholders. This, in turn, lowers the cost of loans and may relax covenant requirements. For instance, having a diverse board could instill greater confidence in internal governance, potentially reducing borrowing costs. Moreover, a more experienced board can offer higher-quality advice to management, contributing to increased profitability (Fields, Fraser, Subrahmanyam, Chava, 2010). Overall, the composition and effectiveness of the board significantly influence a company's performance.

Scholars in corporate governance propose that boards of directors can play a crucial role in preventing executives from sticking to unsuccessful strategies (Torchia, Calabro, Morner, 2015). Theoretical perspectives, like agency theory, suggest that boards are well-suited to objectively oversee executive decision-making on behalf of shareholders. Specifically, independent directors are less likely than top executives to view poor company performance with bias. As external members without employment ties, they are less influenced by organizational beliefs that

unquestionably support the current strategy. Additionally, since outside directors typically don't create strategies, they are more willing than top executives to admit shortcomings in the existing strategy (Westphal, Bednar, 2005).

In the world of business, researchers exploring how companies are managed have looked at the roles of boards of directors from various viewpoints. These views can be broadly sorted into two main groups: one sees boards mainly as overseers, responsible for keeping things in check (such as watching over management, ensuring good governance, and holding the company accountable), while the other sees boards more as supporters, playing a central role in providing resources (like shaping strategy, offering services, and ensuring the company's legitimacy). It's like having a team with both watchdogs and mentors working together to make sure the company runs smoothly and grows effectively (Corbetta, Salvato, 2004). A key discussion in the field of corporate governance revolves around the factors crucial for effective board performance. One aspect of this discussion explores the structural aspects of the board, arguing that the board's ability to govern the company effectively depends on its composition. Another perspective underscores the significance of board dynamics in achieving board effectiveness. Emily L. Sherwin (2003) reconciles these differing views by identifying two types of challenges faced by boards: "mechanical" issues, such as board structure and composition, which are often addressed by regulations and are externally visible; and "organic issues" related to board interaction, communication, and trust, which cannot be regulated and are more internal. While board structure and composition are observable indicators of board effectiveness, what truly contributes to actual effectiveness is fostering a culture of openness and constructive dialogue within an environment of trust and mutual respect (Petrovic, 2008).

The board plays a crucial role in keeping an eye on things because when managers prioritize their own interests over those of shareholders, it can lead to additional costs. This is especially true in modern corporations where ownership and control are often separated. In such cases, managers might focus on their personal gains instead of maximizing profits, resulting in what's known as "agency" costs. Actively monitoring by boards helps mitigate these agency costs arising from the separation of ownership and control, ultimately enhancing the overall performance of the company. In the role of monitoring, scholars usually talk about various tasks directors perform. These tasks include keeping an eye on the CEO, overseeing the execution of strategies, planning for the CEO's successor, and assessing and rewarding the top managers. What ties all these tasks together is their connection to the monitoring role. The main goal behind each of these activities is the responsibility to make sure that the management works in the best interests of shareholders. This duty is fulfilled through careful observation, assessment, and regulation of the actions taken by the top management by the board (Hillman, Dalziel, 2003).

Another crucial role of the board is to provide resources. This function involves the board's capacity to bring various strengths or weaknesses to the company. Scholars argue that boards can offer four main advantages: (1) guidance and advice, (2) legitimacy, (3) avenues for exchanging information between the company and external entities, and (4) special access to commitments or support from significant external elements (Pfeffer, 1991). This perspective mainly focuses on the board's broader contribution of resources (Hillman, Dalziel, 2003). The idea of resource dependence logic proposes that when a board provides resources, it directly influences how well a company performs. Resources play a role in lessening the reliance a company has on external factors, decreasing uncertainty, cutting down on transaction costs, and ultimately helping the company survive (Corbetta, Salvato, 2004).

Running a family business can be intricate since, besides handling regular business tasks, there's a necessity to take into account the preferences and requirements of the owning family. This introduces the potential for prolonged oversight (Carlock, Ward, 2001). Leaders in family businesses tend to stay in their roles for extended durations, contributing to increased business durability and steadiness. In addition to pursuing profitability, family businesses prioritize continuity and caution, opting for disciplined growth. Furthermore, they often foster enduring relationships with their employees and executives, resulting in greater loyalty and longevity in their workforce (Brenes, Madrigal, Requena, 2011). In a family business, it is crucial for the board of directors to have transparent discussions about passing on shares and assessing how it influences the company's strategy. This is important because the expectations and needs of shareholders differ with each new generation taking charge. The choice to establish a board of directors in a family business is closely tied to the company's stage in its life cycle. In the initial generation of a family business, boards are typically nonexistent as the owner personally handles all company affairs, making decisions without any formal accountability. Entrepreneurs in this phase often don't see the necessity for a supportive structure in decision-making. However, as the second generation becomes involved in the family business, entrepreneurs begin contemplating the establishment of a board. This is driven by the need for assistance in managing growth and addressing potential conflicts arising from the involvement of their children in the company (Brenes, Madrigal, Requena, 2011). Additionally, in family businesses, it's common to establish a dual structure consisting of the family council and the business council. The family council comprises existing and potential family stockholders, convening at least annually to exchange ideas and suggestions while addressing issues related to family commitments to the company. On the other hand, the business council is composed solely of family members actively involved in the family business. This council informs the family council about the family business's progress, analyzes family expectations for the business (such as new ideas, projects, and investments), and conveys these to the board of directors and the CEO (Brenes, Madrigal, Requena, 2011).

In contemporary corporate governance, boards predominantly consist of independent, non-executive members who hold the authority to make important decisions based on unbiased and objective criteria (Brenes, Madrigal, Requena, 2011). Several academics highlight the importance of having independent boards, as they help minimize information gaps and establish boundaries on the discretionary powers of family decision-makers (Bammens, Voordeckers, Van Gils, 2011). In order to restrict the family's control over company resources and safeguard the concerns of non-family minority shareholders, scholars stress the importance of supervision by an independent board. This board should have the official power to examine and question the family's decisions and actions (Anderson, Reeb, 2003). People who are not part of the family involved in a business may request the inclusion of independent board members to safeguard their financial interests (Jaggi, Leung, Gul, 2009). Board members who possess a 'free-thinking mindset' should inquire about and scrutinize the decisions made by owner-managers. They should also establish boundaries on their altruistic inclinations to protect the interests of not only lenders and investors but also the owning family. Even if they have limited formal authority over the owner-manager, boards of directors should act as an additional safeguard against altruistic behavior due to the impact their views can have on the owner-manager's actions (Bammens, Voordeckers, Van Gils, 2011).

Research results regarding the relationship between the makeup of a company's board and its overall performance are varied. Some studies suggest that having an independent board improves performance, while others indicate the opposite. The empirical evidence on how board composition affects firm performance is not consistently uniform across different research studies (Bammens, Voordeckers, Van Gils, 2011). According to Peter Jaskiewicz and Sabine B. Rau (2007), the presence of a wider board and a larger number of independent members has a positive effect on company performance in the absence of goal alignment in family companies. Wim Voordeckers and his colleagues (2007) highlight that families who own businesses are often hesitant to set up independent boards. This is because they're afraid of losing control over decision-making, especially when family-related emotional goals are important. The findings also suggest that independent outsiders join family business boards mainly because external stakeholders, like investors and banks, push for it to protect their financial interests.

Several studies have looked into how having independent members on a company's board affects the way earnings are managed. Jaggi and his team found that when there are weaknesses in overseeing management, there's a higher chance of manipulating earnings, especially in companies where the board is mostly made up of insiders (Jaggi, Leung, Gul, 2009). Another study by Beasley suggests that having more outside directors on boards decreases the likelihood of financial statement fraud (Beasley, 1996). Family businesses have different goals compared to non-family businesses. In family firms, the owners who also manage the business

have a greater say in deciding and carrying out the company's objectives (Tagiuri, Davis, 1996). As a result, goals related to family matters, like keeping control within the family, ensuring the family's financial independence, maintaining harmony, and providing family employment, become more significant than the typical business aims of maximizing value or profit, pursuing growth, and fostering innovation (Sharma, Chrisman, Chua, 1997).

Studies focused on profitability as a measure of financial performance of firms find that size and diversity of board of directors affect the financial performance (Nordqvist, Chirico, Sharma, 2014; Voordeckers, Van Gils, Van den Heuvel, 2007; Jaggi, Leung, Gul, 2009). The same effect has been observed in family businesses too (Amrah, Hashim, Ariff, 2015). Nevertheless, having non-family members on the board makes us wonder how their impact will shape family businesses. Since these independent members have fewer duties to keep tabs on, they can concentrate on using their expertise to improve the company's performance. Moreover, their presence shifts the spotlight from the personal interests of family members to the forefront of economic goals within family businesses. Based on these arguments, it is proposed that the relationship between size of board of directors and profitability is moderated by number of independent member in family businesses. The hypothesis is:

H: At family firms number of independent members in the board influences the association between size of board of directors and profitability.

Methodology

Moderation analysis is used in order to test the relationship between the size of board of directors and profitability of the family firms. According to Andrew F. Hayes (2018) when an investigator seeks to determine whether a certain variable influences or is related to the size of one variable's effect on another, a moderation analysis is the proper analytical strategy. Therefore, based on this regression-based approach, moderation analysis will be used and number of independent members will be moderator.

In a simple linear moderation model, the resulting equation formula is as follows where Y is dependent; X is predictor and M is moderator:

$$Y = i + aX + bM + cXM + E.$$

Based on the general formula of simple linear moderation model, the model that is going to be analyzed in the paper is as follow:

$$RoA = i + aSBoD + bNIM + cSBoD*NIM + E,$$

where: *RoA* – is return on asset ratio;
SBoD – is size of board of directors;
NIM – represents the number of independent members in the board;

*SBoD*NIM* – is the interaction term of the size of board of directors and number of independent members in the board;
E – represents the error term.

In the formula, *i* is the constant term and *a*, *b* and *c* represents the coefficients. In the moderation analysis, the coefficient of interaction (*c*) is very important, because it ultimately determines whether X's effect really depends on W-moderator.

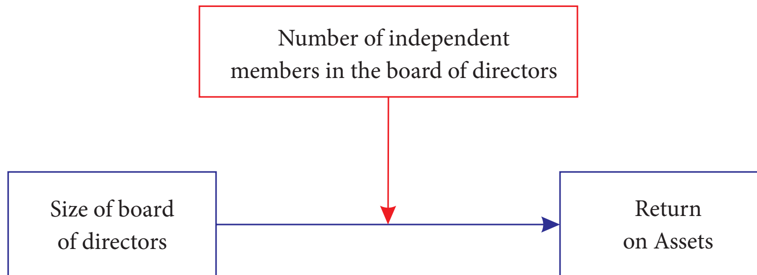

Fig. 1. The conceptual diagram of moderation model
Source: adapted from Hayes, Andrew, 2018, p. 221

The company data used in the research was collected from Public Disclosure Platform of Central Securities Repository & Trade Repository of Turkey. In this research, we examined 55 companies that are active on the Istanbul Stock Exchange, and explored those where over half of the ownership is within the same family. These family-controlled companies represent different fields of manufacturing industry. Table 1 provides the summary of the companies.

Table 1. Summary of the specialization of 55 listed Turkish family firms

1.	Basic metal manufacturing	6
2.	Chemicals, petroleum rubber and plastic products	15
3.	Fabricated metal products machinery electrical equipment and transportation vehicles	8
4.	Food, beverage and tobacco	6
5.	Non-metallic mineral products	3
6.	Paper and paper products printing	2
7.	Textile, wearing apparel and leather	12
8.	Wood products including furniture	3
	Total	**55**

Source: Central Securities Depository & Trade Repository of Turkey, 2022

As mentioned above, measurement variables are return on assets, size of board of directors and number of independent members. The dependent variable is return on a ssets, which represents the financial performance of the companies. The return on asset is calculated by dividing the net profit to total assets (Amrah, Hashim, Ariff, 2015). For this purpose the financial statements of family firms from 2022 are based on. The other key variable of the analysis is the size of board of directors, which is the predictor of the model. The board size is determined by counting the total number of directors serving on the board. Having a larger board can lead to better decisions, reduce uncertainty, and bring in more knowledge and management experience (Pfeffer, Salancik, 2003). As a result, it might make the good ratio of return on assets. The third key variable of the model, which is also the moderator, is number of independent members on the board. Muneer R. Amrah, Hafiza A. Hashim, and Akmalia M. Ariff highlight that having an independent director adds valuable expertise and impartiality. This helps to reduce situations where managers entrench themselves or misuse the company's resources (Amrah, Hashim, Ariff, 2015). Therefore, the more independent members mean more efficient asset management and more profit. The last important term is the interaction which will help to detect the moderating effects. In our model the interaction variable is multiplying the predictor variable the size of board of directors with the moderator variable the number of independent members. This variable will show us how the independent members affect the board of directors and return on assets relationship.

Results

Table 2 provides the descriptive statistics of the companies' data. Total numbers of observations for all variables is 55. The figures of net profit and total assets' currency are in Turkish lira (TRY). Size of the board of directors is ranging between 5 and 11. However, the mean of board of directors is 6.11, which shows that majority of the family businesses don't have quite large board. The standard deviation of the size of board of directors is approximately 1.5. Based on the analyzed data, it is observed that 85.5% of the family firms have 2 independent members. However, 5.5% of the firms do not have any independent members on their board of directors. These numbers show that majority of the family firms tend to have at least 1 independent member on their board.

After calculating the ROA based on the net profit and total assets, the moderation model has been began to build up. You can see the model summary results in Table 3.

Table 2. Descriptive statistics

Variables	Minimum	Maximum	Mean	Standard Deviation
Board of directors	5	11	6.11	1.449
Independent members	0	4	2	0.609
Net profit (TRY)	–114023273	1827009411	298769397.51	379056732.75
Total assets (TRY)	52462145	10116135269	1875611317.4	2066146533.1

Source: Author's own calculation

Table 3. Model summary

<table>
<tr><th colspan="2">R</th><th>R–squared</th><th>F</th><th>p</th></tr>
<tr><td colspan="2">0.43</td><td>0.18</td><td>3.76</td><td>0.02</td></tr>
<tr><th colspan="5">Model</th></tr>
<tr><th>Variables</th><th>Coefficients</th><th>p</th><th>LLCI</th><th>ULCI</th></tr>
<tr><td>Constant</td><td>0.69</td><td><0.01</td><td>0.31</td><td>1.08</td></tr>
<tr><td>SBoD</td><td>–0.06</td><td>0.04</td><td>–0.13</td><td>–0.01</td></tr>
<tr><td>NIM</td><td>–0.26</td><td><0.01</td><td>–0.42</td><td>–0.09</td></tr>
<tr><td>Interaction</td><td>0.03</td><td>0.01</td><td>0.01</td><td>0.06</td></tr>
</table>

Source: Author's own calculation

The multiple correlation coefficient (R) represents the correlation between the observed dependent variable and the predicted values by the model. In this model, R is 0.43. This indicates a moderate positive correlation between the predictors in the model and the dependent variable. R-squared (R^2) represents the proportion of the variance in the dependent variable that is explained by the independent variables included in the model. In our model, it is 0.18, which means that approximately 18% of the variance in the dependent variable is explained by the independent variables. The p-value in moderation analysis is crucial for determining the statistical significance of the moderation effect. In this moderation analysis, a p-value of 0.02 suggests that the interaction between the independent variable and the moderator variable is statistically significant. With a p-value of 0.02, we have evidence to suggest that the interaction effect between the independent variable and the moderator variable is statistically significant at a conventional 0.05 significance level.

The constant term represents the expected value of the dependent variable (return on assets) when all independent variables are zero. In this case, when the number of directors and independent members in the board are both zero. So, when there are no directors or independent members, the expected return on assets is 0.69.

Number of directors in the board's coefficient represents the estimated change in the dependent variable for a one-unit change in the number of directors in the board, holding other variables constant. In this case, for each additional director in the board, the expected return on assets decreases by 0.06, assuming the number of independent members and the interaction term remain constant. The coefficient of number of independent members show that for each additional independent member in the board, the expected return on assets decreases by 0.26, assuming the number of directors and the interaction term remain constant. The interaction term represents the additional change in the dependent variable when both the number of directors and the number of independent members in the board are considered together. In this model, for each one-unit increase in the interaction term (the product of the number of directors and number of independent members), there is an expected increase of 0.03 in the return on assets. This suggests that the relationship between the number of directors and return on assets is moderated by the number of independent members.

The p-value associated with the constant term is less than 0.01, indicating that the constant term is statistically significant. This means that the intercept is significantly different from zero, suggesting that even when the number of directors and independent members are zero, the return on assets is significantly different from zero. The p-value for the number of directors is 0.04, which is less than the significance level of 0.05. This suggests that the number of directors in the board has a statistically significant effect on the return on assets. Specifically, a one-unit increase in the number of directors is associated with a statistically significant decrease in the return on assets. The p-value for the number of independent members is less than 0.01, indicating that the number of independent members in the board has a statistically significant effect on the return on assets. A one-unit increase in the number of independent members is associated with a statistically significant decrease in the return on assets. The p-value for the interaction term is 0.01, which is less than 0.05. This indicates that the interaction term is statistically significant. The interaction between the number of directors and the number of independent members has a significant impact on the return on assets. The moderation effect is statistically different from zero. In summary, all the coefficients in the model are statistically significant at the 0.05 significance level or lower. This suggests that each variable, including the interaction term, has a significant association with the return on assets in your moderation analysis.

Additionally, when we look at the confidence intervals, it is possible to see that all the coefficients lie within those intervals. This means that, based on the sample data, we reasonably confident that their effects are significant. The confidence level is 95%. In addition, these intervals do not contain zero, it further supports the statistical significance of the corresponding coefficients. Therefore, in our model, all intervals seem to be quite narrow, suggesting a relatively precise estimation of the true parameters based on your sample data.

Based on the result of the analysis, the formula of this simple linear moderation model is as follows:

$$RoA = 0.69 - 0.06 * SBoD - 0.26 * NIM + 0.03 * SBoD * NIM + E.$$

In conclusion, our moderation analysis reveals that the number of directors, number of independent members, and their interaction significantly influence the return on assets. The model provides valuable insights into the nuanced relationships among these variables, and the results are robust based on the statistical significance and confidence intervals. Based on the results, the main hypothesis can be accepted, because number of independent members in the board influences the association between size of board of directors and return on assets. However, the influence is negative.

Conclusions

In our moderation analysis, the relationship between the number of directors and independent members in the board of directors and their interaction on the return on assets are investigated. This paper contributes the performance and management of family firms from the perspective of board of directors by considering Turkish business environment. Additionally, the paper extended the literature of family firms' management by employing the measure of board of directors' size and number of independent members to capture their effects on return on assets.

From the results, it is observed that the number of independent members is the significant moderator between the size of board of directors and return on assets. The summary of the model also showed that the effect of size of board of directors and the number of independent members is negative on the return on assets. It means as the number of director and also number independent directors increase in the family firm's board, the return on assets decrease.

There can be a lot of reasons that can lead to negative affect of larger board size and high number of independent members. One of the main possibilities can be lack of alignment with family goals. The goals and priorities of independent directors might not align with the long-term goals and values of the family (Chen, Jaggi, 2001). This misalignment could contribute to a decrease in the return on assets. A higher number in the board of directors and independent members might result in strategic dissonance, where there is a lack of alignment on the strategic direction of the firm, impacting its financial performance. The other reason can be negative effect on family values that higher number of independent members can bring (Forbes, Milliken, 1999). A larger and more independent board might be associated with a perception of losing the family's core values or unique identity, potentially affecting the firm's performance. Additionally, with a larger board,

there may be challenges in effectively allocating resources, leading to inefficiencies that negatively affect the return on assets (Jaffe, 2005). Besides those reasons, there can be communication challenges in the large boards, which can affect the return on assets. Hence as the number of directors and independent members increases, communication may become more complex. In family-controlled firms, where personal relationships are crucial, a larger and more independent board might lead to challenges in effective communication.

Nevertheless, there are some limitations, we have to consider. Firstly, the sample data only covers the family firms. Additionally, it is only based on the Turkish family firms, so we have to consider the ownership and cultural aspects of those companies. The primary financial performance metric used in this study is the return on assets, which has been widely adopted in corporate governance and family business research. However, ROA can be influenced by accounting policies and management decisions, leading to potential concerns about its manipulability. The absence of additional financial indicators, such as debt levels or other performance measures like Return on Equity (ROE), limits the scope of the financial analysis. While the study focuses on ROA due to its established relevance in measuring profitability, future research could include other financial ratios to provide a more holistic view of firm performance, particularly in family-owned businesses. Finally, all these firms are listed in the Istanbul Stock Exchange, which means the results can be only applicable for publicly listed family firms. Future research can extend the different aspects of board of directors and profitability of the family firms, considering different countries and different economic cycles.

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