

Gamze Vural

Cukurova University,
Faculty of Economic and
Administrative Sciences,
Department of Business
Administration,
Adana,
Turkey
✉ gvural@cu.edu.tr

Emel Bacha Simoes

Corresponding author
Akdeniz University,
Serik Business Faculty,
Antalya,
Turkey
✉ eyucel@cu.edu.tr

The Nonlinear Effects of Ownership Concentration and Board Structure on Bank Performance

Summary: This study looks into the relationships between the banks' ownership structures, the characteristics of their boards, and their performance. A bank's performance varies depending on a series of different factors. In recent years, the evaluation of performance in the context of corporate governance practices has gained importance. This study considers the issue from the perspective of developed nations, looking at the examples of the United States and the United Kingdom. The findings demonstrate that adopting certain corporate governance practices improves a bank's performance levels over previous periods. Having a duality in the board structure and increasing its proportion of nonexecutive board members improve a bank's performance. In contrast, a statistically significant negative relationship was found between bank performance and board size, board members appointed for their specific skills, and the number of board meetings. It was also discovered that there is no linear relationship between the proportion of strictly independent board members on a board of directors and performance. A nonlinear relationship was found between bank ownership concentration and their performance. The discovery of a nonlinear relationship between performance and increasing concentration in a bank's ownership structure and the proportion of strictly independent board members on its board is a sign that there is an optimal level for these variables.

Keywords: Performance, Corporate governance, Banking, Tobin's Q.

JEL: G21, G34, L25.

The fundamental processes carried out at banks, whether they concern operations or management, are disclosed under stringent rules laid out in legislation and regulation. However, those on management have a flexible structure that can allow different types of administration to emerge under the influence of individual factors. A bank's development of corporate governance standards has prepared the grounds for maximizing the benefits enjoyed by the bank's stakeholders (Mohammed Rafiqul Alam and Fahmida Akhter 2017). Corporate governance standards guide the protection of minority rights, compliance with audit and control procedures, and the implementation of risk management practices (Augusto J. Felicio et al. 2018). When they are practiced in corporate governance in banking, they are expected to reduce agency costs and lead to higher performance levels. A cost-benefit approach is fundamental in coming to terms with the optimal levels of the components that make up corporate governance. The effects of corporate governance changes differ in line with many internal and external factors to the firm (Rebeca García-Ramos and Myriam García-Olalla 2014).

Generally, corporate governance systems are examined from two main perspectives. The first is characterized by how they are implemented within the financial systems of market-based economies, such as those in the United States and the United Kingdom. This system is one in which shareholders are relatively passive and the directors on the board are not completely independent. Firms are generally large-scale and widely held in stock terms. The identities of the owners of the firms are generally individuals, pension funds, and mutual funds. The board of directors is composed mainly of executives and outside directors. The power of shareholders in administrative activities is relatively low-level (Eric R. Gedajlovic and Daniel M. Shapiro 1998). The second system is a structure characterized by or observed in certain firms in Continental Europe and Japan. In this system, the shareholders in a company are mainly other companies or banks. The shareholders are more active, and most tend to act in concord. In this system, the board of directors is relatively more independent than the other. In addition, the market has relatively low levels of control over the company.

As a result of the case of the Sarbanes-Oxley Act in the United States, the importance of firms increasing transparency and reducing their agency costs in compliance with the principles of corporate governance has become more widely understood (Renee B. Adams and Hamid Mehran 2011). As financial intermediaries, banks having a healthy structure are important to protect depositors and maintain the transparency of the payments system. Moreover, banks having a strong structure play a significant role in reducing systematic risk in the economy. As they have high levels of leverage and consequently carry high levels of financial risk, they have different structures compared to nonfinancial firms. This difference needs to be taken into account in work on the subject of corporate governance. Banks have a mixed organizational structure, which increases information asymmetry. Also, there has been a decline in the power of bank stakeholders to audit and oversee the decisions of bank management. This characteristic has led to differences in the implementation of corporate governance. Uncovering the effects of corporate governance practices in banking in the developed world would serve as a guiding light to stakeholders and lawmakers (Shkendije Himaj 2014; Kose John, Sara De Masi, and Andrea Paci 2016).

Economic activities that become more complex over time are not easy to manage. For this reason, it is important to establish an effective management structure that will increase performance. Corporate governance focuses on the relationships between the company's shareholders, employees, and potential investors. It provides a number of tools to the company management to reduce agency problems that may arise between these parties. These tools better implement audit and control mechanisms and create a transparent management approach. However, the effects of corporate governance practices may differ depending on many factors. Agency theory and stewardship theory offer different predictions about the effects of corporate governance tools. Studies examining corporate governance practices in the literature generally report a linear relationship between corporate governance variables and performance. Considering the positive and negative consequences of the effects of corporate governance practices, the relationships between corporate governance practices and performance may not be linear. It is assumed that the effects of corporate governance practices for majority and minority shareholders may emerge more clearly in market-based economies.

The effects of the concentration in ownership and the board of directors' structure on firm performance have been investigated through firms in the United States and the United Kingdom, which are representative of the market-based economy. The primary motivation of this study is to investigate the nonlinear effects of board structure and bank ownership structure on performance. The degree of board member independence and the proportion of board members on boards who had special areas of expertise were taken into account by researching how board structure affects bank performance. In contrast to the literature that an increase in the proportion of independent members on a bank's board would positively affect bank performance, this study has shown that this relationship is not linear. This research has revealed the existence of a nonlinear relationship between levels of concentration in bank ownership structures and performance. It has been determined that there is a U-shaped relationship between ownership concentration and performance in banks.

The importance of the issues of corporate governance and performance has been explained in the Introduction. In the first section, the theoretical framework that clarifies the relationship between corporate governance and performance is presented. In the second section, literature on the topic is summarized. In the third section, the dataset and analysis methods are explained. In the fourth section, the results obtained from the analyses are reported and evaluated in the theoretical framework. In the final part, the results are summarized and discussed, and conclusions and policy recommendations are presented.

1. Theoretical Background

Corporate governance mechanisms prepare the grounds for following a transparent, accountable, and just approach in managerial activities. Committees such as risk-prevention committees, which can be effective in reducing risks for shareholders, creditors, and executives, support the increase in activity within the firm. Corporate governance is recommended as a tool in reducing agency costs, which are explained through agency theory. It has been claimed that as the scale of the board of directors increases and consequently, the proportion of members who are independent increases, it becomes more effective at evaluating management decisions (Michael C. Jensen and William Meckling 1976; Eugene Fama and Jensen 1983; Andrei Shleifer and Robert W. Vishny 1997). The independent members on a board contribute to making optimal decisions through their monitoring and supervisory functions (Salma Belhaj and Cesar Mateus 2016). An increase in the number of independent members on boards of directors has a positive effect on the firm (Shams Pathan and Skully 2007; Pablo De Andres and Eleuterio Vallelado 2008; Abdul C. P. Gafoor, V. Mariappan, and S. Thyagarajan 2018). Capital structures, insider ownership, and block ownership effects can be of benefit in reducing agency conflicts and agency costs (Fitriya Fauzi and Stuart Locke 2012). Contrary to agency theory, stewardship theory propounds that the directors are trustworthy and that they will use the firm's resources in the best possible way (Lex Donaldson and James H. Davis 1991, 1994). This theory highlights the board's advisory role rather than its monitoring function. Moreover, if there is a duality in the board structure, more effective decisions can be made from the perspective of other interest groups in the firm. If there is a duality, while agency theory predicts a

reduction in a firm's performance, stewardship theory predicts that it will increase performance (Donaldson and Davis 1994; Sydney Finkelstein and Richard A. D'Aveni 1994).

Adolf Berle and Gardiner C. Means (1932) was a seminal study of the relationship between the concentration of the ownership structure of a firm and firm performance. This study showed a positive relationship between performance and ownership concentration. A firm's ownership structure can take the form of corporate, foreign, and/or private ownership. In addition, a concentrated or widely divided ownership structure is seen as a factor that affects a firm's governance. A difference between the management and ownership of a firm opens the way for agency costs. Rafael La Porta, Florencio Lopez-de-Silanes, and Shleifer (1999), who examined the ownership structures of firms, emphasize that widespread ownership structures allow small shareholders the right to cash flow, leading to the concentration of the rights to management and control over the firm in the hands of professional administrators. This situation could open the way for administrators to use their situation to pursue their own interests as sources of power and prestige. Big shareholders holding most of the shares are to be found at publicly traded companies in both developing and developed nations (La Porta et al. 1998; La Porta, Lopez-de-Silanes, and Shleifer 1999). When there is a big shareholder at a firm, this ultimate owner has the right to run the firm and its cash flow (Stephen G. Marks 1999; Heitor V. Almeida and Daniel Wolfenzon 2006). This division between cash flow rights and control rights causes agency costs between majority and minority shareholders (La Porta, Lopez-de-Silanes, and Shleifer 1999; Stijn Claessens, Simeon Djankov, and Larry H. P. Lang 2000; Claessens et al. 2002; Michael L. Lemmon and Karl V. Lins 2003).

Agency costs emerge when executives seek to maximize their own interests. Jensen and Meckling (1976) formed the theoretical framework (the convergence-of-interest hypothesis) for the clashes of interests between firm owners and directors within agency theory. Agency theory draws attention to how different dimensions of the relationship between ownership structure and performance can lead to differing outcomes. It explains this situation through the alignment hypothesis and the entrenchment hypothesis. According to the alignment hypothesis, a positive relationship is expected between the proportion of a firm owned by its directors and its performance (Harold Demsetz 1983). This hypothesis rests on the assertion by Jensen and Meckling (1976) that as the proportion of shares owned by the directors increases, the financial performance also increases, as the financial interests of directors and other shareholders align better. As executive ownership increases, the interests of the owner-directors and shareholders become more closely aligned. Thus, owner-directors increase their efforts and promotion of the firm towards its maximum value. However, the entrenchment hypothesis proposes that as a firm's ownership structure becomes more concentrated, performance will be reduced. As a CEO's executive ownership increases, this opens the way for entrenchment. This situation is a factor that reduces the value of firms. According to the entrenchment hypothesis, management activities being less well-supervised will reduce the value of a firm. As a result, beyond a certain level of executive ownership, company performance is said to be reduced (John M. Griffith, Lawrence Fogelberg, and H. Shelton Weeks 2002). Even if a single big owner is not

directly an executive, he or she will have the power to influence management activities. The decisions made by the single biggest owner will be outside of control mechanisms that will damage firm performance. In general, firms aim at maximizing the value of the firm. In certain situations, the aim of executives or a big shareholder with a controlling stake may clash with this aim of value maximization. This situation can lead to negative outcomes for the firm. The dominant party may make decisions that can damage the interests of minority shareholders. If an executive should own a large proportion of the firm, the levels of oversight and supervision of management activities can be reduced, damaging the firm's performance. On the other hand, studies in the literature show that the relationship between management ownership and performance is not linear (Rendall Morck, Shleifer, and Vishny 1988).

2. Literature Review

The effects of the board and ownership structures on bank performance are topics presently on the finance literature agenda. Pathan and Skully (2007) analyzed the effects of board size and the independence of board members on the performance of local commercial banks in Thailand between 1999 and 2003. They found a negative relationship between board size and performance, and concluded that as the proportion of independent board members increased, bank performance also increased. Pathan (2009) concluded that banks with large boards of directors tended to take more risks. Banks with smaller-scale boards, however, tended to take fewer risks. Pathan and Robert Faff (2013) researched the effects between board structure and bank performance with data belonging to United States banks between 1997 and 2011. Their study concluded that as board size and the number of independent board members increased, bank performance decreased. In particular, they emphasized that management structure could be an important factor in the performance of banks that were weak in the markets. Emmanuel Mamatzakis and Theodora Bermpei (2015) investigated the impact of corporate governance on the performance of investment banks in the United States. Consistent with agency theory, they found that the board size asserts a negative effect on performance. On the other hand, Naresh Kumar and Sudesh Chhikara (2016) researched the effects between corporate governance and bank performance with data belonging to banks in India between 2010 and 2015. They stated that the board size has a positive impact on performance. Mesut Doğan and Feyyaz Yıldız (2013) investigated the impact of board of directors on bank performance and found a positive relationship between the board size and Tobin's Q.

Alam and Akhter (2017) analyzed the effects of corporate governance mechanisms on the performance of commercial banks. They found that the board size and the number of independent directors are negatively related to bank performance. Munyradadzi Raymond Muchemwa, Nirupa Padia, and Chris William Callaghan (2016) examined the relationship among board composition, board size, and financial performance in South Africa, and they stated a positive relationship between independent board members and performance. Mohamed Galal Abobakr and Khairy Elgiziry (2017) did not find any significant relationship between the number of independent board members and performance. Fazel M. Nodeh et al. (2016) investigated the effect of board structure on a bank's financial performance using data from Malaysian banks.

The results of the study showed that as the number of independent board members on the board and the board size increased, bank performance also increased.

Panagiotis K. Staikouras, Christos K. Staikouras, and Maria-Eleni K. Agoraki (2007) researched the influence of the scale and components of a bank's board on performance in their study using data belonging to 58 European banks between 2002 and 2004. They found a negative relationship between the board size and performance. They did not find any significant relationship between the proportion of credit within a bank's total current assets and performance either while they found a positive relationship between capital ratio and performance. Similarly, Bernadette Josephine James and Corina Joseph (2015) found a positive relationship between capital ratio and bank performance in Malaysia. Marcia Millon Cornett, Jamie Jhon McNutt, and Hassan Tehranian (2009) stated that the banks' corporate governance mechanisms influenced their earnings and their earnings management. Saadet Kasman and Adnan Kasman (2011) found that managerially, efficient banks should generate more profits and shareholder returns. Adams and Mehran (2011) researched corporate governance in the banking sector, board structure, and the factors that affected them. The 2008 financial crisis highlighted the importance of corporate governance in banking. They identified that corporate governance procedures made a difference in both the banking sector and in sectors outside banking and drew attention to them. They determined a positive relationship between the board size and performance. In the study, in which they used the value of Tobin's Q as a measure of performance, they found a negative relationship between the number of committees and performance. Moreover, they found a positive relationship between capital ratio and performance. Belhaj and Mateus (2016) researched the effects of corporate governance on bank performance by using data from 73 banks across 11 European countries between 2002 and 2011. They analyzed how the size of the board, its makeup, gender diversity, and dual board structures affected the performance of European banks, and found that the board size had a positive effect on bank performance. They concluded that as the number of women on boards increased, bank performance also increased. They discovered no statistically significant relationship between board composition or board duality and performance. However, their results showed that the difference engendered by the relationship between corporate governance and performance manifested during the financial crisis era.

De Andres and Vallelado (2008) examined the topic of duality in banks. They reported a positive relationship between independent directors and performance, while they found an inverted U-shaped relationship between the board size and performance. They emphasized that the composition and board size of banks had a relationship to the board members' ability to monitor and advise management. A board not being very large-scale and not having too many independent members allowed it to be more effective in monitoring and giving advice. Veysel Kula (2005) found a negative relationship between duality and performance in a study based on firms working in Turkey. In contrast, he found no significant outcome between the board size and performance. Mehmet Aygün and Süleyman İç (2010) were able to use different performance measures in their studies using data from Turkey. These included the profitability of assets, the profitability of equity, and the Tobin's Q value. Their analyses concluded that where there was a duality, firms' performance suffered as a result. Gafoor,

Mariappan, and Thyagarajan (2018) stated a positive relationship between the board size and return on assets. They did not find any significant relationship between duality and performance in commercial banks.

Berle and Means (1932) described the influence of firm ownership structure on performance. This seminal study outlined how firms had lower performance levels where there were distributed ownership structures. It emphasized that firms could begin to lose value as the discrepancy between ownership and control increased. Demsetz (1983) identified a negative relationship between distributed ownership and performance. In addition, he drew attention to the property of endogeneity in firms' ownership structures. Demsetz and Belen Villalonga (2001) showed that ownership structure made a difference. Abosede J. Adebisi and Kajola O. Sunday (2011) found a negative relationship between executive ownership ratios and firm performance. They stated that their findings supported the entrenchment hypothesis. Gedajlovic and Shapiro (1998) revealed that the relationship between corporate governance and company performance was affected by national differences. Their study was based on data from the United States, United Kingdom, Germany, France, and Canada. It revealed that an increasingly concentrated ownership structure in the United States had no statistically significant linear relationship with performance. When ownership concentration began to increase, company performance decreased. In other words, company performance was negatively affected when ownership concentration increased. However, this negative effect turned into a positive one when company performance increased further. They concluded that when ownership concentration decreased, profitability also decreased. Morck, Shleifer, and Vishny (1998) found a nonlinear relationship between insider ownership and performance. Panayotis Kapopoulos and Sophia Lazaritou (2007) stated that when ownership structures became more concentrated, company performance increased using profitability as a measure of performance in their study of 175 Greek businesses registered on the stock market. Griffith, Fogelberg, and Weeks (2002) found a nonlinear relationship between performance and ownership in commercial banks. Fauzi and Locke (2012) also identified a nonlinear relationship between company performance and ownership structure.

The degree of concentration in business ownership was affected by the level of development of the countries they were in and was proportionally much higher in developing countries than developed countries. While a distributed ownership structure was high in countries that had developed protection mechanisms for shareholders, in countries where these mechanisms were weak, the most dominant investors were families (La Porta, Lopez-de-Silanes, and Shleifer 1999). Where dominant investors had a high proportion of ownership, the firm's value was found to be higher (La Porta et al. 1998; Gürsoy and Aydoğan 1999; Claessens, Djankov, and Lang 2000; Claessens et al. 2002). In developed countries, the proportion of firms with a highly distributed ownership structure was found to be high and family ownership low, while in developing countries, the reverse was found (Morck, Daniel Wolfenzon, and Bernard Yeung 2005). Amit Kumar Gupta and Gao Xin Wei (2018) stated that domestic ownership has increased performance in the banking sector.

3. Data and Methodology

3.1 Data and Sample Selection

This study analyzed the relationship between the attributes of the board of directors, ownership structure, and performance of banks traded in the stock markets in the United States and the United Kingdom. Data belonging to these banks from 2002 to 2014 were obtained *via* Datastream from the Worldscope database. The data on corporate governance variables were obtained *via* Datastream from the Asset4 database. The dataset was formed using the year-end data from each financial year for the respective banks. The analyzed dataset was composed of corporate governance variables, financial variables belonging to the various banks, and control variables representing macroeconomic factors.

3.2 Empirical Model

Corporate governance is an important component that affects the activities and financial decision-making process inside a firm. For these reasons, many factors contribute to different corporate governance models. During this analysis, attention must be drawn to the possibility that the corporate governance variables display an endogeneity problem, and that an analysis method should be carried out in line with this possibility. Cornett, McNutt, and Tehranian (2009) state the necessity of paying attention to the existence of endogenous factors in the analysis of corporate governance. When looking at factors relating to the influence of ownership structure on company performance, endogeneity must be considered for an effective analysis (Demsetz 1983; Demsetz and Kenneth Lehn 1985).

The analysis in this study was carried out using the two-step system generalized method of movements (System GMM), which considers dynamic relationships between variables. It was recommended by Manuel Arellano and Stephen Bond (1991) for dynamic panel model forecasts and is based on primary difference transformations. However, data loss in predictions using this method is possible. To prevent this, a method can be employed that predicts the instrumental variables using an orthogonal refraction method in line with Arellano and Olympia Bover (1995). Arellano and Bover (1995) and Richard Blundell and Bond (1998) have recommended the System GMM. The dynamic panel model is presented in the following equation:

$$y_{it} = \gamma \cdot y_{i,t-1} + x'_{it} \cdot \beta + \alpha_i + \varepsilon_{it}. \quad (1)$$

Equation (1) includes $y_{i,t-1}$ as a delayed value on the dependent variable. Here, γ expresses a coefficient belonging to the lagged dependent variable. i represents each firm and t shows time ($i = 1, \dots, N$ and $t = 1, \dots, T$). x'_{it} is the independent variable vector in the $1 \times K$ dimension and β is the coefficient matrix on the $K \times 1$ dimension. $u_{it} = \alpha_i + \varepsilon_{it}$ is a model that uses the GMM model to make predictions in line with the u_{it} one-way error component model (Marno Verbeek 2004). This method of analysis provides more reliable predictions by taking into account the heteroskedasticity problem in which error terms are possible. During analysis, attention must be paid to the probability of not coming across the hypothesis that explanatory variables in the model are exogenous and that the lagged variable belonging to the dependent variable that has

been added to the model increases the possibility of problems with endogenous linkages. In addition, the possibility that there may be a relationship between country-specific fixed effects and explanatory variables has been included in the process. The dataset being larger than the short-term with reference to the time dimension will allow for more consistent and valid results using the GMM method (Elitza Mileva 2007).

For the predictions of a dynamic estimate to be valid, the instrumental variables must be used properly and in full and must fully reflect the true variables. The Sargan test statistic was used to determine whether the instrumental variables were valid or not. This test examines the validity of the restriction of extreme representations in the model used, or in other words, whether the instrumental variables are sufficient or not. In addition, the problem of multiple linear connections between variables must be looked into from the perspective of whether the results reached are consistent and valid. The multicollinearity problem has been examined using the Variance Inflation Factor (VIF) and it has been determined that there is no multicollinearity problem in this research model. When the correlation between the variables was examined, the fact that there was no coefficient above 0.70 supports the idea that there is no multicollinearity problem. Robust predictions were made for the heteroskedasticity problem.

3.3 Variable Definitions, Measurements, and Hypotheses

In analyzing the relationship between corporate governance and performance, the dependent variable is determined as the bank performance. There are various metrics used to analyze bank performance. These are generally examined in two groups, as accounting-based measurements (return on assets, return on equity, profit margin, etc.) and market-based measurements (Tobin's Q, market-to-book ratio, dividend yield, price-earnings ratio, etc.). Considering that the corporate governance practices of a bank may have important consequences for the shareholders, the use of a performance measure based on market data was decided. In this study, Tobin's Q ratio was used as an indicator of performance. It was chosen to calculate performance not only based on book value but also taking into account the effect of the bank's market value. Tobin's Q ratio also reflects how investors in the markets value a firm. Tobin's Q ratio is computed as the market value of assets divided by the book value of assets. The market value of assets is computed as the book value of total debt plus the market value of common equity.

The size of boards, the specialties of board members, the board leadership, and the board activity are among the topics frequently used while examining the structure of boards of directors in banks. Meanwhile, the independent variables in the research model are the corporate governance variables, the variables distinct to the banks, and the macroeconomic variables. The corporate governance variables are the independent board members, the board size, the percentage owned by a single big owner, the non-executive board members, the specific-skill board members, the number of board meetings, and duality. The financial variables distinct to the banks are capital ratio, the ratio of total loans to total assets, net interest margin, noninterest income to total revenues, and nonperforming loans to total loans. As a macroeconomic variable, real gross domestic product (GDP) has been considered. Changes in GDP have been used to add

the effects of economic activities occurring in the different countries where the banks are throughout analysis. The number of board members forms an indicator as the size of the board and must be considered as a factor affecting firm performance. The scale of the board of directors is measured by looking at the number of members on the board; however, it has been stated that there is no optimal size for a board of directors (Fauzi and Locke 2012). Board size is measured using the natural logarithm of the total number of board members at the end of the fiscal year (Ronald C. Anderson and David M. Reeb 2003). Large-scale boards of directors may have many people with more knowledge and talent and may have a broader perspective on issues they consider. Having more than one person on a board with different opinions prepares the groundwork for effective decisions. Bank performance is expected to increase due to the effective decisions made by board members with different specialist areas. Board members having an advanced level of intellectual knowledge and more people participating in the decision process could increase the quality of decisions. From an agency theory perspective, a large-scale board of directors could form an effective monitoring and supervision mechanism (Adams and Mehran 2011; Belhaj and Mateus 2016). On the other hand, when a board of directors is very large, it may not be well coordinated and may experience problems such as communications difficulties. Jensen (1986) emphasized that communications would be better in small-scale boards, that cooperation would be strengthened, and that this would allow for more effective monitoring. A large-scale board of directors decreases the effectiveness of solutions to agency problems (Jensen 1993). Small-scale boards of directors can be more effective and carry out work that increases their firms' value more (David Yermack 1996; Pathan and Skully 2007). On the other hand, De Andres and Vallelado (2008) found a nonlinear relationship between the board size and performance. Based on these considerations, the following hypothesis about the relationship between the board size and performance was tested in this study:

Hypothesis 1: There is a positive relationship between the board size and performance.

When agency costs decrease, there are costs to be added to carry out monitoring and checks to protect the benefits produced. Independent board members carry out monitoring and control functions. Studies in the literature highlight the relationship between having independent members on the board and performance. In this study, nonexecutive board member and strictly independent board member ratios have been used as indicators of board member independence. Nonexecutive board members are measured as a percentage of the number of nonexecutive members on the board. Where there are many nonexecutive board members, the number of activities to benefit shareholders outside the management of the firm is thought to increase. An increase in the independence of the board of directors can increase bank performance and provide the possibility of evaluating activities from the perspective of objective observers (De Andres and Vallelado 2008). However, the degree of independence of independent board members on a board is also important. It has been proposed that having too high a proportion of highly independent board members may have a negative effect on the firm. In this study, strictly independent board members (outsiders)

are measured by the percentage of strictly independent board members on the board (Anderson and Reeb 2003). They are not employed by the company and they have not served on the board for more than ten years. Also, these members are not reference shareholders with more than 5 percent of holdings. They have no cross-board memberships, and no recent, immediate family ties to the corporation. They do not accept any compensation from the firm other than compensation for board service. Some studies report that the relationship between board independence and performance is nonlinear (Georgeta Vintila and Stefan Cristian Gherghina 2013). Based on these considerations, the relationship between the independence of the board of directors and performance was tested following this hypothesis:

Hypothesis 2: There is a positive relationship between the independence of the structure of a board and performance.

Members of a board of directors having specific knowledge increase the possibility of decisions being made by experts. This is expected to have a positive effect on bank performance. In this research model, board members with specific skills are measured as the percentage of board members with either an industry-specific background or a strong financial background. Based on these considerations, in this study, the relationship between board members with specific skills and performance was tested following this hypothesis:

Hypothesis 3: There is a positive relationship between the percentage of board members with specific skills and performance.

The activities of a board of directors can be evaluated through the number of meetings they have held in the respective year of operations. Board activity is measured based on the number of board meetings during the year, and this variable gives us an idea about how intensive a board's activities are. Carrying out many meetings indicates that board members are active, whereas few meetings have been interpreted as board members being passive. In this study, the hypothesis that board activity is related to performance was tested following this hypothesis:

Hypothesis 4: There is a positive relationship between the number of board meetings and performance.

If the chair of a board of directors is also the company's CEO, it is an expression of the duality problem. Duality, in this case, is having both the CEO and chairman roles in one person – that is, of power being concentrated in one person. In this situation, the monitoring and supervision of the board may be weakened. From the bank's perspective, performance is expected to increase when power and responsibility are distributed in a balanced way. Agency theory emphasizes that there can be negative consequences in the event of a duality (Jensen and Meckling 1976). In contrast, stewardship theory claims that performance will be positively affected in this situation. It is thought that the CEO could have a negative impact on firm performance by limiting decisions that could benefit outside shareholders. On the other hand, when a CEO who closely knows the firm's activities is also chairman, firm performance may increase because the manager has detailed information about the firm's activities. There are

studies that report a positive relationship between duality and performance (Vintila and Gherghina 2013). In this analysis, duality is measured as a dummy variable that takes a value 1 if the chairman and CEO are the same person, and 0 if otherwise. Based on these considerations, the relationship between duality and performance was tested following this hypothesis:

Hypothesis 5: There is a negative relationship between duality and performance.

The ownership structure of the banks is an important factor in the decision process. Having a large shareholder means a concentrated ownership structure. The percentage of ownership indicates the voting power of shareholders on the board. Shareholders with a high voting power in the board of directors also have the power to influence the decisions to be made by the management. As the concentration of ownership increases, the firm's probability of engaging in risky investments may increase. The shareholders may tend to take higher risks to get more returns. Ownership is related to risky decision-making (Harlan Platt and Marjoire B. Platt 2012). As the concentration of ownership increases, the bank's performance may be adversely affected due to the decrease in the control of the management's decisions. The entrenchment hypothesis proposes that performance will be reduced as a firm's ownership structure becomes further concentrated (Jensen and Meckling 1976). According to the alignment hypothesis, aiming to achieve maximum return, large shareholders want managers to work in line with the goal of firm value maximization. By increasing their control over managers, they can prepare an environment for higher performance. Berle and Means (1932) showed a positive relationship between performance and concentration of ownership by drawing attention to the performance losses that may be caused by agency costs in the case of widespread ownership. When there is a highly distributed ownership structure, agency costs arise from conflicts between managers and shareholders (La Porta, Lopez-de-Silanes, and Shleifer 1999). A nonlinear relationship between the concentration of ownership and performance may emerge, given the benefits of concentration of ownership and performance losses caused by agency costs. In examining the relationship between ownership structure and performance in this study, attention has been paid to concentration in bank ownership. The single biggest owner is measured as the percentage ownership of the single biggest owner by voting power. Based on these considerations, the relationship between concentration in ownership and performance was tested following this hypothesis:

Hypothesis 6: There is a nonlinear relationship between the percentage ownership of the single biggest owner on the board and performance.

To include the financial attributes of the banks in this research model, attention has been paid to capital ratios, the capacity for providing credit, net interest margins, credit quality, and the capacity to generate non-interest-based income. Capital ratios show the capital sufficiency of banks and their stability in the face of risk. The capital ratio is calculated using a ratio of common equity to total assets. As a result of this calculation, the real equity level for banks can be obtained. As a measure of capital, this is an easy-to-calculate and more realistic measure. Banks in the financial system

have two fundamental functions: to act as financial intermediaries and to offer financial products and services. A bank's capacity to offer credit is one measure of its performance as a financial intermediary. This variable is calculated using the percentage of total loans to total assets. In addition, the net interest margin is also a measure of a bank's success as a financial intermediary. An increase in a bank's net interest margins positively influences a bank's performance. In this context, it was included in the research model as net interest margin (NIM). Net interest margin is measured as the difference between interest income and interest expense, both based on earnings assets, either in total or as average earnings. This variable is expressed as a percentage. On the other hand, success in creating a competitive advantage in offering bank products and services is also important for banks. The ratio of noninterest income (NII) to total revenues was used as a measure of these products and services. The nonperforming loans ratio is used as a measure of success in banks' credit management and active quality. In the research model used in this study, this was added as the ratio of nonperforming loans (NPLs) to total loans. A quality credit portfolio is important from the perspectives of liquidity and profitability. High liquidity level in banks allow them to take on obligations when the time comes, reduces the costs of refinancing, and prepares the groundwork for taking advantage of investment opportunities. A real GDP variable was added into the model to take into account macroeconomic effects in the countries in which the banks are operating. Annual growth was measured against real GDP levels in this analysis.

Descriptions of the variables used in this research model and analysis are found in Table 1.

Table 1 Description of Variables

Definition of variables regarding corporate governance	
Tobin's Q	(Market capitalization + total debt) / total assets
Independent	The percentage of strictly independent board members
Board size	The natural logarithm of the total number of board members at the end of the fiscal year
Nonexecutive	The percentage of nonexecutive board members
Single biggest owner	The percentage ownership of the single biggest owner
Board skills	The percentage of board members with either an industry-specific background or a strong financial background
Board activity	The number of board meetings during the year
Duality	A dummy variable that takes a value of 1 if the chairman and CEO are the same person and 0 if otherwise.
Variables regarding bank characteristics	
Capital	The ratio of common equity to total assets
Loans	The ratio of total loans to total assets
NIM	The difference between interest income and interest expense, both based on earnings assets, either total or average earnings assets. The variable is used as a percentage.
NII	Noninterest income to total revenues
NPLs	Nonperforming loans to total loans
Variable regarding macroeconomic factors	
GDP	Growth of real gross domestic product

Source: Authors' compilation.

4. Empirical Results and Analysis

4.1 Descriptive Statistics and Correlation Analysis

In this study, all descriptive statistics were calculated to ascertain attributes relating to the dataset to be used in this analysis. Descriptive statistics were prepared as corporate governance variables, bank finance variables and macroeconomic variables. The mean, median, minimum, maximum, and standard deviations of these variables were calculated. Correlation coefficients were calculated between the aforementioned variables and their correlation relationships were examined. The descriptive statistics relating to the variables in this research model are found in Table 2.

Table 2 Descriptive Statistics

Variables	Number of observations	Mean	Median	Standard deviation	Minimum	Maximum
Tobin's Q	412	0.3423	0.33	0.1261	0.1146	0.8117
Independent	239	0.4256	0.44	0.1936	0	0.9091
Board size	316	14	13	0.2449	7	26
Single biggest owner	267	0.1363	0.08	0.1479	0.0303	0.705
Nonexecutive	302	0.8313	0.85	0.0898	0.5556	1
Board skills	299	0.5238	0.50	0.2051	0	1
Board activity	308	10.2175	9.00	5.2571	4	60
Duality	316	0.6709	1.00	0.4706	0	1
Capital	395	0.0913	0.09	0.0286	0.0161	0.2052
Loans	395	0.6027	0.63	0.1285	0.2517	0.9559
NIM	391	3.3146	3.33	0.9770	1.11	10.85
NII	415	0.2826	0.30	0.1267	-0.0952	0.6306
NPLs	411	0.0155	0.01	0.0150	0	0.0888
GDP		0.0634	0.06	0.0463	-0.155	0.215

Notes: Tobin's Q equals the market value of the bank's equity plus the book value of its liabilities divided by that of total assets. The independent factor is the percentage of strictly independent board members. The board size is the natural logarithm of the total number of board members at the end of the fiscal year. The nonexecutive factor is the percentage of nonexecutive board members. The single biggest owner is the percentage ownership of the single biggest owner. The board skills factor is the percentage of board members with either an industry-specific background or a strong financial background on the board. The board activity factor is the number of board meetings held during the year. Duality is a dummy variable that takes a value of 1 if the chairman and CEO are the same person and 0 if otherwise. Capital is the ratio of common equity to total assets. Loans are the ratio of total loans to total assets. NIM is the ratio of the difference between interest income and interest expense, both based on earnings assets. NII is the ratio of noninterest income to total revenues. NPL is the ratio of nonperforming loans to total loans. GDP is the growth in real gross domestic product.

Source: Authors' calculations.

Descriptive statistics relating to variables in this research model are found in Table 2. The median value of Tobin's Q, which is a measure of bank performance, was around 33 percent. The median value of independent board members was 56 percent. The banks in this research were all determined to have between 7 and 26 members on their boards. The median value of the board size was 13 board members. The median percentage of the single biggest owner value was around 8 percent, with the lowest ownership percentage as 3 percent and the highest at 70 percent. The median value of the nonexecutive board member factor was around 85 percent. The median level of

board skills at banks was around 50 percent, meaning that half of the board members have special skills in this area. A mean of 67 percent of bank boards had a duality-based structure. The median value of the capital ratio, which gives information about a bank's equity sufficiency, was at around 9 percent. The loans variable reflecting bank credit ratios was found to have a median value of 63 percent, meaning that 63 percent of bank assets were used as credit. The minimum net interest margin was 1.11 percent and the maximum was around 10.85 percent. The median value of the ratio of income brought in as a financial intermediary, which is the essential function of banks, to other forms of income was found to be 3.33. The median level of noninterest income to total revenues was found to be around 30 percent. The median value of nonperforming loans to total loans was around 1 percent. The median growth of GDP figure was found to be around 6 percent.

A correlation matrix between the different variables in this research model is presented in Table 3.

Table 3 Results of Correlation Analysis

Variables	1	2	3	4	5	6	7	8	9	10	11	12	13
1. Tobin's Q	1												
2. Independent	-0.12'												
3. Board size	-0.09'	-0.20***											
4. Single big. owner	0.02	-0.15**	0.14**										
5. Nonexecutive	0.01	0.14**	-0.06	-0.20***									
6. Board skills	0.06	0.03	-0.02	0.01	-0.28***								
7. Board activity	0.15***	0.13**	-0.14**	-0.12'	-0.03	0.13**							
8. Duality	0.07	-0.25***	-0.04	-0.25***	0.18***	-0.14**	-0.21***						
9. Capital	0.12**	0.001	-0.22***	-0.10	0.39***	-0.26***	-0.03	0.21***					
10. Loans	-0.10'	-0.17**	-0.06	-0.16**	-0.03	-0.03	-0.07	0.16**	0.20**				
11. NIM	-0.20***	-0.08	0.08	0.04	0.13**	-0.03	-0.18***	0.22***	0.14***	0.10**			
12. NII	-0.37***	0.10	0.29***	0.05	0.12**	-0.03	-0.13**	-0.24***	-0.35***	-0.36***	0.05		
13. NPLs	-0.29***	0.10	0.02	0.25***	-0.11'	0.19***	0.18***	-0.26***	-0.16**	-0.19***	-0.16**	0.24***	
14. GDP	0.17***	-0.06	0.09	-0.13**	-0.09	-0.01	-0.13**	0.04	-0.10'	0.07	0.02	-0.02	-0.23***

Notes: Tobin's Q equals the market value of the bank's equity plus the book value of its liabilities divided by that of total assets. The independent factor is the percentage of strictly independent board members. The board size is the natural logarithm of the total number of board members at the end of the fiscal year. The nonexecutive factor is the percentage of nonexecutive board members. The single biggest owner is the percentage ownership of the single biggest owner. The board skills factor is the percentage of board members with either an industry-specific background or a strong financial background on the board. The board activity factor is the number of board meetings held during the year. Duality is a dummy variable that takes a value of 1 if the chairman and CEO are the same person and 0 if otherwise. Capital is the ratio of common equity to total assets. Loans are the ratio of total loans to total assets. NIM is the ratio of the difference between interest income and interest expense, both based on earnings assets. NII is the ratio of noninterest income to total revenues. NPLs is the ratio of nonperforming loans to total loans. GDP is the growth in real gross domestic product. * $p < 0.1$; ** $p < 0.05$; and *** $p < 0.01$.

Source: Authors' calculations.

According to the results of the correlation analysis in Table 3, the highest positive correlation relationship has been identified as around 39.3 percent, between the capital ratio and independent variables. The lowest correlation, at 9.4 percent, was between the board size and Tobin's Q. It was understood from this that there is a negative relationship between bank board size and bank performance. A statistically significant

negative correlation was found between the Tobin's Q variable and the independent, loans, NIM, NII, and NPL variables. In contrast, a statistically positive correlation was found between Tobin's Q and the board activity, capital ratio, and GDP growth.

4.2 Relationship between the Board Structure and Performance

This study has used the System GMM method to analyze the relationship between attributes of boards of directors and bank performance. Tobin's Q is among the dependent variables used in this study. More than one research model was used to study whether the results obtained are reliable or not. The results of regression analyses as to the relationship between the board of directors' characteristics and performance are presented in Table 4.

Table 4 Relationship between the Board Characteristics and Performance

	Tobin's Q	Tobin's Q	Tobin's Q	Tobin's Q	Tobin's Q	Tobin's Q	Tobin's Q
Tobin's Q _{t-1}	0.875*** (0.083)	0.831*** (0.069)	0.814*** (0.063)	0.780*** (0.048)	0.874*** (0.045)	0.862*** (0.034)	0.762*** (0.106)
Independent	-0.102** (0.050)	-0.108** (0.047)		0.204** (0.095)	0.278** (0.127)	0.193* (0.116)	0.015 (0.058)
Independent ²				-0.323*** (0.108)	-0.414*** (0.158)	-0.306** (0.128)	
Board size	0.022 (0.081)	0.233 (0.708)	-0.321 (0.629)		-0.029 (0.075)	-0.039 (0.078)	0.084 (0.094)
Board size ²		-0.045 (0.137)	0.068 (0.117)				
Single biggest owner	-0.135 (0.115)	0.073 (0.129)	-0.197*** (0.074)	-0.273*** (0.077)	-0.233** (0.101)	-0.299*** (0.093)	0.107 (0.175)
Nonexecutive	-0.197 (0.179)	-0.050 (0.197)	0.349** (0.162)	-0.063 (0.124)	-0.057 (0.117)		0.127 (0.341)
Board skills	-0.078* (0.041)	0.025 (0.030)	-0.018 (0.041)	-0.022 (0.057)			0.088 (0.067)
Board activity	-0.001 (0.002)		0.002 (0.002)	-0.002 (0.002)	-0.001 (0.002)	-0.001* (0.001)	0.005 (0.003)
Duality	0.003 (0.018)	-0.015 (0.021)	0.036** (0.018)	0.022* (0.013)	0.017 (0.020)	0.009 (0.015)	-0.001 (0.029)
Capital	1.201*** (0.341)		0.744* (0.432)	0.492 (0.343)	0.993*** (0.498)	0.862 (0.603)	0.977 (1.228)
Loans	0.013 (0.075)	0.047 (0.071)	0.012 (0.109)	0.111* (0.063)	0.073 (0.054)	0.057 (0.060)	0.027 (0.079)
NIM		-0.004 (0.013)	-0.008 (0.005)				-0.006 (0.026)
NPLs		-1.213*** (0.439)	-0.166 (0.502)				-2.128** (0.942)
NII							-0.421 (0.368)
GDP		0.165** (0.066)	-0.048 (0.047)				0.147 (0.159)
Wald Chi-sq	90091.09***	91252.73***	482467.73***	47570.67***	274199.16***	35768.27***	143682.94***
P value	0.000	0.000	0.000	0.000	0.000	0.000	0.000

AR(1)	-3.18***	-3.22***	-3.67***	-2.88***	-3.08***	-3.10**	-2.83***
P value	0.001	0.001	0.000	0.004	0.002	0.002	0.005
AR(2)	-1.30	-1.17	-1.61	-1.18	-1.01	-0.87	-0.71
P value	0.195	0.242	0.106	0.238	0.314	0.385	0.479
Sargan Test	13.311	20.88	24.562	15.445	14.555	15.512	16.963
P value	0.347	0.232	0.175	0.218	0.267	0.114	0.526

Notes: Tobin's Q equals the market value of the bank's equity plus the book value of its liabilities divided by that of total assets. The independent factor is the percentage of strictly independent board members. The board size is the natural logarithm of the total number of board members at the end of the fiscal year. The nonexecutive factor is the percentage of nonexecutive board members. The single biggest owner is the percentage ownership of the single biggest owner. The board skills factor is the percentage of board members with either an industry-specific background or a strong financial background on the board. The board activity factor is the number of board meetings held during the year. Duality is a dummy variable that takes a value of 1 if the chairman and CEO are the same person and 0 if otherwise. Capital is the ratio of common equity to total assets. Loans are the ratio of total loans to total assets. NIM is the ratio of the difference between interest income and interest expense, both based on earnings assets. NII is the ratio of noninterest income to total revenues. NPLs is the ratio of nonperforming loans to total loans. GDP is the growth in real gross domestic product. The numbers inside the parentheses refer to the standard errors for the related coefficients: * $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$.

Source: Authors' calculations.

The test statistics in Table 4 indicate that the prediction results obtained by System GMM were valid and reliable. In all of the models, a lagged value belonging to the dependent variable Tobin's Q was added as an explanatory variable. A statistically significant positive relationship was found between bank performance levels in the present period and those of the previous period. This means that if a bank's performance in the previous period was at a high level, it may reach an even higher level in the coming period.

In the literature, the board size emerges as an important attribute from the perspective of corporate governance. In this study, no statistically significant relationship was found between board size and bank performance. Pathan and Skully (2007), Staikouras, Staikouras, and Agoraki (2007) and Pathan and Faff (2013) concluded that this relationship was negative, while Belhaj and Mateus (2016) and Gafoor, Mariappan, and Thyagarajan (2018) reported this relationship as positive. However, in this study, the relationship between the board size and performance was not found statistically significant. Even when "board size squared" term was added into the model, no statistically significant result was reached between the board size and performance. In consequence, Hypothesis 1 was rejected.

The presence of independent members on a board of directors affects the inspection of management activities. According to agency theory, the existence of independent members on the board will reduce conflicts of interest for the firm. Our findings show a positive relationship between nonexecutive board members and performance. This means that whenever the share of people not employed as executives in any unit of the bank increases, the bank's performance also increases. While the relationship between independent board members and performance was positive in the research model, when an independent squared term was introduced into the model, this relationship turned negative. In other words, an increase in the proportion of independent members at first has a positive effect, but when this proportion increases further, it results to a negative effect. Our findings show a nonlinear relationship between the ratio of independent members and bank performance. In light of this finding, Hypothesis 2 was rejected. The nature of bank activities requires a mixed structure. Activities

are carried out according to legal regulations. It is important that members of the board of directors be familiar with the bank's existing structure and that they can evaluate factors such as legal regulations and market risks that could affect its activities. Note that independent members who are distant from the field of banking may not be effective participants in decision-making processes. These may be the costs of having too high a proportion of independent members on the board of directors. On the other hand, having independent members on the board provides benefits such as effectively monitoring the management and presenting objective suggestions. However, if the proportion of independent members is too high, this can lead to the disadvantage of a lack of knowledge about the particular fundamental dynamics of the bank. This result, showing a nonlinear relationship between the proportion of independent members on the board and performance, highlights that there is an optimal point in the proportion of independent members on a board. It is clear that bank performance can be increased to higher levels by balancing the advantages and disadvantages of independent members on the board.

An increase in the number of directors with special skills that complement those of the chairman of the board is expected to strengthen the taking of strategic decisions. However, in this study, a negative relationship was found between the board skills and performance. In line with this, Hypothesis 3 was rejected. These findings show that bank performance declined when the proportion of board members with skills in specialized areas increased, supporting the negative relationship that emerged between the proportion of completely independent board members. People who can evaluate topics related to the administration of a bank from a holistic perspective emerged as more effective board members than people who became experts on specific topics.

A very strong negative relationship was observed between the proportion of a bank owned by the single biggest owner and performance in all the research models. A very weak negative relationship was ascertained in the relationship between board activity and performance. Thus, Hypothesis 4 was rejected. The findings showed a positive relationship between duality and performance. When banks had a duality, they reached higher levels of performance. In light of this finding, Hypothesis 5 was rejected. This positive relationship is out of line with the expectations about duality found in agency theory. In contrast, it supports what is expected in stewardship theory.

A positive relationship was found between capital ratios and performance in terms of banks' financial attributes. This means that as capital ratios increased, bank performance also increased. This finding is in line with studies carried out by Staikouras, Staikouras, and Agoraki (2007), Adams and Mehran (2011) and Alam and Akhter (2017). Successful risk management increases bank performance. When banks have high levels of equity, they are stronger in the face of risks. A positive relationship was found between performance and loans. A similar finding was reached by Staikouras, Staikouras, and Agoraki (2007) and Nicholas Apernis and Effrosyni Alevisopoulou (2011). A statistically significant negative relationship was found between nonperforming loans to total loan ratio and performance. The discovery of a negative relationship between the ratio of nonperforming loan to total loan, among the variables relating to bank financial structures, shows that the banks' capacity to provide funds and their credit portfolio quality are important determinants in their performance. This

finding means that when the levels of nonperforming loans at banks increase as a proportion of total credit, the banks' performance decreases. When banks carry out their fundamental function as financial intermediaries successfully, their performance increases. Therefore, banks must give importance to allocating their resources and form a quality credit portfolio. There is no need for banks to be aggressive on the issue of obtaining noninterest income. As seen in Table 5, a negative relationship was found between the ratio of noninterest income to total revenues and performance. As noninterest income increases as a proportion of total income, performance is understood to decrease. This finding undermines the view that banks need to increase their noninterest income from the perspective of competition. It also shows that what improves banks' performance is their fundamental activity as an intermediary. It is understood that efforts made to obtain noninterest income do not add to performance. Further, the effect of macroeconomic factors on bank performance has been examined by looking at GDP growth. The findings support the notion that as growth in GDP increases, bank performance increases. The growth of the economy in which banks operate contributes positively to the performance of banks.

4.3 Relationship between the Ownership Structure and Performance

The study investigates the effects of bank ownership structure on performance. Firms can have various types of ownership structures. A firm's ownership can be considered from the perspective of factors like it belonging to the public or private sector, being a family company or not, and the owner working or not working within the firm. In this study, banks' ownership structures have been examined in terms of the percentage of the bank owned by its single biggest owner. The ownership proportion of the single biggest owner is considered as the calculated proportion of the owner's voting power or rights. During this analysis, the single biggest owner variable and single biggest owner squared term were progressively introduced into our research models. The prediction results of System GMM on this topic are given in Table 5.

Table 5 System GMM Relationship between the Bank Ownership Structure and Performance

	Tobin's Q	Tobin's Q	Tobin's Q	Tobin's Q	Tobin's Q
Tobin's Q _{t-1}	0.727*** (0.061)	0.716*** (0.070)	0.741*** (0.064)	0.763*** (0.058)	0.866*** (0.055)
Single biggest owner	-1.035** (0.478)	-0.938*** (0.348)	-0.923** (0.453)	-1.006*** (0.358)	-0.238** (0.079)
Single biggest owner ²	2.312* (1.081)	2.162*** (0.808)	1.651* (0.970)	1.853** (0.698)	
Independent	-0.006 (0.049)	-0.006 (0.063)	-0.128*** (0.041)	-0.069** (0.035)	
Board size		-0.026 (0.092)	0.113 (0.100)	0.106 (0.086)	-0.002 (0.061)
Nonexecutive	0.289 (0.291)	0.140 (0.325)	-0.037 (0.127)		0.450*** (0.134)
Board skills	0.103 (0.083)	0.082 (0.090)			0.001 (0.043)
Board activity	0.005 (0.003)	0.004 (0.004)			0.003 (0.002)

Duality	0.013 (0.028)	0.010 (0.030)	-0.050 (0.032)	-0.009 (0.024)	0.034* (0.019)
Capital	-0.851 (1.087)	-1.060 (1.182)	0.442 (0.834)	0.631 (0.781)	0.515 (0.511)
Loans	0.189** (0.096)	0.200* (0.118)	0.038 (0.096)	0.040 (0.088)	0.003 (0.084)
NIM	0.024 (0.023)	0.024 (0.028)	0.007 (0.018)	0.019 (0.018)	-0.009 (0.009)
NII	-0.179 (0.196)	-0.247 (0.278)	-0.327*** (0.123)	-0.262** (0.114)	-0.131 (0.101)
NPLs	-1.742* (0.918)	-1.706 (1.060)	-1.556** (0.665)	-0.529 (0.998)	-0.186 (0.599)
GDP	0.397*** (0.128)	0.397*** (0.144)	0.131 (0.140)	0.201 (0.129)	-0.020 (0.082)
Wald Chi-sq	34045.274***	49704.453***	88338.485***	68390.501***	31819.388***
p-value	0.000	0.000	0.000	0.000	0.000
AR(1)	-2.70***	-2.48**	-2.80***	-2.82***	-3.51
p-value	0.007	0.013	0.005	0.005	0.000
AR(2)	-1.18	-1.46	-1.56	-1.47	-1.62
p-value	0.236	0.143	0.119	0.143	0.104
Sargan Test	14.581	15.903	19.085	17.933	16.926
p-value	0.691	0.723	0.264	0.210	0.390

Notes: Tobin's Q equals the market value of the bank's equity plus the book value of its liabilities divided by that of total assets. The independent factor is the percentage of strictly independent board members. The board size is the natural logarithm of the total number of board members at the end of the fiscal year. The nonexecutive factor is the percentage of nonexecutive board members. The single biggest owner is the percentage ownership of the single biggest owner. The board skills factor is the percentage of board members with either an industry-specific background or a strong financial background on the board. The board activity factor is the number of board meetings held during the year. Duality is a dummy variable that takes a value of 1 if the chairman and CEO are the same person and 0 if otherwise. Capital is the ratio of common equity to total assets. Loans are the ratio of total loans to total assets. NIM is the ratio of the difference between interest income and interest expense, both based on earnings assets. NII is the ratio of noninterest income to total revenues. NPLs is the ratio of nonperforming loans to total loans. GDP is the growth in real gross domestic product. The numbers inside the parentheses refer to the standard errors for the related coefficients: * $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$.

Source: Authors' calculations.

Table 5 shows the relationship between the bank ownership structure and performance. Our findings demonstrated a negative relationship between the percentage of the bank owned by the single biggest owner and performance. This finding is a sign that as a bank's ownership structure becomes more concentrated, that is, as the shareholder who owns the largest number of shares increases his or her influence over the management, bank performance falls. This negative relationship finding is theoretically in line with the entrenchment hypothesis. According to that hypothesis, large stakeholders with control over a firm may make decisions that serve their personal interests but act against the maximization of the firm's value. An important portion of the bank coming under the ownership of a single person and this person gaining a powerful say is understood to have a negative effect on bank performance. However, when the single biggest owner squared term was added into the model, a statistically significant positive relationship was found between this variable and performance. This situation highlights how the relationship between ownership proportion and performance is nonlinear. In consequence, Hypothesis 6 could not be rejected. While the ownership percentage of the single biggest owner is low, the increase in concentration negatively affects the performance. However, when higher ownership levels are

reached, the increase in concentration affects performance positively. Accordingly, it can be said that there is a U-shaped relationship between ownership concentration and performance in banks. These findings suggest that at lower levels of ownership concentration, these do not positively affect Tobin's Q. When the levels of ownership concentration reach high levels, it starts to have a positive effect. The finding that concentration positively affects performance supports the alignment hypothesis. When the obtained U-shape relationship is taken into account, it is understood that the concentration in ownership may have positive and negative results in terms of bank performance. In light of this, corporate governance practices should be developed considering the positive and negative effects of banks' ownership concentration on performance.

5. Conclusion

Corporate governance practices are important to firms to reduce agency costs and carry out more effective management policies. When banks' boards of directors work effectively, they reduce the fragility in the banking system nationwide and increase their performance. This study has laid out the dynamics of the relationship between the ownership structure and board attributes of banks doing business in the United States and the United Kingdom and bank performance. This analysis has shown that the banks' performance levels in the previous period positively affect performance in the present period. No statistically significant relationship was found between the board size and bank performance. According to the findings, a nonlinear relationship was found between the number of independent board members and bank performance. This finding highlights an optimal point in terms of the ratio of independent board members. The fact that the performance starts to decrease after increasing up to a certain point indicates an inverted U-shaped relationship between the ratio of independent board members and bank performance. Accordingly, the ratio of independent board members at the point where the performance is maximum indicates an optimal point for the bank. In this study, board skills and board activity were determined to have had a negative effect on performance.

In this study, a positive relationship was found between duality and performance. Bank performance is positively affected when a CEO is also chairman of the board. This finding is in line with the predictions of stewardship theory. Bank ownership structure was examined through the axis of ownership concentration. The findings obtained showed a statistically significant nonlinear relationship between the ownership ratio of the single biggest owner and performance. While the increase in the concentration of ownership in banks has a negative effect on the performance at the beginning, when the concentration reaches high levels, the performance is affected positively. Even if a single big owner is not directly an executive, he or she will have the power to influence management activities. The decisions taken by the single biggest owner will be outside of control mechanisms and will damage firm performance. On the other hand, aiming to achieve maximum return, large shareholders can focus on maximizing firm value by forcing managers to work more effectively. From this perspective, the findings provide evidence consistent with the alignment hypothesis rather than the entrenchment hypothesis. This finding reveals the necessity of corporate

governance practices in banks. Agency costs that may arise in banks can be reduced by protecting investors' rights, making effective decisions in management, and monitoring excessive risky decisions. The importance of the audit committee and risk committee activities established within the framework of corporate governance practices in banks emerges in terms of increasing performance. The committees need to be independent to carry out their activities effectively. In addition, the rights of the bank's small partners other than the single biggest owner should be protected by maintaining transparency in the activities and financial statements. Agency costs can be reduced by ensuring that shareholders participate in board meetings and decision-making processes. Agency problems can be prevented by increasing the trust of the shareholders in the bank. While developing corporate governance practices in banks, the effects of the concentration level in the ownership structure on performance should be considered.

Important findings were reached in terms of the relationship between banks' financial attributes and performance. The results of the analysis showed that increased capital ratios and loan variables increased the banks' performance. In contrast, the NII and NPLs variables had a negative relationship with performance. Where banks had a high equity ratio, this made them stronger in the face of risk. An increase in the banks' proportion of nonperforming loans was shown to reduce bank performance. Where banks are successful in their fundamental function as financial intermediaries, their performances see great increases. Therefore, banks must give importance to resource allocation and the formation of a quality credit portfolio. The general economic conjuncture in the country where the bank does business was also an important factor in bank performance.

If the findings are examined in general, it is understood that the explanatory power of the variables related to the banks' corporate governance attributes over performance is stronger than the explanatory power of the variables related to the banks' financial structure. This finding shows that corporate governance attributes are more important in explaining bank performance compared to financial structure. This shows the importance of banking activities being carried out and strategic decisions being made in line with mechanisms of corporate governance. In this study, the influences of the attributes of the boards of directors and ownership structures on bank performance have been described. The findings of this study are expected to illuminate the way for future studies. Note that the effects of corporate governance cannot be explained from a single perspective. Considering the situations where the relationships between performance and corporate governance variables are not linear, it is understood that there is a need for studies that will guide the creation of an optimal corporate governance structure.

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