

The effect of board of directors characteristics on risk and bank performance: Evidence from Turkey¹

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Abstract: A bank, particularly in developing countries like Turkey, is one of the most important institutions in the financial sector. Therefore knowing the factors affecting the performance of banks is important for the development of the sector. One of the factors affecting the risk and profitability of banking sector is the internal factors of the banks. The aim of this paper is to investigate the board of directors' characteristics and its effect on risk level measured by non-performing loans and on bank performance measured by asset profitability using the Generalized Method of Moments (GMM) estimator. Data from nineteen deposit banks for the period 2012–2018 were used. The result of the study determined that the board size, foreign board members and the independent board members have an effect on both non-performing loans and the return on assets.

Keywords: corporate governance, bank performance, non-performing loans.

JEL codes: G21, G32, G34, G28.

Introduction

Banks play an important role in the financial sector as an economic growth engine. Several studies found a positive relationship between financial sector development and levels of income and growth of banks. Also the banking sector is risky and therefore banks should manage their performance and enhance their reputation to build consumer trust. Indeed the governance issue is particularly important in the banking sector. It is important to operate efficiently in the banking industry because banks compete not only within their own

¹ Article received 4 December 2019, accepted 27 July 2020.

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industry but also with other financial institutions (Setiawan, Hasan, Hassan, & Mohamad, 2017).

The failures of banking and other financial institutions which occurred in the late 2000s are a consequence of deficiencies in bank governance practices, especially concerning how the board of directors discharged their fiduciary duties (Laeven, 2013). In this way the role of corporate governance in banking has been highlighted not only by academics but also by regulators and policy-makers (Basel Committee on Banking Supervision, 2010; OECD, 2010).

The board of directors is a central part of corporate governance mechanisms in market economies and it is one of the main governance dimensions (Fernandes, Farinha, Martins, & Mateus, 2017). Boards of directors play a fundamental role in strengthening corporate governance by accomplishing the important roles of monitoring and advising on the provision of resources. The board of directors has a crucial role in managing and controlling the activity of the banks.

There are a few reasons why we are focusing on the bank's board of directors. Firstly, the bank board is more important for the governance mechanism than its non-bank counterparts because directors solely serve the shareholders, depositors and regulators (Macey & O'Hara, 2003). The ultimate responsibility of managers is typically placed with the board of directors (Macey & O'Hara, 2003; Levine, 2004; De Andres & Vallelado, 2008). Thus the bank board structure is relevant to bank performance and bank risk (De Andres & Vallelado, 2008). Secondly, banks are highly leveraged institutions. This high leverage can raise the probability of bank failures and depositors as well as other debtholders will demand a higher risk premium from banks as compensation for the higher insolvency risk. Also with high leverage the conflict of interest between shareholders and debtholders interacts with equity governance (Fernandes et al., 2017). Moreover the banking industry is quite different from other industries in its regulations and operating environment. Therefore it requires special treatment regarding corporate governance issues (Bektaş & Kaymak, 2009). Finally, the financial system depends on the banking industry in Turkey. The board is thus at the centre of the public discussion regarding corporate governance and in particular concerning how board dimensions relate to firm performance.

In light of all these evaluations this paper aims to investigate how selected board characteristics as corporate governance affect the financial performance of the banking system in Turkey. Not only investors but depositors and regulators have a direct interest in bank performance. For the banking sector this shows that especially in the last 30 years, progress is more important for developing countries such as Turkey. It is seen that many variables are used to measure the performance of the banking sector. Therefore two dependent variables were used in this study, return on assets (ROA) as traditional proxies of performance and non-performing loans (NPL) as measures of loan quality. These two variables are performance variables frequently used in the litera-

ture. Also, as far as is known, there are a few papers about this topic in Turkey. Most of these are about companies, not banks. In this respect it is expected to contribute to the literature.

ROA depends on the bank's management policy in decision-making as well as uncontrollable factors such as economic growth and government regulations. ROA is very important in demonstrating the ability of the bank's management in using financial resources and investment to generate profit. ROA provides a better profitability measurement than the ROE because it is not distorted by high equity multipliers and it better represents a measurement of the firm's ability to generate returns on its portfolio of assets. It has been believed that the return on assets is the best measure of bank efficiency (Rivard & Thomas, 1997).

Credits are one of the major outputs provided by banks. Therefore loan management is very important. A loan is a risk output; there is always a possibility that the bank will face loan delay or a default problems. That is why there is always an ex-ante risk for a loan eventually becoming non-performing. NPL are undesirable outputs to any bank that extends loans as they decrease the bank's efficiency. Management of NPL is important for both an individual bank's efficiency measure of overall performance and an economy's financial soundness (Setiawan et al., 2017) and because of this NPL variables were used. To test the role of the board the focus is directed towards four specific aspects of board characteristics namely: on board size, CEO duality, independent board members and foreign board members. In addition to these variables internal and external variables as control variables were used.

This study investigates board structure and firm performance by using a sample of Turkish banks. The study contributes to the existing literature related to corporate governance in several ways. First, most of the earlier papers focused on Europe, the U.S. and other developed economies (Levine, 2004; Fernandes et al., 2017). Whereas our study focused on corporate governance in emerging economies. To the best of the authors' knowledge there are several previous banking studies (e.g. Bektaş & Kaymak, 2009; Ghosh & Ansari, 2018) investigating the board structure-performance related to emerging countries. Also, due to underdeveloped financial markets, limited availability of financial instruments and a lack of confidence in the financial system, banks become the dominant financial intermediary in the system of emerging countries. The rapid changes brought about by globalization, deregulation and technological advancement are increasing risks in the banking systems in such countries.

Secondly, it is known that Turkey is an emerging country. In general firms that receive corporate governance ratings get the opportunity to differentiate themselves in the marketplace especially in countries where corporate governance practices are weak. Incentives for better corporate governance practices would also attract foreign capital. It is known that emerging countries need foreign capital to cover current account deficits. One of the most important safeguards for foreign investors is the sound corporate governance practice in

line with international standards (Ozsoz, Gurarda, & Ates, 2014). Therefore, not only for Turkey, but also for developing countries alike it is expected that the outcome of this paper will help to adopt an appropriate balance of legislation and regulatory reform to make improvements in the corporate governance practice of similar banks.

The rest of the paper is organized as follows. Section 1 discusses the literature and theory. Section 2 presents information about the governance environment of commercial banks in Turkey. Section 3 discusses the data and methods and presents the descriptive statistics of the sample while the empirical analysis and the results are presented.

1. Literature review and hypotheses development

The study of corporate governance and performance relationship is based on various conflicting theoretical perspectives such as the agency theory, the stewardship theory, the resource dependence theory, the institution theory, and the managerial theory. The previous studies related to the relationship between board dimensions and financial performance with their arguments based mostly on the agency theory (Titova, 2016; Gafoor, Mariappan, & Thyagarajan, 2018; Hakimi, Rachdi, Ben Selma Mokni, & Hssini, 2018). According to the agency theory the contractual relationship between principals (shareholders) and agents (management), the separation of corporate ownership and control potentially leads to self-interested actions by managers.

While previous literature on corporate governance and board characteristics have primarily focused on non-financial firms recent regulatory changes try to address corporate governance issues of banking (Ghosh & Ansari, 2018; Sarkar & Sarkar, 2018; Gafoor et al., 2018; Alatassi & Letza, 2018). The results of these changes is that the impact of board characteristics on financial performance is positive (Gafoor et al., 2018; Hakimi et al., 2018; Fernandes et al., 2017) while others conclude that the relationship has mixed results (Sarkar & Sarkar, 2018; Liang, Xu, & Jiraporn, 2013; Titova, 2016). Thus the net effect of board characteristics on financial performance is an open question that needs further investigation.

Boards are one of the most important corporate governance mechanisms because they fulfil the following roles: (1) making managerial decisions such as which projects to undertake (2) monitoring and evaluating management—supervisory role and (3) offering valuable advice—advisory role (Fernandes et al., 2017). These roles are more important for banks compared with other firms because of (i) the director's fiduciary responsibilities which are extended beyond shareholders to include a wider range of stakeholders, i.e. depositors and regulators (Macey & O'Hara, 2003); (ii) the complexity of the banking business: the presence of opaque bank lending activities reduces the ability of

shareholders and debt holders to impose effective governance (Levine, 2004); and (iii) the limited competition, intense regulation and the higher informational asymmetries (De Andres & Vallelado, 2008). However each governance mechanism such as the board of directors, ownership structure and board size, plays a complementary role that might be effective in certain aspects or stages of agency problem-solving. Therefore the general hypothesis is: The board's characteristics in Turkish banks play an important role in bank performance. Although there are different factors that stand out in the studies on the characteristics of the board there are four factors especially board independence which is not often witnessed. While selecting variables in the study, accessibility, frequency of use of the data and adding value to the study were taken into consideration. Thus this paper reviews the literature on the relationship between board characteristics and bank performance.

1.1. Board size and performance

Board size is one of the most important and frequently used board dimensions which are used in studies. It may be argued that larger boards may contribute to higher efficiency through additional expertise in exercising, monitoring and advisory functions (Titova, 2016). When boards are larger it can become harder for directors to express their opinions and points of view. A larger board can also create free-riding problems making it more difficult for board members to have a contribution to monitoring (Fernandes et al., 2017). Interestingly there are no consequences regarding the direction of the performance relationship that one would expect as a function of board size. From the agency theory perspective it can be argued that larger boards are more likely to be vigilant in monitoring management but they can also “engender greater focus, participation, and genuine interaction and debate” (Firstenberg & Malkiel, 1994). Empirical evidence on the relationship between board size and performance of financial institutions is mixed. Studies such as Alaryan (2017), Hakimi and others (2016), Gafoor and others (2018) found that larger boards perform better. In contrast to these results a few studies have mixed results (Ghosh & Ansari, 2018; Titova, 2016; Fernandes et al., 2017; Boussaada & Labaronne, 2015) and insignificant (Sarkar & Sarkar, 2018; Saha & Kabra, 2019) and negative relationship (Liang et al., 2013).

H1: There is a positive relationship between board size and bank performance in the listed banks.

1.2. Board independence and performance

Another measure of board dimensions is board independence. This variable is one of the most extensively used variables of board characteristics in the literature. Independence is defined as board members not having any relation-

ship with the firm. The role of independent directors in the corporate board is the focus of most of the corporate governance research. A large body of researchers argues that independent directors are better monitors of the board since they are “independent” in decision-making. Fama and Jensen (1983) argue that outside directors are better monitors of managers as they have an incentive to develop their reputation as experts in decision control. Independent board members are individuals who are not full-time or former employees of the firm, relatives of a firm’s employee, current or old consultants of the firm (Fernandes et al., 2017). It has been argued that a higher proportion of outside directors provides the board with better opportunities to monitor managers and hence contributes to aligning managers’ and shareholders’ interests. Moreover outside directors may have additional insights into issues which the company encounters (Titova, 2016). Cadbury (1992) argues that the board independence will increase the attention of the board. The financial independence of the board enables them to monitor the company more efficiently and is a strong point that helps managers control opportunistic behaviour.

Having a measure of independence on the board is important for the correct and impartial implementation of corporate governance. Board independence has long been seen as the solution to the corporate governance problem in the world. When considering the raising of the company’s reputation, increasing foreign investments, increasing its competitiveness and overcoming crises more easily, board independence was inevitable. Successful board independence is an important tool for attracting foreign investors as well as being necessary to attract investors’ trust, especially in a developing market economy (Saha & Kabra, 2019). The existence of this board in developing countries such as Turkey enables them to create potential value of the economy by increasing the competitiveness in international markets. Board independence of directors is an important way of increasing economic efficiency, growth and ensuring the trust of investors (Haşit & Uçar, 2014).

Independent members are encouraged to promote the interests of shareholders and to effectively monitors the maintenance of their reputational capital and to prevent being sued by the shareholder (Sarkar & Sarkar, 2018). In the spirit of the agency theory boards that have a greater proportion of independent directors are likely to be more effective monitors. As a consequence of their independence from the firm’s management, non-executive members can confront any self-interested actions or opportunistic behaviour by managers, hence agency cost is reduced (Fama & Jensen, 1983). The independent outside director brings to fruition the desired neutrality and minimizes biased behaviours in the board processes. A potential disadvantage of independent members is that directors may lack relevant firm-specific knowledge (Fernandes et al., 2017). On the relationship between independent members on board and performance some studies reported a negative relationship (e.g. Boussada & Labaronne, 2015; Sarkar & Sarkar, 2016), while others reported a positive

relationship (e.g. Gafoor et al., 2018) and yet still some other studies reported no relationship (e.g. Bhagat & Black, 2002).

H2: There is a positive relationship between board independence and bank performance in the listed banks.

1.3. CEO duality and performance

Duality is defined as the appointment of the same person, over the same period, to the dual positions of CEO and chairman of the board. Agency theory discusses that CEO duality hinders the board's ability to monitor management (Gafoor et al., 2018). If the general director and the chairman are the same person there would not be another person to monitor his/her actions and he/she will be very powerful and can maximize his/her interests at the expense of shareholders (Hakimi et al., 2016). The results on the relationship between CEO duality and performance are different. The research reports a positive relationship (Titova, 2016; Hakimi et al., 2016) a negative relationship (Fernandes et al., 2017) and no relationship (Boussaada & Labaronne, 2015; Liang et al., 2013; Gafoor et al., 2018; Sarkar & Sarkar, 2018) between CEO duality and performance.

H3: There is a negative relationship between CEO duality and bank performance in listed banks.

1.4. Foreign members and performance

Foreign members on a board may effect firm value through their advising and their monitoring functions. The foreign director can bring information about the firm's industry or business trends from an international perspective. Foreign participation in a bank's capital appears to be a signal of "good governance". In the presence of a foreign director the bank's board exercises its disciplinary function more efficiently and is distinguished by its independence from the management (Boussaada & Labaronne, 2015). There are also mixed empirical results on the foreign member's effect on a firm's performance. When Alaryan (2017) shows that positive effect on performance; Boussaada and Labaronne (2015) show that no effect.

H4: There is a positive relationship between foreign members and banks' performance in listed banks.

2. Turkey's banking system and corporate governance

The differences between corporate governance in emerging countries and developed countries are worth highlighting. Emerging markets differ from developed markets in several important ways. The distribution and concentration of ownership; the prevalence and economic importance of diversified business

groups involving clusters of firms under common ownership and coordination are the most noticeable differences (Ararat, Black, & Yurtoglu, 2017). For example, in respect of Turkey's corporate governance issues are the opaque control structures, weaknesses in enforcement, weak risk management, and internal audit practices.

In Turkey the financial institutions have grown at an extreme rate over the last 35 years. For example, the formation of the Turkish Stock Exchange in the early 1980s was followed by the commencement of Turkish equity markets in 1986, the liberalization and the opening of the economy to foreign investors in the 1990s and the overhaul of the structure of the Turkish banking system with many reforms after the economic crisis in early 2000s (Inci, 2018, p. 216). During the 1990–2003 period several bank failures occurred due to the structural problems of the Turkish economy and the fragilities of the Turkish banking sector. In the Turkish banking sector as of May 2018, there are 50 banks in total, 32 of them are deposit banks, 13 are development and investment banks and 5 of them are participation banks.

Turkey has been dealing with various corporate government applications since the beginning of the 2000s. The Capital Market Board published a corporate governance code in 2003 and revised it in 2005. A Corporate Governance index was established in 2007 and currently there are 48 companies in the BIST (İstanbul Stock Exchange) corporate governance index. In addition to BIST banking law contains rules on the corporate governance application of banks in parallel to the Capital Market Board of Turkey—principles that were put into force at the end of 2005. In the 2000s autonomous Regulatory and Supervisory Agencies were established, one of which was the Banking Regulation and Supervision Agency (BRSA). On accounting and reporting applications Turkish banks have been required to use the International Financial Reporting Standards since 2006 under the regulation of the Banking Regulation and Supervision Agency (BRSA). The corporate governance principles of the Basel Committee are also taken into account by banks.

3. Empirical analysis

3.1. Methodology

A balanced data panel of large and trading Turkey banks listed on the Borsa Istanbul was used. After eliminating banks with insufficient data on board characteristics a final sample of 133 years' observations from nineteen of the Turkish banks for the period 2012–2018 was obtained. This period was selected as it is considered a time of macroeconomic stability for Turkey. The financial data and board characteristics are obtained from annual reports available on the banks' websites. The financial data shows highly temporal dynamics' ef-

fects. Moreover the relevant data have both time and section dimensions. It is known that if the data have these characteristics and it is analyzed using panel data techniques it will give fruitful results. There are two different estimators for the dynamic panel models:

1) the difference panel estimator which eliminates a potential source of omitted variable bias in the estimation; and

2) the system panel model which combines the regression difference with the regression in levels to reduce the potential biases and imprecision associated with the difference estimator (Arellano & Bover, 1995).

Linear GMM estimators have one- and two-step variants. The two-step estimator that the authors use is generally more efficient than the one-step estimator, especially for the system GMM. The dynamic panel technique and the GMM are particularly well-suited to handling short macro panels with endogenous variables and are also helpful in amending the bias induced by omitted variables in cross-sectional estimates and the discrepancy caused by endogeneity (Bouheni, 2014).

In this regard an instrumental variable approach was applied to address the endogeneity problem; in particular, the system-GMM estimator proposed by Arellano and Bover (1995) and Blundell and Bond (1998). This estimator also addresses the presence of unobserved heterogeneity since it transforms the variables into first differences (Ferrero, María, & María, 2016) and the primary purpose of using a dynamic panel is that the lagged values of the dependent variables of the model are also found among the explanatory variables of the model.

The predictions made with the fixed and random effects models and the estimators reached are inconsistent as the lagged dependent variable is correlated with the error term in case of the use of lagged dependent variables in the fixed effect and random effect models. In the literature this situation has also been observed in the studies on this subject (Béjaoui & Bouzgarrou, 2014). A GMM estimator system which addresses these problems and dimensions was used.

The relationship between board characteristics and bank performance outcomes was examined by using the following empirical specification namely:

$$\text{bank outcomes}_{(it)} = \alpha + \beta' * \text{board characteristics}_{(it)} + \text{ownership dummy}_{(it)} + \delta' * \text{control variable}_{(it)} + \varepsilon_{(it)}$$

where i represents banks ($i = 1$ to 19) and t represents years ($t =$ from 2012 to 2018).

The empirical research analyzed the relationship between different corporate governance dimensions and bank performance using distinct measures of performance, for example stock return, Tobin's Q, ROA, ROE, NPL, cost-efficiently. Profitability and asset quality are widely used measures of bank performance as they provide an aggregative view of the borrowing and lending activities of a bank (Sarkar & Sarkar, 2018; Liang et al., 2013).

The collapse of one bank can start a financial system-wide chain reaction and may effect other banks. So while it is important to investigate the link between traditional performance measures and board characteristics, it is also important to investigate links between loan quality measures and board characteristics. A dummy variable was added to to the analysis investigate whether the effect of ownership structure on bank performance. Apart from board characteristics and ownership status other factors can also influence bank outcomes. Bank asset is thought of as a control variable. Bank asset is measured by the logarithm of total assets to proxy for the bank's market power and other lending characteristics. This variable is used generally in literature and in these studies the effect of this variable on bank performance is a mix (Sarkar & Sarkar, 2018 and Ghosh & Ansari, 2018).

Table 1 gives the list and description of the variables that were used in the empirical analysis.

Table 1. Variable names and description

Variables	Acronym	Description
Non-performing loans	NPL	non-performing loans/total loans (%)
Rate of return on assets	ROA	PBDIT to total assets (%)
Board size	BS	the natural logarithm of the number of directors in the bank's board
CEO duality	DUAL	a dummy variable equal to 1 if the CEO is also the Chairman, 0 otherwise
Independent directors	IND	the percentage of total directors who are independent (%)
Foreign directors	FOR	the percentage of foreign directors to total directors on the board (%)
Log of total assets	SIZE	the natural logarithm of total assets
Ownership	STATE	a dummy variable equal to 1 if the bank ownership states, 0 otherwise

3.2. Results and discussion

In this part of the study the descriptive statistical information is given priority. Table 2 provides descriptive statistics for the variables included in the models.

Table 3 shows the correlation matrix for the variables used in the models and robustness control.

It is not seen a high correlation between variables. It is given at below table o regression results.

The Sargan *J*-Statistics outlined indicate that the null hypothesis at the moment conditions are correctly specified cannot be rejected at all significance

Table 2. Descriptive statistics

	Mean	Maximum	Minimum	Std. Dev.
NPL	0.041474	0.090000	0.012000	0.076523
ROA	0.027887	0.080000	-0.015000	0.097693
BS	0.982518	1.146128	0.698970	0.099937
DUAL	0.338346	1.000000	0.000000	0.466587
FOR	0.244887	0.830000	0.000000	0.244363
IND	0.122556	0.500000	0.000000	0.156009
SIZE	7.446466	8.730000	3.580000	0.644157
STATE	0.165414	1.000000	0.000000	0.366021

Table 3. Correlation matrix

Correlation								
Proba- bility	NPL	ROA	BS	DUAL	FOR	IND	SIZE	STATE
NPL	1.000000							
	-							
ROA	-0.029067	1.000000						
	0.7398	-						
BS	-0.160407	-0.116221	1.000000					
	0.0651	0.1828	-					
DUAL	0.152103	0.023034	0.186184	1.000000				
	0.0805	0.7924	0.0319	-				
FOR	-0.040841	0.018712	0.246888	-0.114229	1.000000			
	0.6407	0.8307	0.0042	0.1905	-			
IND	-0.074126	0.049701	0.250039	0.247940	-0.066246	1.000000		
	0.3965	0.5700	0.0037	0.0040	0.4487	-		
SIZE	-0.184432	0.032632	0.133260	-0.055245	-0.081327	0.339051	1.000000	
	0.0336	0.7092	0.1262	0.5277	0.3521	0.0001	-	
STATE	-0.071782	-0.055207	-0.112750	0.023796	-0.388818	0.195792	0.338916	1.000000
	0.4116	0.5279	0.1963	0.7857	0.0000	0.0239	0.0001	-

levels for both the dynamic difference and system GMM models. Over and above this the Arellano–Bond test statistics indicate that there is no autocorrelation in the errors for both dynamic GMM specifications, suggesting that

Table 4. Dynamic panel GMM estimation results

Dependent variables	NPL				ROA			
	Dif. GMM		Sys. GMM		Dif. GMM		Sys. GMM	
	coef	prob	coef	prob	coef	prob	coef	prob
NPL(-1)	-0.016997	0.1999	-0.0096488*	0.035				
ROA(-1)			-	-	0.176965**	0.0000	0.2441579**	0.0006
BS	0.037730**	0.0000	0.000816	0.548	-0.197338**	0.0000	-0.0253496	0.060
DUAL	-0.000416	0.6884	-0.0256874	0.578	0.001138	0.7100	-0.0487023	0.740
FOR	0.020025**	0.0001	0.0144785	0.381	-0.028415**	0.0000	-0.1148304	0.186
IND	-0.018172**	0.0071	-0.0165042**	0.007	0.188100**	0.0000	0.0237221	0.886
SIZE	0.013494**	0.0000	0.0114761**	0.008	-0.072225**	0.0000	-0.1006421*	0.030
STATE	0.152729	0.5309	0.0021127	0.976	-0.003112	0.9336	-0.7654393	0.057
Section number	19	19	19	19	19	19	19	19
Obs. number	133	133	133	133	133	133	133	133
Sargan Test	10.92252	10.92252	10.25226	10.25226	11.77907	11.77907	11.44972	11.44972
p-Value	0.535570	0.535570	0.8927	0.8927	0.463582	0.463582	0.8323	0.8323
AR(2)	0.9913	0.9913	0.8795	0.8795	0.2933	0.2933	0.2896	0.2896

(*) and (**) indicate significance at 5% and 1%, respectively.

Source: Own calculations using STATA 15.

the instruments are orthogonal to the contemporaneous errors. The results indicate there is a significant relationship between the lagged all dependent variables except for NPL on difference GMM. As it is expected estimation results depicted that the previous year's ROA of the companies positively and significantly affected the current year's ROA as well. In the same way the estimation results showed that the previous year had a negative and significant impression on the NPL of the banks.

The outcomes analysis demonstrated that there is a negative and statistically significant relationship between the number of directors in the bank's board and ROA ratios and also that hypothesis (H1) is not supported. This provides empiric support to the suggestion that bigger boards are the less bank performance for Turkey's banks. This shows that having more board directors does not necessarily mean effective growth of the bank's profitability. The results indicate that there is a positive and statistically significant relationship between the number of directors on the bank's board and NPL ratios. Therefore the increase in the number of managers on the board of directors effects the NPL negatively. The expectation was that NPL would be low. A higher NPL ratio will result in a riskier lending and potentially decrease the loan quality and financial system instability so there should be an indicator to monitor and design a strategic policy to reduce NPL. This result provides limited empirical support to the suggestion that smaller boards are related to better bank performance. This result coincides with the view that bigger boards may have caused problems that weakened the board's control over the situation.

According to the overall results of the panel data the governance dimensions in terms of CEO is not found to be statistically significant in explaining the variations on the ROA and NP and this supports the H3 hypothesis, even if it is insignificant. It means that whether banks have one person in the position of CEO and chairman at the same time this will not influence the decision and performance of the bank to realise a high or low level of ROA and NPL. The results show that duality is correlated negatively with NPL but is an insignificant relationship. Significant and negative collaboration is found between the percentages of foreign members on the board and ROA. Additionally a significant and positive collaboration is found between the percentage of foreign members on the board and NPL. This result was unexpected and does not support the H4 hypothesis. According to the results foreign members worsen bank performance and lead to a heightened agency costs in both respects. This specifies that banks that have more foreign members on the board are not more productive in growing the bank's profitability and lowering the bank's NPL. The reason could be that foreign members on the board are appointed just to fulfill Turkish governance advice and they may lack knowledge about the bank and therefore add little or no value to the bank's financial performance.

The presence of full directors who are independent has a significant and negative effect on NPL. There is a positive and statistically significant relation-

ship between the degree of board independence and ROA ratios according to the difference in GMM. The regression coefficients for system GMM are also positive but insignificant. As is highlighted in some studies (such as Ararat et al., 2017, Bhagat & Black, 2002) corporate governance codes commonly recommend a high level of board independence. This result was as expected and the results support the H2 hypothesis. The outcomes for Turkish banks uncover that with the exception of CEO duality all governance dimensions have a significant impression on bank performance and bank NPL. The control variable of ownership is also not found significant in explaining the variations in bank profitability and bank NPL. However bank size is situated negatively significant with the relationship to bank profitability and positive and significant with bank NPL. For this reason banks with low bank size can experience increased ROA and may provide advantages in terms of bank NPL.

Conclusions

Corporate governance can influence all aspects of the firm in terms of performance management, earnings management and financial risk. This paper presents an exhaustive and econometrically sound analysis of the nexus between corporate governance dimensions and financial structure in terms of bank profitability and NPL. The findings support the concept that board independence, board size and foreign board members are key factors in determining the corporate governance effect and play significant roles in enhancing bank financial structure in Turkey. These results are also important for similar developing countries trying to increase their corporate development because it has been shown that the development of the bank's corporate structure in these countries may effect the performance of the banking sector.

A country's economic specifications and lawful regime effect the ways banks apply the application of corporate governance (Aras, 2015). In Turkey, as a result of the recent regulations on corporate governance principles, the degree of board independence has improved over the last two decades. The Capital Markets Board (CMB) Principles declare that a majority of the board should be non-executive and at least one-third should be independent and in any case, the number of independent members shall not be less than two. With more independent members boards are expected to be more independent and to have the encouragings firms to be better adopt. In this way an improvement in the number of independent members relative to executive directors is one of the important mechanisms towards better corporate governance.

High levels of NPL in the banking sector require the government of the country to make inefficient use of its revenue to bail out the banks and financial institutions that have extended defaulted loans. The high amount of NPL also

marginalizes the profitability of banks and other non-bank financial institutions, crippling the entire financial sector in the economy. A combination of all these inefficiencies results in multidimensional market failures which, from the broader perspective of economic development, is not desirable for any country.

The evidence and outcomes of this paper can provide Turkish governing bodies with a reference for the reinforcement of corporate governance policies. One of these, board independence, improves bank profitability (in terms of both ROA and NPL) in Turkish banks besides which it is negatively correlated with financial risk in Turkey. According to the results the lower number of foreign members the better bank performance. It means that Turkish banking has not benefitted from foreign members. Policymakers' should not ignore this result related to foreign board members and should limit their numbers which will improve their effect on bank performance.

The regulatory institution's interest in corporate governance is highly significant. As with board size, independent board members and foreign members have significant policy implications for both the regulators and the managers of banks. These bodies should especially focus on the development of the true independence of board members and the monitoring power of supervisory members to increase good corporate governance.

According to the results board size, the number of independent members on the board and the number of its foreign members in Turkish banks have significant influences on NPL. The results also suggest the need for rationalizing CEO duality since it is not found to exert an effect on bank profitability and NPL. This evidence also can help as a valuable reference for investing in the public and contacts during decision making. To improve banks' performance and decrease NPL the governance regulators in Turkey have to publish a code of practice for members to guide them in performing their duties. Regulatory institutions should consider the legal conditions of the country before importing the requirements mandatory in other countries but it is a reality that implementing better governance can turn out to be a costly process and that overall better corporate governance also leads to better risk management.

As with all research this study too has limitations. One potential limitation is the generality of the results. The study covers only nineteen deposit banks in the Turkish banking system so it is possible that the findings will not hold in different regulatory markets. Furthermore the sample is from banks whose data can be accessed in the Turkish banking system and therefore the results may hold only for deposit banks, not for other banks, for example Islamic banking.

Other governance dimensions can influence the financial performance of the banks such as liquidity, passive structure, and transparency. Further research may aid the understanding of how banks could optimize their governance structure to suit the needs, expectations and demands of investors. Last of all, the pressure of today's global rivalry stresses the significance of adopting internationally recognized best practices of corporate governance to let all the

players make the most of market opportunities. In future it would be possible to carry out different studies by reducing board characteristics to a single variable, using different analyzes, using different samples such as Islamic banks or using different performance criteria. In addition the effectiveness of the board can be determined by comparing board independence in terms of developing and developed countries.

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