



Board Governance and Bank Performance: Case of Tunisian Banks

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Abstract

This research work endeavors to explore the influence of board governance on bank performance. The sample consists of 11 Tunisian commercial banks listed on the Tunis Stock Exchange (TSE) during the 2006-2020 period. This choice is explained by the importance of the role played by banks in the Tunisian economy. The authors utilize the random effects model, and the two-step generalized method of moments (GMM) estimator for the purpose of investigating the effect of a range of board characteristics on bank performance. The results evince that the board size negatively affects bank profitability. Nonetheless, the female board members have a positive impact. Findings also give proof that the duality has no effect on bank performance. As a matter of fact, this paper contributes to the literature since it provides a better understanding of the role of board characteristics in determining the performance of the Tunisian banking sector over a long period.

Keywords: bank performance, board of directors, governance, panel model, Tunisian banks.

JEL Classification: G21, G34.

Introduction

Governance can be seen as a set of internal and external mechanisms that are used to resolve conflicts of interest between managers on the one hand, and the shareholders and stakeholders of the firm, on the other hand. The internal and external mechanisms of governance are involved to ensure the best possible cooperation between managers, shareholders and other stakeholders including party and government regulations. They reduce the asymmetry of information, promote best practices in transparency and protect shareholders against excessive power of the rulers. The financial institutions, including banks, are involved in corporate governance. The banks are characterized by distinct agency problems

and accentuated compared to other non-regulated firms (Becht et al., 2011). The special nature and the particular characteristics of banks make governance of them different from other firms (Hopt, 2013). Actually, due to the importance of the health of the financial sector in general (Macey and O'Hara, 2003), we note that banking institutions are more regulated than other firms. In fact, bank failures could not only interrupt the economic development of countries but also have costly consequences (Flannery, 1998). Thus, this governance issue is all the more important for banks because the size of their role in the economy, as well as the specificities faced by this sector, make their governance more complex than that of other companies. Banks are major players in maintaining the stability of the economy because their role is to provide the funds necessary for its proper functioning. Within this framework, the banking system in Tunisia plays a major role in the growth of the economy. It is considered a measure of the health of the economy in its entirety.

Hence, the objective of this research is to analyze the impact of internal governance mechanisms on Tunisian banks' performance both theoretically and empirically. Indeed, the central problem of this study is: What is the impact of internal governance namely the board of directors on bank performance? Therefore, it was based on a sample of 11 Tunisian banks that are listed on the TSE during an analysis period of 15 years from 2006 until year 2020.

The rest of the paper proceeds as follows. Section 2 summarizes the literature review, theoretical framework, and testable hypotheses. Section 3 describes the methods and data. Section 4 indicates the results and discusses our findings. Section 5 presents the robustness checks. Eventually, section 6 concludes this paper, and provides suggestions for future work.

Literature Review, Theoretical Framework, and Testable Hypotheses

Board Size

The board size is the first board characteristic used in this study. Findings relating to the impact of board size on banking performance have proved to be mixed. In a first perspective, we take the standard argument of Jensen (1993) that the effectiveness of management control diminishes as the size of the board increases. This, according to the agency theory, is due to the high costs of agencies, the difficulties in coordination and communication, and the long time taken by decision-making. For instance, most researchers in the banking field show that boards with fewer directors tend to fulfill their supervisory function more effectively than boards with greater ones. Indeed, the challenges of coordinating

supervisory efforts are pronounced in larger institutions, often leading managers to prioritize their individual interests (Yermack, 1996). Furthermore, Staikouras et al. (2007) and Agoraki et al. (2010) show a negative effect of the board size on the performance of European banks. What is more, Pathan and Faff (2013) and Mamatzakis and Bermpei (2015) find the same results for US investment banks. Added to that, with a sample of banks selected from the GCC region, Naushad et al. (2015) evince that smaller boards were more able to monitor the management carefully. Likewise, using a multivariate regression analysis, Bebeji et al. (2015) reveal that the board size had a negative effect on the performance of banks in Nigeria.

Based on the resource dependence theory, another perspective posits that a larger board will possess greater resources, knowledge, and more experience (Pfeffer and Salancik, 2015). Consistent with these arguments, Adams and Mehran (2012) find that the best performing banks tend to have bigger boards. This finding makes it obvious that the size of the bank board is related to the directors' ability to oversee and advise management. Even more recently, Djebali and Zaghdoudi (2020) have shown that board size has a positive effect on the performance of Tunisian banks. Moreover, in their study, Bhatia and Gulati (2021) demonstrate a positive correlation between board size and bank performance. They drew on a database comprising 56 studies on corporate governance in the banking sector spanning from 2007 to 2019. Nonetheless, some other authors found no relation between board size and bank performance (Dong et al., 2017; Kramaric and Pervan, 2016). Thus, we expect that:

H1: board size has a positive effect on bank performance.

Board Gender Diversity

Several empirical studies have examined the effect of board gender diversity on the performance of banks.

The theory of resource dependence posits that diversity can enhance the information flow from the board to managers due to the distinct perspectives held by diverse directors. Gender differences are particularly apt to generate unique information sets accessible to management, thereby facilitating improved decision-making (Carter et al., 2010). Based on the social psychology theory, the opposite is true. In other words, more gender diversity in the boardroom brings more diversity of opinion and more divergent forms of criticism, which makes the decision-making process slower, less efficient, and subject to a higher degree of disagreement (Campbell and Mínguez-Vera, 2008). Furthermore, the findings of

Athar et al. (2023) and Kramaric and Pervan (2016) prove that the gender diversity indicators have an adverse impact on the Pakistani and Croatian banks' performance, respectively.

Researchers approaching agency theory have discovered that boards with greater gender diversity exhibit enhanced oversight over management and its policies (Cardillo et al., 2021; Francoeur et al., 2008; García-Meca et al., 2015). Moreover, female board members are more prone to be well prepared to hold meetings (Pathan and Faff, 2013; Adams and Ferreira, 2009). Their findings provide evidence that female directors do not serve as replacements for traditional corporate directors possessing similar capabilities. Instead, qualified female directors exhibit additional and distinct characteristics that contribute further value to banks. Similarly, Mateus and Belhaj (2016) and Dong et al. (2017) find a positive effect of gender diversity on performance within European and Chinese banks, respectively.

Although some authors did not find an impact of the gender board diversity on bank performance (Mamatzakakis and Bermpei, 2015; Manini and Abdillahi, 2015), we expect to find a positive relationship between the board gender diversity and bank performance:

H2: board gender diversity has a positive effect on bank performance.

Duality

Another important feature of the board is the duality of the chief executive officer (CEO). Empirical studies in the banking sector showed mixed results. According to agency theory, the duality of CEOs hinders the effectiveness of the board of directors in overseeing operations. Kaymak and Bektas (2008) and Agoraki et al. (2010) report a negative impact of CEO-Duality on the bank performance in Turkey and Europe, respectively. Based on the entrenchment theory, the dual management structure encourages the CEO to take root, diminishing the efficacy of oversight (Finkelstein and D'Aveni, 1994; Florackis, 2008). This is because when there's duality, it can heighten agency conflicts. This happens because the board's oversight of the CEO diminishes, giving the CEO more influence over board decisions and the opportunity to prioritize their own interests. As such, combining the roles of CEO and Chairman could be a sub-optimal choice for banks seeking good corporate governance. Thus, the top person of a bank and that of the board of directors should be separated so that each one can control the other. In fact, the existence of double CEO/Chairman management is linked to reduced profitability in Chinese banks (Dong et al., 2017).

Against the agency theory, the stewardship theory favors the combination of CEO and chairperson roles in the boardroom, aiming to establish a central leadership figure for management and governance (Donaldson and Davis, 1991). Some studies endorse this theory, suggesting that CEOs who concurrently hold the position of board chair effectively represent the board's interests. Consequently, this combination can improve decision-making and can enhance bank performance (Bhatia and Gulati, 2021; Mamatzakis and Bermpei, 2015). Some researchers argue that the separation of the roles of chairman and chief executive can create an information deficit between the Chairman and the CEO or even a decision-making problem if the two most powerful figures do not agree on strategies. This assumption is based on the concept that a CEO who also serves as chairman of the board would tend to make more cautious decisions to safeguard their positions. In their empirical analysis on a sample which included deposit banks listed on the TSE, Hajer and Anis (2016) show that Tunisian banks reached a higher extent of performance because one person was at the same time the CEO and chairman of the board. This was explained by the fact that holding the position of both chairman of the board and the general manager helped to better understand the internal and external environment of the bank. Likewise, Naushad and Malik (2015) evince that the dual role of CEO improved the performance of GCC banks.

Even more interestingly, a number of researchers revealed that there is negligible improvement in bank performance when the roles of CEO and chairman are segregated (Gafoor et al., 2018 for Indian banks; Harkin et al., 2020 for UK banks, Fogelberg and Griffith, 2000 for US banks, among others). Hence, we expect that:

H3: Duality has a negative effect on bank performance.

Bank Size

Empirical proof is mixed regarding the impact of bank size on performance. Based on the theory of economies of scale, large banks should be more profitable (Goddard et al., 2004). Indeed, these banks are engaged in commercial operations across diverse product portfolios and international markets, have enhanced risk management teams, and hold more efficient information systems. Some studies have highlighted economies of scale (Mirzaei et al., 2013; García-Herrero et al., 2009; Dietrich and Wanzenried, 2011). More recently, Mamatzakis and Bermpei (2015) have found a positive impact of bank size on the bank performance as estimated by ROA, ROE and NIM. Additionally, Shahin et al. (2022) show that size positively affects the performance of Egyptian banks.

The figure below outlines the framework for testing the hypotheses.

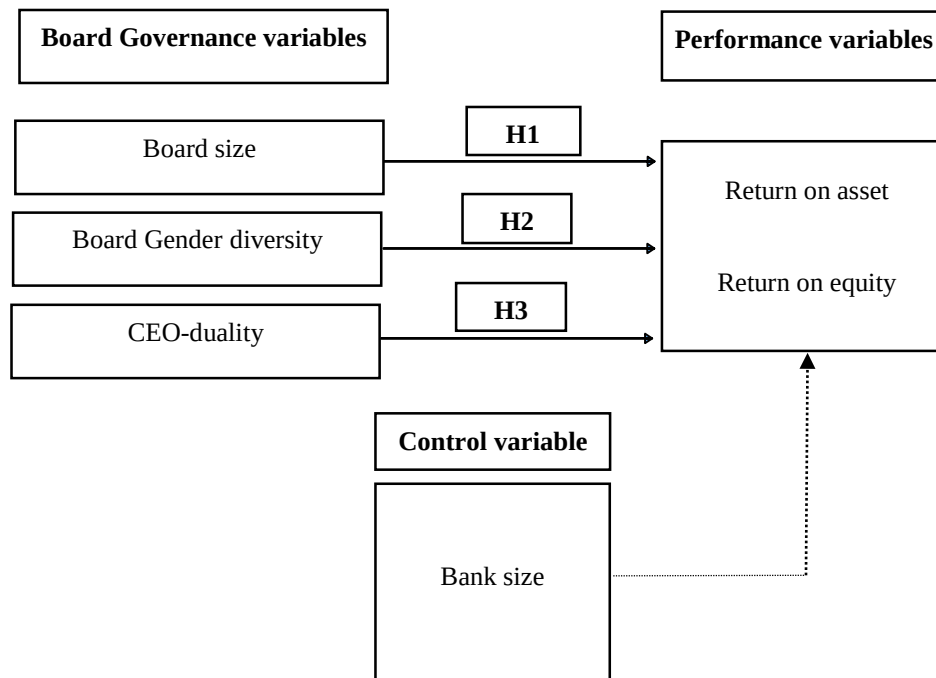


Figure 1. Conceptual Model

Source: Research findings.

Moreover, Borio et al. (2017) find a positive impact of size on banking performance measured by NIM and ROA for advanced economies.

Conversely, bank size could be negatively related to bank performance if economies of scope and scale are not realized (Sahul-Hamid, 2017; Dietrich and Wanzenried, 2011). Djatche (2019) suggests that bank size has a negative effect on bank soundness, highlighting the potential negative effect of an implicit "too big to fail" policy on the risk-taking behavior of large banks. This result is consistent with some recent studies demonstrating the negative effect of bank size on the performance of British banks (i.e. O'Connell, 2023).

Methodology

Sample

Our study focuses on a sample of eleven deposit banks listed on the Tunisian stock exchange (see Table 1). The period considered for this study runs from 2006 to 2020. Financial data have been extracted from the banks' financial statements. Governance data have been collected from their annual reports obtained from the financial market council.

Table 1. The List of Banks

Bank	Acronym
Amen Bank	AB
Arab Tunisian Bank	ATB
Arab International Bank of Tunisia	BIAT
National Agricultural Bank	BNA
Tunisian Bank	BT
Tunisian Banking Company	STB
International Banking Union	UIB
Housing Bank	BH
Banking Union for Trade and Industry	UBCI
Bank of Tunisia and Emirates	BTE
Attijari Bank.	Attijari

Source: Research findings.

We have chosen banks for which information is available over the entire period and the most active banks which are involved in the financing of the economy. On this account, we have avoided taking banks that have a small size in the Tunisian banking market. In fact, our sample of banks accounts for about 90% of the Tunisian banking market. These banks are mainly distinguished by their capital structure. The majority of the capital of BNA, BH, and STB is owned by the Tunisian state, while that of BIAT, BT and Amen Bank is owned by Tunisian private stockholders. Yet, a large number of banks are affiliated with foreign entities, such as ATB (subsidiary of AB Plc), UIB, UBCI, BTE and Attijari Bank.

Measurement Model

In this paper, we look into the influence of board characteristics on the performance of Tunisian banks. To carry out this study, we applied panel data with a random effects model using Stata 13 software.

As shown in the models specified in Equations (1) and (2), we regress the bank performance measures (ROA and ROE) on the board characteristics and the bank size, as follows:

$$ROA = C + \alpha_1 BDS_{i,t} + \alpha_2 BDGD_{i,t} + \alpha_3 DUAL_{i,t} + \beta BKS_{i,t} + \varepsilon_{i,t} \quad (1)$$

$$ROE = C + \alpha_1 BDS_{i,t} + \alpha_2 BDGD_{i,t} + \alpha_3 DUAL_{i,t} + \beta BKS_{i,t} + \varepsilon_{i,t} \quad (2)$$

In the equations above, subscript *i* denotes the *i*th bank (*i* = 1... 11), subscript *t* denotes *t*th year (*t* = 2006... 2020). We used the ROA (return on assets) and ROE (return on equity) as indicator of bank performance.

The independent variables representing the variables of board characteristics in our study are as follows: the size of the board of directors (BDS), the number of female directors on the board (BDGD) and the duality which means the

combination of the functions of CEO and chairman of the board (DUAL).

According to the previous literature, we also take a control variable that may affect a bank's profitability. BKS is the natural logarithm of the bank's total assets, which controls for size (Chenini and Jarboui, 2018; Liang et al., 2013). C (constant) represents the coefficient of the model and $\alpha_1 \dots \alpha_3$ and β are its parameters.

As stated in the literature review section, the instrument for assessing these sets of variables has been created and independently evaluated in previous relevant research. The definitions of variables are given in Table 2.

Table 2. Variable Definitions

Notation	Variable name	Description
Performance measures		
ROA	Return on assets	Net income over total assets, all multiplied by 100
ROE	Return on equity	Net income over total equity, all multiplied by 100
Board characteristics		
BDS	Board size	Total number of directors appointed on board
BDGD	Board gender diversity	Number of female directors / board size
DUAL	CEO duality	Chairperson of a board and CEO are the same individual. CEO duality is measured using a dummy variable where "1" denotes whether the CEO also serves as a chairperson and "0" Otherwise
Bank characteristics		
BKS	Bank size	Natural log of total assets

Source: Research findings.

Results and Discussion

Descriptive Statistics

Table 3 explains the descriptive results of all banks of the model constructed concerning the regression of the board of directors' variables and control variable on the performance of Tunisian commercial banks.

Table 3. Descriptive Statistics

Variables	Mean.	Min.	Max.	Std.Dev.
ROA	0.009	-0.137	0.097	0.02
ROE	0.094	-1.765	0.346	0.186
BDS	10.163	6	15	1.913
BDGD	0.095	0	0.3333	0.098
DUAL	0.206	0	1	0.405
BKS	15.298	13.17	16.7	0.771

Source: Research findings.

Note: ROA: return on assets; ROE: return on equity; BDS: board size; BDGD: proportion of woman in the board of directors; DUAL: combination of the functions of CEO and chairman of the board; BKS: log assets represent bank size.

Descriptive analysis is a step that allows us to describe the characteristics of our sample. Hence, we calculate the mean, minimum, maximum and standard deviation of each variable. As presented in table(3), between the years 2006-2020, the results obtained show an average ROA of 0.009 for the whole sample, with a maximum and a minimum of 0.097 and -0.137, respectively and a standard deviation of 0.02. The ROE has a mean of 0.094, a maximum and minimum of 0.346 and -1.765, respectively and a standard deviation of 0.186. Thus, statistics by Liang et al. (2013), referring to 50 major Chinese banks, during a period from 2003 to 2010, showed an average rate of return of 1%. Besides, Pathan and Faff (2013), after studying a sample of large US banks over the 1997-2011 period, found an average ROA and ROE of around 4.65% and 9.92%, respectively. In contrast, Adams and Mahran (2012) reported an average ROA of 1%.

Regarding governance variables, the average board of directors of Tunisian banks in our sample consists of 10 members, which resembles the results given by Chenini and Jarboui (2018) and Dong et al. (2017), who found the average size of the board of Tunisian commercial banks and Chinese banks were equal to 11 and 12, respectively. However, Merendino and Melville (2019) found that the average size of the board in their sample of Italian listed companies ranges from 5 to 15 directors was 9.02 during 2003-2015. This result confirms the conclusion drawn by Booth et al. (2002) and Adams and Mehran (2012): "the board of directors is larger in banks than in other firms". Nonetheless, we can notice that the average board size of Tunisian banks is relatively smaller than that of European banks which generally have an average number of 17 directors (Staikouras et al., 2007) and that of American banks with 16 members (according to Booth et al., 2002). This

divergence in the results is due to the sample selected and the period chosen. Conversely, we note that the average size of the board of directors of Tunisian banks is higher than that of Lebanese banks (6 members according to Chahine and Saifeddine, 2009) and Turkish banks (8 members according to Kaymak and Bektas, 2008).

In terms of gender diversity, the average proportion of women directors is very low (9.5%). This percentage is almost similar to the findings of Liang et al. (2013) (11% of directors are female) and Garcia et al. (2015) (10% of directors are female).

Then, we note that the duality of management was adopted by 20.6% of the banks studied. This is a low percentage, as nearly 80% present a separation between the two functions of CEO and the Chairman of the Board during the study period. This result differs from those reported by Pathan and Skully (2010) which showed 58% of combination both CEO and board chair titles.

Eventually, the statistics of bank size show an average of 15.3 million Tunisian dinars implying that the sampled banks had a different volume of total assets over the sample period. This result proves to be smaller than the international average size. In fact, US banks have an average size of 23.660 million dollars, as reported by Pathan (2009). In addition, according to Staikouras et al. (2007), the average size of European banks is 146.2 million euros.

Correlation

We first apply Pearson's correlation matrix to examine bivariate multicollinearity between the variables under examination. The correlation matrix illustrates the relationships among all variables utilized in our models. This is crucial because the existence of multicollinearity among the independent variables can obscure the individual impact of each independent variable on explaining changes in the dependent variable's value. As Kennedy (2008) points out, multicollinearity arises when the correlation coefficient between two independent variables exceeds 80%. Then, we test the multivariate multicollinearity of the variables using the variance inflation factor (VIF). The limit drawn by Fox (1991) is 4 or 5. According to Kennedy (2008), this limit is tolerated up to 10.

Depending on the chosen VIF limit, a variable's tolerance may have a lower limit of 0.1, 0.2 or 0.25.

The results of multicollinearity are presented in the table below.

Table 4. Correlation Matrix

Variables	(1)	(2)	(3)	(4)	(5)	(6)	VIF	1/VIF
(1) ROA	1.000						-	-
								-
(2) ROE	0.517*	1.000					-	-
	(0.000)							
(3) BDS	-0.367*	-0.324*	1.000				1.08	0.924
	(0.000)	(0.000)						
(4) BDGD	0.231*	0.361*	-0.161*	1.000			1.26	0.795
	(0.003)	(0.000)	(0.039)					
(5) DUAL	0.044	-0.082	-0.052	-0.257*	1.000		1.08	0.922
	(0.571)	(0.296)	(0.511)	(0.001)				
(6) BKS	0.15	0.24*	0.138	0.32*	-0.057	1.000	1.16	0.861
	(0.05)	(0.002)	(0.076)	(0.000)	(0.47)			
							MEAN VIF	
							1.15	

Source: Research findings.

Note: *indicates the significance at 5% level.

On the one hand, the correlation matrix reveals that our performance indicators are significantly correlated with bank size and most of our variables relating to board characteristics (except for duality). This result, consistent with much previous work suggesting that these factors are relevant determinants of performance, justifies their inclusion as covariates in our estimates.

On the other hand, the correlation coefficients between the independent variables do not exceed 0.8. Thus, the problem of bivariate multicollinearity is completely absent. Similarly, to assess the potential presence of multicollinearity, variance inflation factor (VIF) tests were conducted. The results indicated no significant issue of multicollinearity in most variables, as all condition indices were below 10.

Regression Results

In our study, we examine the impact of board characteristics on bank performance using a bank-year unit of analysis. Therefore, we apply Generalized Least Squares (GLS) random-effects models to test the hypotheses. Prior to estimating the equations, the researcher conducts a Hausman test to determine the most suitable model (fixed or random effects model) to employ. Table 5 illustrates the Hausman test for both models, ROA and ROE, and shows the results of regression of performance on three board governance factors.

The findings of the Hausman test evince that the p-value is not significant (the p-value is higher than the 5% significance level). So, the random-effects panel model is the most appropriate.

We explain the results of the random effects model in the following table.

Table 5. Empirical Results of Random-Effects

Models	Model 1	Model 2
Variables	ROA	ROE
BDS	-0.0038 (0.000) ***	-0.034 (0.000) ***
BDGD	0.034 (0.054) *	0.528 (0.0001) ***
DUAL	0.0028 (0.476)	0.0005 (0.988)
BKS	0.0042 (0.072) *	0.053 (0.015) **
Constant	-0.02 (0.564)	-0.24 (0.47)
R² Between	48.41%	26.49%
Hausman Test	4.49	7.69
P-value of Hausman test	0.3435	0.1038
Number of observations	165	165

Source: Research findings.

Note: The table reports the results of the panel data analysis with regard to random effect regression on ROA and ROE as dependent variables and board characteristics as independent variables. Numbers in parentheses are p-values. This table reports results of Hausman Test for model specification.

***, **, and * indicate confidence at the 99%, 95%, and 90% levels, respectively.

Based on Table 5, with respect to board size, the coefficient of BDS is negative and significant at the level of 1% for the two measures of performance. So, our first hypothesis is rejected. Our analysis supports the assertion of the agency theory namely that a smaller board can be more effective due to easier communication, better coordination, faster decisions, and a reduction in agency costs. Our results support a number of empirical studies establishing a negative relationship between board size and bank performance in developing countries (e.g., Manini and Abdillahi, 2015 for Kenyan banks; Shungu et al., 2014 with regard to Zimbabwean banks and Mnasri, 2015 in the case of Tunisian banks).

As for female directors, our findings offer support for our second hypothesis

in which gender diversity positively affects Tunisian banks' performance measured by ROA and ROE. Those results reveal that female members can have effective managerial skills and decision-making abilities to enhance banks performance. Our analysis contradicts social psychological theory because there could not be offsetting effects of having women in the boardroom, while it confirms the perspectives of human capital theory and resource dependence theory. Our results are in line with those of Bhatia and Gulati (2021). Our findings are also consistent with the idea proposed by agency theory that the presence of more women on boards reduces principal-agent problems in the banking sector. This is due to the fact that female members can bring a fresh and distinctive point of view and are able to act as both effective controllers and advisors (Carter et al., 2010; Bhatia and Gulati, 2020).

The regression results of the CEO duality do not have an impact on either ROA or ROE. Hence, the fact that the CEO also acts as chairman of the board is not relevant to the bank performance. Indeed, the non-significant coefficients may be due to the equality between the cost associated with banking non-duality and its benefits. In fact, the separation involves potential losses, as well as potential earnings. The losses are proportional to the earnings for our banks. Thus, banks where the chairman of the board and the CEO play separate roles do not outperform banks with double roles. Our results confirm many studies in which banks are indifferent to the existence or not of duality within banks (Fogelberg and Griffith, 2000; Gafoor et al., 2018; Harkin et al., 2020).

Following the example of studies on the banking sector, we use the bank's total assets as an indicator of its size in order to take into account the economies or diseconomies of scale associated with size. We find that the size of the bank has a positive impact on both measures of bank performance. Based on our results, Tunisian banks will certainly be more efficient in their use of resources for certain products, leading to a reduction in the cost of operations and improving bank profitability. Therefore, the bigger the bank, the better its performance. This outcome might be attributed to the possibility that larger banks could provide diversification advantages by economies of scale (Mester, 1993). Yet, this result contradicts Djebali and Zaghdoudi (2020) and Alouane et al. (2022) who found that large Tunisian banks are less profitable than small ones between 1998-2015 and 2008-2017, respectively. The difference in results may be due to the different periods studied.

Robustness Check

In what follows, we test the robustness of our results using the dynamic system GMM estimator developed by Arellano and Bover (1995) and Blundell and Bond (1998). System GMM estimation is used to reduce some problems, especially endogeneity, measurement error, omitted variable bias and bank-specific heterogeneity.

The dynamic panel regression model is defined in the following equation:

$$PERF = C + \alpha_1 BDS_{i,t} + \alpha_2 BDGD_{i,t} + \alpha_3 DUAL_{i,t} + \alpha_4 PERF_{t-1} + \beta BKS_{i,t} + \alpha_{i,t} \quad (3)$$

where $PERF_{t-1}$ represents the lagged dependent variable which is measured by ROA and ROE and α_4 is its coefficient. Table 6 reports the results of GMM dynamic panel for models 3 and 4.

Table 6. Robustness Check: GMM Effects of Board Governance on Bank Performance

Models	Model 3	Model 4
Variables	ROA	ROE
$PERF_{it-1}$	0.22 (0.017) **	0.06 (0.004) ***
BDS_{it}	-0.002 (0.000) ***	-0.021 (0.079) *
$BDGD_{it}$	0.03 (0.000) ***	0.426 (0.02) **
$DUAL_{it}$	0.002 (0.15)	-0.013 (0.614)
BKS_{it}	0.003 (0.025) **	0.04 (0.031) **
Constant	-0.02 (0.356)	-0.317 (0.223)
AR (2) (p-value)	0.968	0.773
Hansen test (p-value)	0.765	0.217
Number of observations	154	154

Source: Research findings.

Note: This table presents GMM results for accounting-based performance (ROA; ROE). P-values of the coefficient are shown in parentheses. ***, ** and * indicate significance levels of 1%, 5% and 10%, respectively. We report p-values of AR (2) for the null hypothesis in which the errors of the first-difference regression do not show second-order serial correlation. We refer to p-values of Hansen test for the null hypothesis where the instruments employed do not correlate with residues.

First, Table 6 indicates that the p-value of AR (2) is not statistically significant. This means that we cannot reject the hypothesis of no second-order autocorrelation. This implies that the empirical model has been correctly specified, as there is no serial correlation in the transformed residuals.

Second, the Hansen test shows that the p-value is not statistically significant with a value greater than 0.1 (0.765 and 0.217 for ROA and ROE, respectively), which means that the null hypothesis H_0 of the validity of instruments cannot be rejected.

Third, we notice that the coefficients of the lagged dependent variable are positive and significant (p-value = 0.017 and 0.004 for ROA and ROE, respectively), which provides evidence of the dynamic nature of the model specification (Daher et al., 2015). We therefore support the decision to choose a dynamic specification for our model.

Then, from the dynamic model, we identify a positive effect of board gender diversity on bank performance with significance of 1 % and 5% but a negative effect of board size at level of 1% and 10% for ROA and ROE, respectively. However, duality seems to have no incidence on performance. Bank size affects positively and significantly the profitability of banks for both performance indicators at the 5% level. That being so, the findings of random effects are justified by the GMM system, which means that our results are robust.

Conclusion

The aim of this paper is to study the effect of board governance on bank performance in the context of Tunisian banks over a period ranging from 2006 to 2020. This study uses static and dynamic panel regression models that include random effects and generalized dynamic method of moments (GMM system) to test hypotheses. Our study of three important board characteristics - board size, gender diversity and CEO duality - has important policy implications. The effect of board size on bank performance is negative in all regression models and for the two proxies of performance. The findings of this study also clearly indicate that female members play an important role in the board which is in line with our expectations. The board has an interest in integrating women members who can be active members and may exercise effective control to improve bank performance. Indeed, women directors are more engaged in their roles and have more effective managerial skills and decision-making abilities than their male colleagues. The separation of the functions of Chairman and CEO does not significantly improve bank performance. However, a positive link is found between the bank size and

bank performance. This result can be explained by the fact that small banks are not well governed. Moreover, this positive effect can be due to the depreciation of the capital of small banks. That being the case, Tunisian banks should have a big size, an acceptable board size, and gender diversity. The Board should be led by a chairman. Yet, banks do not care about separating the roles of chairman and chief executive. Otherwise, legal texts are needed to prohibit the duality of the CEO.

This research infers that board size and gender diversity need to be rationalized. Finally, the separation of the roles of CEO and chairman has no influence on the bank's performance. This study differs from other Tunisian studies in a way that board governance mechanisms are important even in a different context than most existing work.

Previous research has examined the association between governance and bank performance. In this paper, internal governance mechanisms have been focused on and the result may differ from previous research as the factors used may not be the same and other factors may also affect the final result. Hence, our original contribution is that our study is among the first Tunisian studies which differs from other ones in Tunisia.

Like other studies, our study has some limitations. First, it considers only some board governance variables. In fact, other board characteristics that could play an important role in further research were not included in our study, such as board independence and number of board meetings. Second, we focused only on the effect of board of director without taking into consideration the ownership structure of banks. Finally, our sample size is small, which probably limits the generalizability of our results.

The following features would make a valuable contribution to further investigations. In this context, more internal governance mechanisms should be added to the model to have an overall impact on the bank's performance. In addition, further studies can be extended by testing board governance in other developing countries. Eventually, a comparative study with other (similar or dissimilar) countries would also be interesting, as it would enable us to broaden our sample and improve the robustness of our results and conclusions.

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References

- Abisola, A. (2022). The Nexus between Bank Size and Financial Performance: Does Internal Control Adequacy Matter? *Journal of Accounting and Taxation*, 14(1), 13-20. Retrieved from <https://doi.org/10.5897/jat2021.0501>.
- Adams, R. B., & Ferreira, D. (2009). Women in the Boardroom and Their Impact on Governance and Performance. *Journal of Financial Economics*, 94(2), 291-309. Retrieved from <https://doi.org/10.1016/j.jfineco.2008.10.007>.
- Adams, R. B., & Mehran, H. (2012). Bank Board Structure and Performance: Evidence for Large Bank Holding Companies. *Journal of Financial Intermediation*, 21(2), 243-267. Retrieved from <https://doi.org/10.1016/j.jfi.2011.09.002>.
- Agoraki, M. E. K., Delis, M. D., & Staikouras, P. K. (2010). The Effect of Board Size and Composition on Bank Efficiency. *International Journal of Banking, Accounting and Finance*, 2(4), 357-386. Retrieved from <https://doi.org/10.1504/ijbaaf.2010.037155>.
- Alouane, N., Kahloul, I., & Grira, J. (2022). The Trilogy of Ownership, Income Diversification, and Performance Nexus: Empirical Evidence from Tunisian Banks. *Finance Research Letters*, 45, 102180. Retrieved from <https://doi.org/10.1016/j.frl.2021.102180>.
- Arellano, M., & Bover, O. (1995). Another Look at the Instrumental Variable Estimation of Error-Components Models. *Journal of Econometrics*, 68(1), 29-51. Retrieved from [https://doi.org/10.1016/0304-4076\(94\)01642-d](https://doi.org/10.1016/0304-4076(94)01642-d).
- Athar, M., Chughtai, S., & Rashid, A. (2023). Corporate Governance and Bank Performance: Evidence from Banking Sector of Pakistan. *Corporate Governance: The International Journal of Business in Society*, 23(6), 1339-1360. Retrieved from <https://doi.org/10.1108/cg-06-2022-0261>.
- Bebeji, A., Mohammed, A., & Tanko, M. (2015). The Effect of Board Size and Composition on the Financial Performance of Banks in Nigeria. *African Journal of Business Management*, 9(16), 590-598. Retrieved from <https://doi.org/10.5897/ajbm2015.7797>.
- Becht, M., Bolton, P., & Röell, A. (2011). Why Bank Governance is Different. *Oxford Review of Economic Policy*, 27(3), 437-463. Retrieved from <https://doi.org/10.1093/oxrep/grr024>.
- Berger, A. N., Clarke, G. R., Cull, R., Klapper, L., & Udell, G. F. (2005). Corporate Governance and Bank Performance: A Joint Analysis of the Static, Selection, and

Dynamic Effects of Domestic, Foreign, and State Ownership. *Journal of Banking & Finance*, 29(8-9), 2179-2221. Retrieved from <https://doi.org/10.1016/j.jbankfin.2005.03.013>.

Berger, A. N., Hasan, I., & Zhou, M. (2009). Bank Ownership and Efficiency in China: What Will Happen in the World's Largest Nation? *Journal of Banking & Finance*, 33(1), 113-130. Retrieved from <https://doi.org/10.1016/j.jbankfin.2007.05.016>.

Bhatia, M., & Gulati, R. (2021). Board Governance and Bank Performance: A Meta-analysis. *Research in International Business and Finance*, 58, 101425. Retrieved from <https://doi.org/10.1016/j.ribaf.2021.101425>.

Bhatia, M., & Gulati, R. (2020). Does Board Effectiveness Matter for Bank Performance? Evidence from India. *International Journal of Comparative Management*, 3(1-2), 9-52. Retrieved from <https://doi.org/10.1504/ijcm.2020.10028754>.

Blundell, R., & Bond, S. (1998). Initial Conditions and Moment Restrictions in Dynamic Panel Data Models. *Journal of Econometrics*, 87(1), 115-143. Retrieved from [https://doi.org/10.1016/s0304-4076\(98\)00009-8](https://doi.org/10.1016/s0304-4076(98)00009-8).

Bonin, J. P., Hasan, I., & Wachtel, P. (2005). Bank Performance, Efficiency and Ownership in Transition Countries. *Journal of Banking & Finance*, 29(1), 31-53. Retrieved from <https://doi.org/10.1016/j.jbankfin.2004.06.015>.

Booth, J. R., Cornett, M. M., & Tehranian, H. (2002). Boards of Directors, Ownership, and Regulation. *Journal of Banking & Finance*, 26(10), 1973-1996. Retrieved from [https://doi.org/10.1016/s0378-4266\(01\)00181-9](https://doi.org/10.1016/s0378-4266(01)00181-9).

Borio, C., Gambacorta, L., & Hofmann, B. (2017). The Influence of Monetary Policy on Bank Profitability. *International Finance*, 20(1), 48-63. Retrieved from <https://doi.org/10.1111/infi.12104>.

Campbell, K., & Mínguez-Vera, A. (2008). Gender Diversity in the Boardroom and Firm Financial Performance. *Journal of Business Ethics*, 83, 435-451. Retrieved from <https://doi.org/10.1007/s10551-007-9630-y>.

Cardillo, G., Onali, E., & Torluccio, G. (2021). Does Gender Diversity on Banks' Boards Matter? Evidence from Public Bailouts. *Journal of Corporate Finance*, 71, 101560. Retrieved from <https://doi.org/10.1016/j.jcorpfin.2020.101560>.

Carter, D. A., D'Souza, F., Simkins, B. J., & Simpson, W. G. (2010). The Gender and Ethnic Diversity of US Boards and Board Committees and Firm Financial performance. *Corporate Governance: An International Review*, 18(5), 396-414. Retrieved from <https://doi.org/10.1111/j.1467-8683.2010.00809.x>.

Chahine, S., & Safieddine, A. (2011). Is Corporate Governance Different for the Lebanese Banking System? *Journal of Management & Governance*, 15, 207-226. Retrieved from <https://doi.org/10.1007/s10997-009-9096-7>.

Choi, S., & Hasan, I. (2005). Ownership, Governance, and Bank Performance: Korean Experience. *Financial Markets, Institutions & Instruments*, 14(4), 215-242. Retrieved from <https://doi.org/10.1111/j.0963-8008.2005.00104.x>.

- Daher, H., Masih, M., & Ibrahim, M. (2015). The Unique Risk Exposures of Islamic Banks' Capital Buffers: A Dynamic Panel Data Analysis. *Journal of International Financial Markets, Institutions and Money*, 36, 36-52. Retrieved from <https://doi.org/10.1016/j.intfin.2015.02.012>.
- Dey, A., Engel, E., & Liu, X. (2011). CEO and Board Chair Roles: To Split or Not to Split? *Journal of Corporate Finance*, 17(5), 1595-1618. Retrieved from <https://doi.org/10.1016/j.jcorpfin.2011.09.001>.
- Dietrich, A., & Wanzenried, G. (2011). Determinants of Bank Profitability Before and During the Crisis: Evidence from Switzerland. *Journal of International Financial Markets, Institutions and Money*, 21(3), 307-327. Retrieved from <https://doi.org/10.1016/j.intfin.2010.11.002>.
- Djatche, M. J. N. (2019). Re-exploring the Nexus Between Monetary Policy and Banks' Risk-Taking. *Economic Modelling*, 82, 294-307. Retrieved from <https://doi.org/10.1016/j.econmod.2019.01.016>.
- Djebali, N., & Zaghdoudi, K. (2020). Testing the Governance-Performance Relationship for the Tunisian Banks: A GMM in System Analysis. *Financial Innovation*, 6(23), 1-24. Retrieved from <https://doi.org/10.1186/s40854-020-00182-5>.
- Donaldson, L., & Davis, J. H. (1991). Stewardship Theory or Agency Theory: CEO Governance and Shareholder Returns. *Australian Journal of Management*, 16(1), 49-64. Retrieved from <https://doi.org/10.1177/031289629101600103>.
- Dong, Y., Girardone, C., & Kuo, J. M. (2017). Governance, Efficiency and Risk Taking in Chinese Banking. *The British Accounting Review*, 49(2), 211-229. Retrieved from <https://doi.org/10.1016/j.bar.2016.08.001>.
- Finkelstein, S., & D'aveni, R. A. (1994). CEO Duality as a Double-Edged Sword: How Boards of Directors Balance Entrenchment Avoidance and Unity of Command. *Academy of Management Journal*, 37(5), 1079-1108. Retrieved from <https://doi.org/10.2307/256667>.
- Flannery, M. J. (1998). Using Market Information in Prudential Bank Supervision: A Review of the US Empirical Evidence. *Journal of Money, Credit and Banking*, 30(3), 273-305. Retrieved from <https://doi.org/10.2307/2601102>.
- Florackis, C. (2008). Agency Costs and Corporate Governance Mechanisms: Evidence for UK Firms. *International Journal of Managerial Finance*, 4(1), 37-59. Retrieved from <https://doi.org/10.1108/17439130810837375>.
- Fogelberg, L., & Griffith, J. M. (2000). Control and Bank Performance. *Journal of Financial and Strategic Decisions*, 13(3), 63-69.
- Fox, J. (1991). *Regression Diagnostics*. Newbury Park: Sage Publications.
- Francoeur, C., Labelle, R., & Sinclair-Desgagné, B. (2008). Gender Diversity in Corporate Governance and Top Management. *Journal of Business Ethics*, 81, 83-95. Retrieved from <https://doi.org/10.1007/s10551-007-9482-5>.
- Gafoor, C. A., Mariappan, V., & Thiyagarajan, S. (2018). Board Characteristics and Bank

Performance in India. *IIMB management Review*, 30(2), 160-167. Retrieved from <https://doi.org/10.1016/j.iimb.2018.01.007>.

García-Herrero, A., Gavilá, S., & Santabábara, D. (2009). What Explains the Low Profitability of Chinese Banks? *Journal of Banking & Finance*, 33(11), 2080-2092. Retrieved from <https://doi.org/10.1016/j.jbankfin.2009.05.005>.

García-Meca, E., García-Sánchez, I. M., & Martínez-Ferrero, J. (2015). Board Diversity and its Effects on Bank Performance: An International Analysis. *Journal of Banking & Finance*, 53, 202-214. Retrieved from <https://doi.org/10.1016/j.jbankfin.2014.12.002>.

Goddard, J., Molyneux, P., & Wilson, J. O. (2004). The Profitability of European Banks: A Cross-Sectional and Dynamic Panel Analysis. *The Manchester School*, 72(3), 363-381. Retrieved from <https://doi.org/10.1111/j.1467-9957.2004.00397.x>.

Hajer, C., & Anis, J. (2018). Analysis of the Impact of Governance on Bank Performance: Case of Commercial Tunisian Banks. *Journal of the Knowledge Economy*, 9, 871-895. Retrieved from <https://doi.org/10.1007/s13132-016-0376-6>.

Harkin, S., Mare, D. S., & Crook, J. (2020). Independence in Bank Governance Structure: Empirical Evidence of Effects on Bank Risk and Performance. *Research in International Business and Finance*, 52, 101177. Retrieved from <https://doi.org/10.1016/j.ribaf.2019.101177>.

Hopt, K. J. (2013). Corporate Governance of Banks and Other Financial Institutions After the Financial Crisis. *Journal of Corporate Law Studies*, 13(2), 219-253. Retrieved from <https://doi.org/10.5235/14735970.13.2.219>.

Jensen, M. C. (1993). The Modern Industrial Revolution, Exit, and the Failure of Internal Control Systems. *The Journal of Finance*, 48(3), 831-880. Retrieved from <https://doi.org/10.1111/j.1540-6261.1993.tb04022.x>.

Kaymak, T., & Bektas, E. (2008). East Meets West? Board Characteristics in an Emerging Market: Evidence from Turkish Banks. *Corporate Governance: An International Review*, 16(6), 550-561. Retrieved from <https://doi.org/10.1111/j.1467-8683.2008.00713.x>.

Kennedy, P. (2008). *A guide to econometrics* (6th Ed.). New Jersey: John Wiley & Sons.

Kramaric, T. P., & Pervan, M. (2016). Does Board Structure Affect the Performance of Croatian Banks? *Journal of Financial Studies & Research*, 2016, 1-10. Retrieved from <https://doi.org/10.5171/2016.158535>.

Liang, Q., Xu, P., & Jiraporn, P. (2013). Board Characteristics and Chinese Bank Performance. *Journal of Banking & Finance*, 37(8), 2953-2968. Retrieved from <https://doi.org/10.1016/j.jbankfin.2013.04.018>.

Macey, J. R., & O'Hara, M. (2003). The Corporate Governance of Banks. *Economic Policy Review*, 9(1), 1-17. Retrieved from <https://papers.ssrn.com/sol3/Delivery.cfm?abstractid=795548>.

Mamatzakis, E., & Bermpei, T. (2015). The Effect of Corporate Governance on the Performance of US Investment Banks. *Financial Markets, Institutions &*

Instruments, 24(2-3), 191-239. Retrieved from <https://doi.org/10.1111/fmii.12028>.

Manini, M. M., & Abdillahi, U. A. (2015). Corporate Governance Mechanisms and Financial Performance of Commercial Banks in Kenya. *IOSR Journal of Business and Management*, 17(3), 25-40. Retrieved from <https://www.academia.edu/download/85533230/D017322540.pdf>.

Mateus, C., & Belhaj, S. (2016). Corporate Governance Impact on Bank Performance: Evidence from Europe. *Corporate Ownership and Control*, 13(4), 583-597. Retrieved from <https://doi.org/10.22495/cocv13i4c4p8>.

Merendino, A., & Melville, R. (2019). The Board of Directors and Firm Performance: Empirical Evidence from Listed Companies. *Corporate Governance: The International Journal of Business in Society*, 19(3), 508-551. Retrieved from <https://doi.org/10.1108/cg-06-2018-0211>.

Mester, L. J. (1993). Efficiency in the Savings and Loan Industry. *Journal of Banking & Finance*, 17(2-3), 267-286. Retrieved from [https://doi.org/10.1016/0378-4266\(93\)90032-9](https://doi.org/10.1016/0378-4266(93)90032-9).

Mirzaei, A., Moore, T., & Liu, G. (2013). Does Market Structure Matter on Banks' Profitability and Stability? Emerging vs. Advanced Economies. *Journal of Banking & Finance*, 37(8), 2920-2937. Retrieved from <https://doi.org/10.1016/j.jbankfin.2013.04.031>.

Mnasri, K. (2015). Ownership Structure, Board Structure and Performance in the Tunisian Banking Industry. *Asian Academy of Management Journal of Accounting & Finance*, 11(2), 57-82. Retrieved from <https://www.academia.edu/download/96938212/141499411.pdf>.

Naushad, M., & Malik, S. A. (2015). Corporate Governance and Bank Performance: A Study of Selected Banks in GCC Region. *Asian Social Science*, 11(9), 226-234. Retrieved from <https://doi.org/10.5539/ass.v11n9p226>.

O'Connell, M. (2022). Bank-Specific, Industry-Specific and Macroeconomic Determinants of Bank Profitability: Evidence from the UK. *Studies in Economics and Finance*, 40(1), 155-174. Retrieved from <https://doi.org/10.1108/sef-10-2021-0413>.

Pathan, S. (2009). Strong Boards, CEO Power and Bank Risk-Taking. *Journal of Banking & Finance*, 33(7), 1340-1350. Retrieved from <https://doi.org/10.1016/j.jbankfin.2009.02.001>.

Pathan, S., & Skully, M. (2010). Endogenously Structured Boards of Directors in Banks. *Journal of Banking & Finance*, 34(7), 1590-1606. Retrieved from <https://doi.org/10.1016/j.jbankfin.2010.03.006>.

Pathan, S., & Faff, R. (2013). Does Board Structure in Banks Really Affect their Performance? *Journal of Banking & Finance*, 37(5), 1573-1589. Retrieved from <https://doi.org/10.1016/j.jbankfin.2012.12.016>.

Pfeffer, J., & Salancik, G. (2015). External Control of Organizations—Resource Dependence Perspective. In *Organizational Behavior*, 2 (355-370). London: Routledge.

Retrieved from <https://www.taylorfrancis.com/chapters/edit/10.4324/9781315702001-24/external-control-organizations>.

Praptiningsih, M. (2009). Corporate Governance and Performance of Banking Firms: Evidence from Indonesia, Thailand, Philippines, and Malaysia. *Journal of Management and Entrepreneurship*, 11(1), 94-108. Retrieved from <https://ced.petra.ac.id/index.php/man/article/download/17749/17669>.

Sahul Hamid, F. (2017). The Effect of Market Structure on Banks' Profitability and Stability: Evidence from ASEAN-5 countries. *International Economic Journal*, 31(4), 578-598. Retrieved from <https://doi.org/10.1080/10168737.2017.1408668>.

Shahin, R., Khalil, M., & Sallam, H. (2022). The Nexus Between Interest Rate and Bank Profitability: Does Bank Prudential Capital Matter? *Banks and Bank Systems*, 17(2), 113-123. Retrieved from [https://doi.org/10.21511/bbs.17\(2\).2022.10](https://doi.org/10.21511/bbs.17(2).2022.10).

Shungu, P., Ngirande, H., & Ndlovu, G. (2014). Impact of Corporate Governance on the Performance of Commercial Banks in Zimbabwe. *Mediterranean Journal of Social Sciences*, 5(15), 93-105. Retrieved from <https://doi.org/10.5901/mjss.2014.v5n15p93>.

Staikouras, P. K., Staikouras, C. K., & Agoraki, M. E. K. (2007). The Effect of Board Size and Composition on European Bank Performance. *European Journal of Law and Economics*, 23, 1-27. Retrieved from <https://doi.org/10.1007/s10657-007-9001-2>.

Yermack, D. (1996). Higher Market Valuation of Companies with A Small Board of Directors. *Journal of Financial Economics*, 40(2), 185-211. Retrieved from [https://doi.org/10.1016/0304-405x\(95\)00844-5](https://doi.org/10.1016/0304-405x(95)00844-5).



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