
Board Gender Diversity and Bank Performance in Tunisia

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Abstract:

Purpose: This study examines the impact of board gender diversity (BGD) on the performance of the banking sector in Tunisia. Given that gender bias tends to be more pronounced in Tunisia's socio-cultural context compared to more developed environments, the research focuses on an understudied area: how gender diversity within boards contributes to corporate governance and business performance in Tunisian banks. The study also explores how aligning management with stakeholder interests through board diversity can enhance organizational outcomes.

Design/Methodology/Approach: This research adopts a quantitative approach using longitudinal panel data. The study analyzes 207 bank-year observations from 2015 to 2023. To ensure robust analysis, the research employs ordinary least squares (OLS), fixed effects, and random effects models. These econometric methods are used to examine the relationship between board gender diversity (BGD) and Tobin's Q , a market-based indicator of firm performance.

Findings: The results show a positive relationship between board gender diversity and market-based performance indicators. The model demonstrates strong explanatory power with a coefficient of determination (R^2) of 73.91%. The findings indicate that Tobin's Q increases by approximately 41.6% for every unit increase in BGD, suggesting that greater gender diversity on boards is associated with improved bank performance. The outcomes also support the agency theory and resource dependence theory, highlighting the role of diverse boards in enhancing decision-making and governance effectiveness.

Practical Implications: The findings suggest that increasing gender diversity on corporate boards can strengthen governance quality and improve financial performance in banks. Policymakers, regulators, and financial institutions in Tunisia may consider promoting gender-inclusive board structures as a strategy to enhance decision-making, stakeholder alignment, and overall organizational performance.

Originality/Value: This study contributes to the limited literature on board gender diversity within the Tunisian banking sector, particularly in emerging economies with strong socio-cultural gender norms. By providing empirical evidence from recent longitudinal data (2015–2023) and employing multiple econometric models, the research offers robust insights into how gender-diverse boards contribute to bank performance and governance effectiveness.

Keywords: Corporate governance, Agency theory, Resource, Gender equality, BVMT.

JEL codes: G21, G34, J16, M14, G32.

Paper type: Research article.

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1. Introduction

In academic and professional areas, gender diversity on boards has gained significance recently (Saleh *et al.*, 2021). Even with the global push for advancement (Spenehauer, 2023), men continue to dominate boardrooms (Rahman and Zahid, 2021), including in Tunisia (Aribi *et al.*, 2018), and women continue to encounter barriers to entry into the higher echelons of the business sector (Yu and Madison, 2021). Women make up a sizable share of the population in Tunisia, yet they are under-represented on boards and in positions of authority when it comes to making decisions.

In order to enhance the social, political, and economic environment, Tunisia wants to allow women to freely make strategic choices on boards (World Bank, 2018). In sophisticated markets, where women's representation on corporate boards (WOCBs) is valued, there is a great deal of debate about WOCB presence and its effect on business success. Nonetheless, research on this topic has yielded inconsistent findings (Khan *et al.*, 2023).

Most developing countries (Unite *et al.*, 2019) where investor protection is weak, like Tunisia, have no rules or regulations requiring or encouraging WOCBs (Naz *et al.*, 2023), in contrast to industrialised countries like Norway, Spain, Italy, and Germany, to name a few (Yu and Madison, 2021), where gender quotas are in place. Because WOCBs are scarce, there hasn't been much research done on the relationship between BGDs and firm performance in developing nations (Hazaea *et al.*, 2023; Mohsni *et al.*, 2021).

Given that these studies may not have taken institutional and sociocultural norms and contexts into consideration, it is critical to acknowledge the potential bias in their findings (Castro *et al.*, 2023). To completely comprehend the relationship between BGD and firm performance, more investigation is required (Đặng *et al.*, 2020). In contrast to Western countries, gender bias appears to exist in Tunisia's socio-cultural setting (Gabsi, 2020). This study is significant because it clarifies a vital matter about Tunisia's status as a developing nation. It looks for evidence of a connection between bank performance and BGD.

2. Literature Review

Rules and policies pertaining to corporate governance (CG) are essential for enhancing a business's financial performance. As stated in corporate governance standards, respondents supported the use of self-imposed procedures (Adams and Ferreira, 2009). The significance of WOCBs has been acknowledged more recently (Terjesen *et al.*, 2016). As part of their job, boards of directors (BoDs) supervise and counsel CEOs to make sure their activities are in line with company goals (Yu and Madison, 2021). Agency theory (Hazaea *et al.*, 2023) regards board of directors' supervisory role as the reason for the association between BGDs and firm

performance (Alshirah *et al.*, 2023). Conversely, according to resource dependency theory, female directors contribute unique knowledge, experience, and abilities that facilitate productive interactions with outside partners (Khan *et al.*, 2023).

Last but not least, behavioural theories suggest that female directors behave differently from their male colleagues. Moreover, women prioritise long-term objectives and are typically more perceptive than men (Kusumastati *et al.*, 2022). The established male-dominated organisation gains fresh insights and a diversity of professional backgrounds with the addition of female directors.

WOCB brings fresh insights and insightful advice to senior managers, which enhances their ability to make decisions for problem solving (Đăng *et al.*, 2020), fosters creativity and innovation (Arora and Soni, 2023), improves their comprehension of the business and customer climate (Mohsni *et al.*, 2021), and makes information easier to access (Castro *et al.*, 2023).

The main thesis is that the different skills, experiences, information, views, leadership styles, and values that the BGD contributes to have an effect on corporate performance.

Many studies have looked into the relationship between the performance of French listed firms and the presence of women on the board of directors, using theories such as agency theory and critical mass theory. According to Gharbi and Othmani (2023), the findings have repeatedly demonstrated that BGDs have a favourable impact on accounting and market performance.

These findings show a clear and consistent trend favouring the appointment of three or more women to the board over the appointment of two or fewer women. In a separate setting, researchers looked into the connection between BGD and company performance in the UK using the theories of critical mass, resource dependence, and agency. Their findings demonstrated a strong and favourable correlation (Brahma *et al.*, 2021). The aforementioned findings emphasise the significance of the legislative framework and organisational features in counteracting the benefits and drawbacks of BGD, concerning supervision and direction.

New research from the United States and Australia has yielded important insights into how BGDs affect business success. These studies have successfully established a positive association between DMOs and financial performance by focussing on the present discussion surrounding this topic. Crucially, they have also corrected methodological flaws found in earlier studies (Đăng *et al.*, 2020). The research adds to the policy discourse by offering empirical data to back up the need for diversity on boards (Vafaei *et al.*, 2015).

Similar to this, data from 3,876 listed firms across 47 countries were used in a multi-country BGD survey that was carried out in 2010. The findings also demonstrate that

having more female directors increases a board of directors' efficacy. Furthermore, they discovered that businesses with a higher proportion of female directors perform better on accounting and market metrics (Terjesen *et al.*, 2016). Similar to this, social psychology theories serve as the foundation for claims that the diversity of a board influences the success of an organisation (Đặng *et al.*, 2020).

Due to the positive behavioural differences between men and women, companies have profited by having both genders on their boards (Hazaea *et al.*, 2023). On the other hand, earlier studies have emphasised a range of detrimental effects of gender diversity (Unite *et al.*, 2019).

These effects include lower corporate performance and higher borrowing costs as a result of poor board member coordination and communication (Mansour *et al.*, 2024), which eventually compromise sound decision-making (Alshirah *et al.*, 2022).

The observed outcomes could be attributed to a focus on trend monitoring that is too intense. Due to the wide range of opinions and ideas held by distinct boards, it is frequently difficult to come to a resolution (Martinez-Jimenez *et al.*, 2020). This suggests that rather than having great qualifications, symbolism and family relationships frequently influence board appointments (Abdullah, 2014). However, studies show that there aren't many notable differences between the skill sets of company executives who are men and women.

Furthermore, the region exhibits a considerable deficiency in WOCB assiduity as compared to their male counterparts. The lack of effective BGD regulation by CG codes in the regions where WOCB are underestimated is another explanation for these results. The research conducted by Khan *et al.* (2023) supports these claims. These studies' examination of the impact of female leadership on business success in India, Pakistan, Latin America, and the Philippines revealed a negligible or non-significant relationship.

There is a practical gap in the gender literature that needs to be filled, as evidenced by the varying results of previous research (Li and Chen, 2018), which can be attributed to differences in data employed, contexts (countries), sample size (Rahman and Zahid, 2021), methodologies (Đặng *et al.*, 2020), time periods (Attia *et al.*, 2023), or measures of company performance (Mansour *et al.*, 2022). But in Jordan, there is a dearth of information regarding BGD.

As such, there is reason to mistrust the validity of previous research done in different contexts, CG structures, businesses, and industries. The majority of empirical investigation research has focused on non-financial industries. The current investigation in this topic was motivated by the narrow emphasis of existing literature. Thus, this analysis aims to establish the correlation between BGD and the market performance of the Tunisian banking sector from 2015 to 2023.

3. Research Methodology

2.1 Sample Selection and Data Collection

The importance of a nation's banking industry to the financial system and economy is generally acknowledged (Berhe, 2023). Many scholars think it is necessary for long-term progress, especially in nations like Tunisia where the expansion of the financial market is restricted (Mansour *et al.*, 2023). Because of their high level of control, banks fully listed on the Tunis Stock Exchange (BVMT) will be included in the sample to meet the study's purpose (Mansour *et al.*, 2023).

According to a directive from the Central Bank of Tunisia (BVMT), listed banks must have 25% CEO representation and 20% WOCB representation by 2024. The head of Tunisia's Central Bank, Fethi Zouhair Nouri, has stated emphatically that diversity in banks as a whole is essential to the industry's future growth and profitability. 207 bank years were observed within the study's 2015–2023-time frame.

The CG Code was implemented in Tunisia and has undergone recent modifications during the 9-year data period (Mansour *et al.*, 2022). The official websites of listed Tunisian banks and annual reports were searched for pertinent information on explanation, explanatory, and control variables to do a manual content analysis and acquire the data needed for the study. A balanced panel dataset and the accomplishment of the study objectives were made possible by the data gathered over the course of the years of research. Lastly, to lessen the potentially erroneous impacts of outliers, this analysis minorized every variable apart from dummy variables.

2.2 Variable Definitions and Measurement

Using Tobin's Q as a market-based metric, this study expands on previous research by Arora and Soni (2023), and Saha *et al.* (2023). It is computed by taking the book value of debt, adding the market value of equity, and dividing the result by the book value of all assets. Businesses that have Tobin's Q above one entices investors and present favourable investment opportunities.

Conversely, if Tobin's Q is less than 1, it suggests that the share price is undervalued because of poor asset management and slow development in investments, which lowers investor interest (Brahma *et al.*, 2021). Because Tobin's Q has been widely used in prior studies on gender diversity, the current study adopted it as a measure of company success (Bennouri *et al.*, 2018).

Therefore, a firm's competitive advantage (Marei, 2022) and corporate management skill (Hazaea *et al.*, 2023) both have an impact on Tobin's Q. As a result, it shows

what the market anticipate will happen to a company's profitability in the future and how potential investors see it.

Furthermore, compared to other measures, Tobin's Q is less affected by deliberate earnings manipulation and accounting techniques. The primary explanatory variable is BGD. BGD is measured in the study as the total number of WOCBs. Furthermore, the robustness test in this study includes the proportion of female to male directors on the board (Arora and Soni, 2023).

In keeping with the practice of earlier research on WOCBs (Saleh *et al.*, 2020), the current analysis incorporates both measures of female directors. This shows that female directors need to achieve a particular threshold to have an impact on board effectiveness.

Our analysis considered six variables to account for bank qualities that could influence performance, based on the literature (Gupta and Mahakud, 2020). These variables include female representation in senior management (WOTM), capital adequacy ratio (CAR), bank size (SIZE), capital structure (LEV), board independence (BI), board meetings (BM), capital adequacy ratio (CAR), and a dummy variable for year (Year). To account for any time change in the explained variable that is thought to be unrelated to the other explanatory variables in our model, year fixed effects were specifically added in this study (Al-Hiyari *et al.*, 2024).

Table 1. Variable definitions

Variables	Symbol	Definition
Dependent variables		
Bank's TOBIN's Q	TOBIN's Q	Market value of shares + Book value of debt/Book value of total assets
Independent variables		
BoardGender Diversity	BGD	Number of females on BOD
Control variables		
Bank's board independence	BI	Measured as the number of independent directors on a corporate board
Bank's Board meetings	BM	Measured by the number of board meetings (Activity) held over the fiscal year
Bank's Capital Structure	LEV	Total debt /Total assets
Bank's Size	SIZE	Measured by the total number of Bank employees (log)
Women on Top Management	WOTM	Number of females in top management in banks
Capital Adequacy Ratio	CAR	Bank capital indicator indicates financial soundness according to Basel III

Source: Own study.

2.3 Model Specification

The OLS method, a well-liked statistical technique for hypothesis testing in the social sciences, is used to panel data in this study. Panel data's key advantage is that, despite the small number of organisations, they give a large rise in sample size (Saleh *et al.*, 2022). The study gains from a higher number of observations by employing panel datasets, which may have an impact on the statistical analysis.

The relationship between the market performance of Tunisian listed banks and their BGDs has been thoroughly examined in this article. Employing the fundamental analysis approach will yield significant insights, enabling us to fully comprehend this connection. A panel data regression model is used to examine the relationship between the BGD and Tobin's Q in the research sample of the banking industry in Tunisia.

$$TOBIN's\ Q = \beta_0 + \beta_1 BGD_{i,t} + \beta_2 BI_{i,t} + \beta_3 BM_{i,t} + \beta_4 LEV_{i,t} + \beta_5 SIZE_{i,t} + \beta_6 WOTM_{i,t} + \beta_7 CAR_{i,t} + Year\ Dummy + \varepsilon_{i,t}.$$

Table 1 provides the variables' explanations. To address the issue of multicollinearity between explanatory factors and provide more accurate results, panel data is employed in the study (Alshirah *et al.*, 2022).

The probability of binary findings can be decreased by accounting for the heterogeneity of each individual bank (Al-Hiyari *et al.*, 2024). Moreover, it can help resolve the endogeneity issue brought on by unobserved heterogeneity (Lutfi *et al.*, 2022).

3. Results

3.1 Summary statistics

Table 2 sets up the summary of the descriptive analysis of research variables for fourteen listed banks in ASE from 2015 to 2023, including mean, minimum, maximum, and standard deviation measures. Table 2 presents the explained variable, Tobin's Q, which ranges from 0.498% to 1.763%, with a mean value (Std. Dev) of 0.923% (0.344). Based on these statistics, the listed banks on the ASE exhibit minimal disparity in market-based performance measures.

Meanwhile, the underrepresented of female directorship on bank boards is evident, with numbers ranging from 0 to 4 and an average of 1.048. The average number of independent directors in bank boards was hovers around 4.51 ranging from 2 to 6. Furthermore, the BO in banks is deemed active, as evidenced by an average of 8.13 board meetings, with a range of 6 to 13 meetings. These figures are in accordance with the Jordanian CG Codes (Alshirah *et al.*, 2023).

High gearing in Tunisian banking sectors was demonstrated by an average BCS of 87.56%. Bank sizes in the kingdom show limited variation, as indicated by the average BSZ (Std. Dev) of 7.06 (0.66). The average WOTM, ranging from 0 to 6 CEOs, was 1.97%. Ultimately, the average CAR turned out to be 19.8%.

Table 2. Summary statistics for related variables throughout the study period

Variables	Obs.	Mean	SD	Min	Max	Skewness	Kurtosis
TOBIN's Q	207	0.923	0.344	0.498	1.763	1.032	3.394
No. BGD	207	1.048	0.893	0	4	0.670	3.0690
BI	207	4.51	1.09	2	6	-0.202	2.764
BM	207	8.13	2.05	6	13	1.039	3.374
LEV	207	0.8756	2.931	0.8294	0.914	-0.058	1.873
SIZE	207	7.06	0.66	5.874	8.269	-0.033	1.688
WOTM	207	1.97	1.587	0	6	0.635	2.207
CAR	207	0.198	0.062	0.119	0.49	0.867	3.057

Source: Own study.

3.2 Correlation Analysis

Bivariate correlations were employed to provide a preliminary understanding of the relationships between the chosen variables prior to formal empirical research. Table 3, which presents the correlation matrix for the explained and explanatory variables, verifies that the variables under investigation are appropriate for the model because they do not exhibit strong correlations. Since none of the explanatory variables had coefficients over the 0.7 level, the problem of multicollinearity did not present a substantial concern in the analysis of correlations (Saha *et al.*, 2023).

Table 3's correlation coefficient illustrates how the gender diversity of the board, pertinent control factors, and the market performance of the banking industry interact. The results validated the predicted positive association in listed banks in ASE between BGD, BI, BM, and Tobin's Q. SIZE, the WOTM, the CAR, and Tobin's Q were shown to have positive and substantial relationships when the relationship between the various control factors and Tobin's Q was examined. On the other hand, a substantial and negative association was found between Tobin's Q and SIZE. Regarding robustness, it is noteworthy that the VIF data show no signs of multicollinearity, with 1.448 being the highest reported VIF value.

3.3 Regression Results

The outcomes of the panel data's robustness test, random-effect regression analysis, and pooled OLS regression are covered in this section.

3.3.1 Pooled OLS Regression

This study started by doing an OLS regression. In the first column of Table 4, it displayed the pooled OLS findings for the banking performance equation, with

Tobin's Q serving as the explained variant. This study evaluated market performance in the Tunisian banking sector using Tobin's Q, an indicator of growth prospects (Đäng *et al.*, 2020). The results presented in Table 4 indicate a significant positive link between market performance and gender diversity on bank boards. The estimators of the BGD coefficient demonstrate a robust positive association at the 1% level.

Column 1's coefficient on BGD is 0.371, meaning that, under the assumption that all other variables stay unchanged, a 1% rise in BGD will result in an increase of roughly 0.37% in Tobin's Q. As indicated by the coefficients in Table 4, an analysis of the control variables demonstrates unequivocally that most of them significantly increase Tobin's Q.

Table 4's coefficients of association show that, when all other variables are held constant, a one-unit change in BI, BM, SIZE, WOTM, and CAR corresponds to changes in Tobin's Q of 7.29%, 22.4%, 22.01%, 7.7%, and 6.2%, in that order. At the 5% level, the predicted coefficient for the LEV variable using Tobin's Q was negative (-0.0337). The model's strong fit is another noteworthy feature, as evidenced by the overall F-tests' p-values of less than 1%.

Moreover, the R-squared value of 61.2% shows that 61.2% of the variation in Tobin's Q can be explained by the model. It is noteworthy that unobserved individual effects control is a typical difficulty in panel dataset research (Alodat *et al.*, 2023) and is not addressed by the OLS regression approach (Mansour *et al.*, 2023). Thus, in addition to pooled OLS, this work included fixed and random effects models to account for unobserved individual effects (Saleh *et al.*, 2022).

3.3.2 Random-effect Regression Analysis

Additionally, Table 4's column 2 displays the outcomes of the random effect (RE) model. The BGD coefficients are positive, according to the RE model's results, despite minor differences in their significance levels. This work used the Hausman test for evaluation to determine the optimal model between RE and FE (Saleh and Islam, 2020). The Chi-square statistics show that the ER and FE models may be distinguished from one another, with the ER model being preferred at the 1% significance level.

Moreover, the Wald test indicates that the ER model performs better than the pooled OLS model. In addition to unobserved individual components, this study should additionally consider heteroskedasticity and autocorrelation, as these may impact the effectiveness of the model's coefficients.

The study adjusted the standard errors and applied the RE model to address these problems (Mansour *et al.*, 2022). The GLS regression with adjusted standard error (Robust) RE estimator was utilized to examine the relationship between BGD and bank performance.

There is a positive link between bank performance and BGD, as confirmed by the empirical model findings using the RE approach, as displayed in Table 4. The results show a positive correlation between market performance and gender diversity. This finding is confirmed at the 1% significance level by the substantial and positive coefficients of BGD in the Tobin's Q regression, as evaluated by the total number of women on bank boards.

Tobin's Q rises by 0.372 units for every 1% increase in BGD on average. It was determined that each of the control variables significantly improved Tobin's Q. The coefficients displayed in Table 4 demonstrate this. Table 4 demonstrates that, when all other variables are held constant, a one-unit change in BI, BM, LEV, SIZE, WOTM, and CAR results in changes in Tobin's Q that are 2.60%, 33.1%, 5.79%, 51.7%, 31.58%, and 23.87%, respectively, and in the same direction.

Table 3. Pairwise correlation and multicollinearity (VIF) tests

Variables	TOBIN's Q	BGD	BI	BM	LEV	SIZE	WOTM	CAR
TOBIN's Q	1							
BGD	0.197**	1						
	0.031							
BI	0.1998**	-0.0019	1					
	0.0367	0.985						
BM	0.1875*	0.195**	-0.129	1				
	0.050	0.0384	0.142					
LEV	-0.199**	-0.0711	-0.124**	-0.0801	1			
	0.030	0.4475	0.0041	0.3915				
SIZE	0.433	0.416	0.0308	-0.042	-0.0248	1		
	0.0000	0.0000	0.816	0.613	0.7738			
WOTM	0.442	0.208	0.368*	0.155***	-0.2917*	0.178***	1	
	0.0000	0.0227	0.0001	0.0883	0.0004	0.0532		
CAR	.0281	0.479*	0.188*	-0.0183	-0.159***	0.213**	-0.219	1
	0.0021	0.0000	0.0000	0.8516	0.0668	0.0357	0.0099	
VIF	-	1.165	1.077	1.283	1.448	1.148	1.376	1.236

Note: *** $P < 0.1$, ** $P < 0.05$, and * $P < 0.01$.

Source: Own study.

3.3.3 Robustness Test

This work used alternative regression analyses, namely a fixed effects (FE) model on a panel dataset, to support the main conclusions' validity (Marquez-Cardenas *et al.*, 2022). The gender diversity and market performance link results are reported in Column 3 of Table 4, and they were calculated using the FE estimator with corrected standard error (Mansour *et al.*, 2022). To sum up, the findings continuously support the validity of the RE model by demonstrating a positive correlation between BGD and Tobin's Q in Tunisian listed banks (BVMT).

To be more precise, at the 1% significance level, the BGD variable's coefficients demonstrate a positive and statistically significant association. Increased representation of women on bank board's correlates with better market performance,

holding all other variables constant. Specifically, the coefficient of determination values, which range from 0.616 to 0.7283, are exceptionally high in all regression models. The FE model has especially high numbers, coming in at about 73%. This indicates that 73% of the variability in Tobin's Q among listed banks in Tunisia can be explained by the model (BVMT). Additionally, the F-test results demonstrate how well the models fit the data.

Table 4. Regression results for BGD and market performance (Tobin's Q)

Variables	Pooled OLS	Random effects	Fixed effects
_Cons	-3.618* (4.49)	-1.864*** (1.94)	-7.64* (6.54)
BGD	0.371 (3.21)	0.373* -6.11)	0.357* (4.02)
BI	0.0729* (3.15)	0.0260*** (1.91)	0.0358** (2.41)
BM	0.224*** (1.90)	0.331 (6.94)	0.311* 10.15
LEV	-0.0337** (2.33)	0.0579* (4.06)	0.0928* (6.06)
SIZE	0.2201*** (1.89)	0.517* (2.80)	0.651* (4.89)
WOTM	0.077* (3.79)	0.3158* (6.28)	0.123* (7.30)
CAR	0.062* (4.96)	0.2387 (3.91)	0.2283* (7.28)
F-test	10.49	-	13.18
Prob. > F	0.0000	-	0.0000
Wald Chi ²	-	19.38	-
R ²	0.612	0.7159	0.7283
Adj-R ²	0.588	-	-
Obs.	207	207	207

Note: *** $P < 0.1$, ** $P < 0.05$, and * $P < 0.01$. † P – insignificant. The t -statistics are in parentheses.

Source: Own study.

3.4 Additional Analysis

Two more analyses were conducted for this study in order to verify the validity of the initial findings.

3.4.1 Alternative Measure for the Main Explained Variable

For accounting purposes, this study used the ROA ratio as a proxy for banking performance. A bank's average total assets during a fiscal year are compared to its yearly net income in order to determine ROA. The benefits of ROA as a trustworthy indicator of operational effectiveness have been brought to light by the thorough investigation carried out by Brahma *et al.* (2021).

Unlike net income, ROA accounts for the size of the business, making performance comparisons between companies simpler. The main finding is still mostly consistent, as Table 5 attests.

Table 5. Regression results for BGD and accounting performance (ROA)

Variables	Coefficients (Std. Err.)	Z
_Cons	1.564*	3.35
	(0.474)	
BGD	0.1539*	6.44
	(0.2518)	
BI	0.0438*	3.18
	(0.0217)	
BM	0.4597*	6.62
	(0.0654)	
LEV	0.0611**	2.27
	0.0389	
SIZE	0.0799**	2.90
	(0.0317)	
WOTM	0.2158*	6.52
	(0.0310)	
CAR	0.3156*	4.98
	(0.0327)	
Wald Chi ²	118.27	
Prob. > Chi ²	0.0000	
R ² (overall)	0.525	
Breusch and Pagan Test	86.67	
Hausman Test	10.41	
Obs.	207	

Note: *** $P < 0.1$, ** $P < 0.05$, and * $P < 0.01$. † P – insignificant.

Source: Own study.

3.4.2 Alternative Measure for the Main Explanatory Variable

This study makes reference to Gharbi and Othman's earlier research to bolster the validity of the current findings (2023).

Furthermore, the regression analysis was reinforced by incorporating an additional WOCB measure, specifically the percentage of female directors on the bank's board (WOCB %).

Consequently, WOCBs are more diversified, the greater their number. The number of women on the bank's board is calculated in this study. The percentage of WOCBs is then calculated by dividing this figure by the board's total size.

The identical results are shown in Table 6 with no modifications.

Table 6. Regression results for percentage of BGD and Tobin's Q

Variables	Coefficients (Std. Err.)	t
_Cons	1.942*	5.32
	(0.382)	
BGD%	0.3447*	6.97
	(0.0575)	
BI	0.3110**	3.48
	(0.0795)	
BM	0.0484**	2.55
	(0.0275)	
LEV	0.3254**	2.45
	(0.0876)	
SIZE	0.3987*	4.99
	(0.0725)	
WOTM	0.5734*	4.91
	(0.1565)	
CAR	0.3045*	7.80
	(0.0412)	
F-test	124.71	
Prob > Chi ²	0.0000	
Within R ²	0.6722	
Breusch and Pagan Test	19.47	
Hausman Test	35.16	
Obs.	207	

Note: *** $P < 0.1$, ** $P < 0.05$, and * $P < 0.01$. † P – insignificant.

Source: Own study.

4. Discussion

This article will provide a detailed explanation of the results and have a comprehensive discussion of them through an in-depth examination. The fundamental regression model, which makes use of the RE model, demonstrates a strong positive correlation between BGD and the market performance of the banking industry in Tunisia, underscoring the role that gender equality plays in enhancing bank performance.

The results are in line with the agency approach's outcome hypothesis and earlier research (Vafaei *et al.*, 2015), but they differ from those of Abdullah (2014), and Marquez-Cardenas *et al.* (2022). Therefore, by addressing information asymmetry and limiting opportunistic behaviour, increased monitoring due to gender diversity lowers agency costs (Saleh *et al.*, 2020).

The finding supports the resource dependency theory and demonstrates the relationship between the external environment and the diversity of board members (Khan *et al.*, 2023). The bank performs better in this relationship when BGD is linked to external factors (Hazaea *et al.*, 2023).

Leadership must also supply resources including background, credentials, funding sources, diversity, and abilities. According to Table 4's OLS regression results, every control variable significantly improves the market performance of Tunisia's banking industry.

This study finds a significant positive relationship between capital structure (LEV), bank size (SIZE), representation of women in top management (WOTM), capital adequacy ratio (CAR), and banking market performance (Tobin-Q) at the 10% level, controlling for other bank characteristics. As per the present findings, banks' BI and BM have a considerable impact on Q-Tobin.

This is consistent with earlier research that has demonstrated the positive correlation between Tobin and the two internal governance traits. BI therefore drives bank performance and acts as a trustworthy gauge of shareholders' interests (Gharbi and Othmani, 2023); this conclusion is in line with Arora and Soni's (2023) findings. According to Bennouri *et al.* (2018), it is also determined that regular board of directors (BOD) meetings are necessary to evaluate the authority of board members to oversee senior managers and provide shareholder protection, thereby improving bank performance.

According to Mansour *et al.* (2023), there is a strong correlation between a bank's capital structure (LEV) and market performance. This suggests that a bank's capital structure reflects its ability to realize benefits rather than costs of debt, which leads to positive bank performance. This is consistent with the findings of Brahma *et al.* (2021). A bank's size (SIZE) and market performance are strongly correlated, which suggests that a bank's size signals its capacity to realize economies of scale (Arora and Soni, 2023).

Large banks can therefore operate more effectively. Moreover, increasing the proportion of women in top management (WOTM) is directly related to bettering bank performance. In a similar vein, this paper's findings concur with those of Bennouri *et al.* (2018) but differ from Saha *et al.* (2023). The significant positive correlation suggests that a greater capital adequacy ratio (CAR) is associated with improved market performance for Tunisian banks.

According to these findings, a high CAR denotes bank financial stability, depositor protection, and the encouragement of bank profitability and efficiency (Gupta and Mahakud, 2020). To get around the drawbacks of OLS regression models and corroborate our findings in the RE model, the study used panel data regression techniques, such as fixed effects (FE) models.

Table 4, Column 3 demonstrates a strong link between BGD and market bank performance. Regarding the application of a fixed effect model, the outcomes agree with those of Marquez-Cardenas *et al.* (2022). The effect of the control variables on Tobin's Q is displayed in column 3 of Table 4's regression results.

Overall, Table 4's column 3 results are consistent with the fundamental findings in Table 4's columns 1 and 2. Furthermore, BGD% was used as a substitute measure of BGD in this study, while ROA was employed as a substitute for Tobin's Q. With a few minor variations, Tables 4, 5, and 6 all provide results that are comparable.

5. Conclusion

The relationship between gender diversity and Tunisian banks' performance is examined in this article. Regression models OLS, ER, and FE were utilized in the study. Between 2015 and 2023, there is a clear and positive correlation between BGD and the performance of Tunisian listed banks (BVMT). The Tobin-Q can grow by up to 37.3 cents for every unit increase in the BGD.

More importantly, the study demonstrates how BGD has a good impact on the creation of an efficient governance structure, namely the efficiency of the board of directors, which enhances managerial oversight, considerably mimics decision-making, and has a direct impact on bank performance. This is in line with most international studies and validates the predictions of resource dependence theory and agency theory.

Thus, boosting BGD on bank board guarantees that executives meet the needs of shareholders. For numerous alternate measures of explained and explanatory factors, these new findings are still applicable. The findings of this empirical study add to our understanding of corporate governance in a number of ways. First, the study's findings demonstrate that by emphasizing good governance principles, such as encouraging gender diversity on boards of directors, Tunisian banks can enhance their operations and solve agency problems.

Furthermore, the research enhances our comprehension of gender diversity in the banking industry of Tunisia by investigating the execution of corporate governance policies in banks an area that has been somewhat overlooked in other studies.

This study is distinctive in that it focusses on this specific relationship and uses a variety of identification and estimating techniques to guarantee precise findings, enhancing research methodology in emerging nations. Unquestionably, regulators, academicians, owners, and managers of ESA banks need to know the findings of this study.

We advise banks to promote women on bank boards and uphold gender equality in order to ensure that bank performance continues to improve, as this will improve performance. It is imperative to draw attention to the limitations of this study, including the small sample size of banks that are listed in Tunisia (BVMT), which should be considered in future research. Extending the empirical attempts to other financial sectors in the MENA region should be the goal of future research.

Furthermore, applying the approach in international settings, especially in poor nations, may provide fresh insights.

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