






“Board gender diversity and bank performance in Jordan”

AUTHORS	Marwan Mansour  Mo'taz Al Zobi Dheif Allah E'leimat  Sad Abu Alim  Ahmad Marei 
ARTICLE INFO	Marwan Mansour, Mo'taz Al Zobi, Dheif Allah E'leimat, Sad Abu Alim and Ahmad Marei (2024). Board gender diversity and bank performance in Jordan. <i>Banks and Bank Systems</i> , 19(1), 183-194. doi: 10.21511/bbs.19(1).2024.16
DOI	http://dx.doi.org/10.21511/bbs.19(1).2024.16
RELEASED ON	Wednesday, 20 March 2024
RECEIVED ON	Tuesday, 05 December 2023
ACCEPTED ON	Tuesday, 05 March 2024
LICENSE	 This work is licensed under a Creative Commons Attribution 4.0 International License
JOURNAL	"Banks and Bank Systems"
ISSN PRINT	1816-7403
ISSN ONLINE	1991-7074
PUBLISHER	LLC “Consulting Publishing Company “Business Perspectives”
FOUNDER	LLC “Consulting Publishing Company “Business Perspectives”



NUMBER OF REFERENCES

50



NUMBER OF FIGURES

0



NUMBER OF TABLES

6

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BUSINESS PERSPECTIVES



LLC "CPC "Business Perspectives"
Hryhorii Skovoroda lane, 10,
Sumy, 40022, Ukraine
www.businessperspectives.org

Received on: 5th of December, 2023

Accepted on: 5th of March, 2024

Published on: 20th of March, 2024

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Dheif Allah E'leimat, Sad Abu Alim,
Ahmad Marei, 2024

Marwan Mansour, Ph.D. Researcher,
Assistant Professor, Business
Faculty, Department of Accounting,
Amman Arab University, Jordan.
(Corresponding author)

Mo'taz Al Zobi, Ph.D., Assistant
Professor, Business Faculty,
Department of Accounting, Amman
Arab University, Jordan.

Dheif Allah E'leimat, Ph.D., Assistant
Professor, School of Business,
Department of Finance and Banking,
Al al-Bayt University, Jordan.

Sad Abu Alim, Ph.D., Assistant
Professor, Business School, Department
of Banking and Financial Sciences, The
Hashemite University, Jordan.

Ahmad Marei, Ph.D., Assistant
Professor, Faculty of Business,
Accounting and Finance Science
Department, Middle East University,
Jordan.



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Conflict of interest statement:

Author(s) reported no conflict of interest

Marwan Mansour (Jordan), Mo'taz Al Zobi (Jordan), Dheif Allah E'leimat (Jordan),
Sad Abu Alim (Jordan), Ahmad Marei (Jordan)

BOARD GENDER DIVERSITY AND BANK PERFORMANCE IN JORDAN

Abstract

Board diversity is crucial for corporate governance and improves corporate outcomes by aligning management with stakeholders' interests. Compared to advanced environments, Jordan's decent sociocultural backdrop exhibits a higher level of gender bias. This study investigates the influence of board gender diversity (BGD) on Jordanian banking sector performance, an under-explored area. This quantitative paper employs Ordinary Least Squares (OLS), random, and fixed-effect approaches to analyze 182 bank-year observations for balanced longitudinal data analysis. These approaches correctly establish the BGD-Tobin's Q nexus during 2010–2022. The coefficient of determination was 70.57%. The model confirms a positive correlation between BGD and market-based performance indicators. Findings support agency and resource dependency hypotheses, showing BGD's role in decision-making. Hence, a one-unit increase in BGD causes a 37.2-cent increase in Tobin's Q measure. Moreover, a one-unit change in board independence, board meetings, size, women's representation in top management, and capital adequacy ratio, assuming all other factors remain constant, results in Tobin-Q changes of 2.57 cents, 32.8 cents, 5.78 cents, 51.2 cents, 30.55 cents, and 22.86 cents, respectively, and the same direction. The results show how BGD enhances bank performance and contributes to relevant theories. The results are vigorous in a variety of identification and estimation methodologies.

Keywords

corporate governance, agency theory, resource
dependence theory, gender equality, developing country

JEL Classification

G21, G30, G34, L25

INTRODUCTION

Lately, gender diversity on boards has gained significance in academic and professional circles (Saleh et al., 2021). Despite the global movement for progress (Fatma & Chouaibi, 2023), women still face barriers to reaching the upper echelons of the business world (Yu & Madison, 2021), men continue to dominate boardrooms (Rahman & Zahid, 2021) including in Jordan (Aribi et al., 2018). Despite making up a sizable proportion of Jordan's population (International Finance Corporation, 2015), women are underrepresented in boardrooms and key decision-making roles. Jordan aims to empower women in strategic decision-making on boards voluntarily to enhance the social, political, and economic atmosphere (World Bank, 2018). The attendance of women on corporate boards (WOCBs) and its wedge on business performance spark intense debates in advanced markets, admitting their value in such positions. Still, studies on this matter have yielded conflicting results (Khan et al., 2023). Unlike industrialized nations like Norway, Spain, Italy, and Germany to name a few (Yu & Madison, 2021), where there are gender quotas in place, most developing countries (Unite et al., 2019) with fragile investor protection, like Jordan (Almarayeh, 2021), do not have rules or regulations requiring or encouraging WOCBs (Naz et al., 2023). So, there is a limited probe into

the link between BGD and company performance in developing nations (Hazaea et al., 2023), which could be attributed to the scarcity of WOCBs (Mohsni et al., 2021). It is important to recognize the potential bias in these studies' findings, as they may not consider institutional and socio-cultural norms and conditions (Castro et al., 2023). Further investigation is necessary to fully grasp how BGD relates to company performance (Đặng et al., 2020). Unlike Western nations, Jordan's socio-cultural context suggests the existence of gender bias (Almarayeh, 2021). The significance of this study is to illuminate a crucial matter in Jordan's context as a developing country. It seeks to discover the link between the BGD and the banks' performance.

1. LITERATURE REVIEW

The rules and provisions of corporate governance (CG) are essential for improving the financial performance of a company. Respondents have been promoting the adoption of self-imposed measures outlined in the CG codes (Adams & Ferreira, 2009). In recent times, there has been an increasing acknowledgment of the importance of WOCBs (Terjesen et al., 2016). In their role, the boards of directors (BODs) keep a watchful eye on managers (Yu & Madison, 2021), providing oversight and guidance to ensure their actions align with company objectives (Đặng et al., 2020). The correlation between BGD and corporate performance is typically attributed to agency theory (Hazaea et al., 2023), which views it as a monitoring role of the BODs (Alshirah et al., 2023; Mansour et al., 2020). Alternatively, in resource dependence theory, female directors provide distinct knowledge, experience, and skills, enabling effective connections with external parties (Ferrary & Déo, 2022; Khan et al., 2023). Last, behavioral-based theories posit that women directors exhibit distinct behavioral traits compared to their male counterparts. Moreover, females tend to be intuitive and focused on the long-term goals, whereas males prioritize short-term goals (Kusumastati et al., 2022). Including female directors brings new perspectives and professional backgrounds that differ from those of the established male-dominated group. The presence of WOCBs introduces new insights and valuable recommendations to top managers, resulting in enhanced decision-making capabilities for problem-solving (Brahma et al., 2021; Đặng et al., 2020), increased creativity and innovation (Arora & Soni, 2023), and a better understanding of the client base and corporate climate (Mohsni et al., 2021), and improved information accessibility (Fatma & Chouaibi, 2023; Castro et al., 2023). The central idea is that BGD impacts

company performance through the contributions of diverse talents, experiences, knowledge, perspectives, leadership styles, and values. By drawing upon agency theory and critical mass theories, multiple studies have delved into the connection between female directorship and French publicly listed firms' performance. The findings have consistently shown that BGD has a positive influence on both accounting and market-based performance (Bennouri et al., 2018; Gharbi & Othmani, 2023). These findings reveal a strong and unambiguous pattern when three or more females are selected to serve on the board, as opposed to the appointment of two or fewer females. In a different context, based on critical mass, resource dependency, and agency theories, the researchers investigated the relationship between BGD and company performance in the UK. Their findings showed a significant and positive link (Brahma et al., 2021; Fatma & Chouaibi, 2023). These results emphasize the significance of the legal system and the company's characteristics in balancing the advantages and disadvantages of BGD, both in terms of board oversight and guidance. Recent studies conducted in both Australian and US settings have yielded valuable insights into the influence of WOCBs on firm performance. These studies have specifically explored the ongoing controversy surrounding this topic and have successfully identified a positive correlation between BGD and financial performance. Importantly, they have also addressed methodological shortcomings observed in earlier research (Đặng et al., 2020). The studies provide empirical evidence that supports the rationale for board diversity, thereby contributing to the policy discourse (Rahman & Zahid, 2021; Vafaei et al., 2015). Similarly, a multi-country BGD investigation was conducted in 2010 using data from 3,876 listed companies in 47 countries. The findings also show that female directors improve the effectiveness of boards. In addition, they discov-

ered that companies with more female directorship outperform on market and accounting indicators (Terjesen et al., 2016). Likewise, theories in social psychology provide the basis for arguments claiming that board diversity has implications for firm performance (Đặng et al., 2020; Hazaea et al., 2023; Yu & Madison, 2021). Companies benefited from the inclusion of both men and women on corporate boards due to the advantageous behavioral distinctions between the two (Hazaea et al., 2023). Conversely, previous research has emphasized various negative consequences resulting from gender diversity (Unite et al., 2019), including decreased business performance and higher borrowing expenses caused by inadequate communication and inefficient coordination among board members (Mansour et al., 2024), which ultimately undermine effective decision-making (Alshirah et al., 2022). The observed results can be linked to an overemphasis on monitoring tendencies. The presence of diverse boards, with their range of viewpoints and ideas, often leads to difficulties in reaching a consensus during decision-making (Adams & Ferreira, 2009; Martinez-Jimenez et al., 2020). This implies that tokenism and familial connections frequently influence board nominations, rather than strong qualifications (Abdullah, 2014). On the flip side, research indicates that there is a limited amount of substantial disparity in the competencies displayed by male and female corporate executives. In addition, the region exhibits a noticeable lack regarding the attendance of WOCBs, as compared to their male counterparts. Another explanation for these findings is the lack of effective regulation of BGD by CG codes in areas where WOCBs are underrepresented. The studies conducted by Arora and Soni (2023), Khan et al. (2023), Marquez-Cardenas et al. (2022), and Unite et al. (2019) support these arguments. These studies have identified a weak, or insignificant relationship in their investigation of the influence of women's directorship on company performance in India, Pakistan, Latin America, and the Philippines. The varying outcomes of prior literature can be attributed to differences in data employed (Li & Chen, 2018), contexts (countries) (Fatma & Chouaibi, 2023), sample size (Rahman & Zahid, 2021), methodologies (Đặng et al., 2020), time periods (Attia et al., 2023), or measures of company performance (Mansour et al., 2022a), which is considered a practical gap in the

gender literature that needs to be filled (Hazaea et al., 2023; Yu & Madison, 2021). However, there is a lack of knowledge about BGD in Jordan. Therefore, the validity of past studies conducted in various settings, CG structures, businesses, and sectors is doubtful. Most of the research on empirical investigations has concentrated on non-financial industries. The limited focus of the current literature inspired the current study in this field.

Thus, this analysis aims to establish the correlation between BGD and the market performance of the Jordanian banking sector from 2010 to 2022.

2. METHOD

2.1. Sample selection and data collection

It is widely acknowledged that the banking sector in a country plays a crucial role in the financial system and economy (Berhe, 2023). Fatma and Chouaibi (2023) believe they are crucial for long-term growth, especially in countries like Jordan with limited financial market development (Mansour et al., 2023a). The objective of the study will be accomplished by including entirely listed banks on the Jordanian Exchange as the study sample, primarily due to their high level of regulation (Mansour et al., 2023b). By 2024, the Central Bank of Jordan (CBJ) mandated publicly listed banks to have 20% representation of WOCBs and 25% in CEO positions. Jordan's Central Bank Chief, Dr. Ziyad Fariz, made it clear that gender diversity in banks is vital for future progress and profitability (Mansour et al., 2023b). The study covers the years 2010 through 2022, during which there were 182 bank-year observations. This 13-year data period coincides with the implementation and recent reforms of the CG code in the Jordan (Mansour et al., 2022a). To collect data for the study, this study manually analyzed content by gathering pertinent information on explained, explanatory, and control variables from Jordan's listed banks' official websites and annual reports filed with the ASE. The data obtained throughout the research years met the study's goals and provided a balanced panel dataset. Finally, this study winsorized wholly variables except the dummy variables to mitigate potentially invalid effects of outliers (Al-Hiyari et al., 2024; Al-Zoubi & Sha'ban, 2023; Lutfi et al., 2022).

2.2. Variable definitions and measurement

This study builds upon recent studies (Arora & Soni, 2023; Gharbi & Othmani, 2023; Marei, 2023) by relying on Tobin's Q as a market-based metric (Mansour et al., 2022b; Saha et al., 2023). It is calculated by adding the market value of stocks to the book value of debt and dividing it by the book value of total assets. Corporations with Tobin's Q over 1 are appealing to investors and offer strong investment prospects. On the other hand, Tobin's Q value lower than 1 implies an undervalued stock price resulting from inadequate asset management and limited investment growth, which reduces investor interest (Brahma et al., 2021). The current study selected Tobin's Q as the measure of firm performance due to its widespread use in previous research on gender diversity (Bennouri et al., 2018). Accordingly, Tobin's Q is not only affected by a company's competitive advantage (Fatma & Chouaibi, 2023; Marei, 2022), but also by the competence of its corporate management (Hazaia et al., 2023). Consequently, it signifies the market's projections for a company's future profitability and the perception of investors toward its potential. In addition, Tobin's Q is less influenced by accounting practices and strategic manipulation of earnings compared with other metrics (Bennouri et al., 2018).

BGD serves as the primary explanatory variable. The study quantifies BGD as the count of WOCBs. Besides, the current study incorporates the ratio of female directorship to male directors on the BOD as part of the robustness test (Arora & Soni, 2023; Gharbi & Othmani, 2023). This study includes both measures of female directors, following the practice of previous BGD literature (Saleh et al.,

2020), which suggests that female directors need to meet a certain threshold to have an impact on board effectiveness (Mansour et al., 2023b).

Based on the literature (e.g. Almarayeh, 2021; Arora & Soni, 2023; Bennouri et al., 2018; Gupta & Mahakud, 2020; Saleh & Mansour, 2024), our analysis considered six variables to control for bank attributes that may affect performance. These variables are: board independence (BI), board meetings (BM), capital structure (LEV), bank size (SIZE), women's representation in top management (WOTM), Capital Adequacy ratio (CAR) assesses banks' stability, and a year dummy variable (Year). Precisely, this study enclosed the year-fixed effects to account for any temporal fluctuations in the explained variable that are deemed unrelated to the other explanatory variables in our model (Al-Hiyari et al., 2024; Unite et al., 2019).

2.3. Model specification

This study employs the OLS method for panel data, a popular statistical tool in social sciences for hypothesis testing. Despite the limited number of firms, panel data offers a significant increase in sample size, which is its principal advantage (Saleh et al., 2022; Saleh & Mansour, 2024). By utilizing panel sets, the study gains more observations, resulting in influential statistical analysis. This paper conducted a comprehensive analysis of the correlation between BGD in Jordanian listed-banks and their market performance. The utilization of the baseline analysis model will yield valuable insights, giving us a comprehensive interpretation of this connection. To study the BGD-Tobin's Q nexus in the Jordanian banking sector research sample, a regression model for panel data is utilized.

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		
Board Gender 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

$$\begin{aligned}
\text{TOBIN'S } Q = & \beta_0 + \beta_1 \text{BGD}_{i,t} + \beta_2 \text{BI}_{i,t} \\
& + \beta_3 \text{BM}_{i,t} + \beta_4 \text{LEV}_{i,t} + \beta_5 \text{SIZE}_{i,t} + \beta_6 \text{WOTM}_{i,t} \\
& + \beta_7 \text{CAR}_{i,t} + \text{Year Dummy} + \varepsilon_{i,t}.
\end{aligned} \quad (1)$$

The notation “*i*” corresponds to the listed banks (1-14), while “*t*” represents the study period (2010–2022). The explanations of variables are specified in Table 1. Panel data are used in the study to mitigate multicollinearity problems among explanatory variables, leading to more accurate sequels (Alshirah et al., 2022; Mansour et al., 2024; Saleh et al., 2021). Controlling for bank individual heterogeneity can decrease the likelihood of biased outcomes (Al-Hiyari et al., 2024; Mansour et al., 2022b; Saleh et al., 2020). Additionally, it can mitigate the endogeneity problem that arises due to unobserved heterogeneity (Lutfi et al., 2022; Mansour et al., 2022a).

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 2010 to 2022, including mean, minimum, maximum, and standard deviation measures. Table 2 presents the explained variable, Tobin’s Q, which ranges from 0.497% to 1.752%, with a mean value (Std. Dev) of 0.910% (0.338). 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 1.039. The average number of independent directors in bank boards was hovers around 4.45 ranging from 2 to 6. Furthermore, the BOD

in banks is deemed active, as evidenced by the average of 8.04 board meetings, with a range of 6 to 13 meetings. These figures are in accordance with the Jordanian CG Codes (Alshirah et al., 2023; Mansour et al., 2020). High gearing in Jordanian banking sectors was demonstrated by an average BCS of 86.45%. Bank sizes in the kingdom show limited variation, as indicated by the average BSZ (Std. Dev) of 7.04 (0.64). The average WOTM, ranging from 0 to 6 CEOs, was 1.96%. Ultimately, the average CAR turned out to be 17.7%. The ratio surpasses the CBJ-approved limit, reaching a minimum of 12%.

3.2. Correlation analysis

Before the official empirical analysis, bivariate correlations were used to bring a preliminary insight into the associations between selected variables. By reporting the correlation matrix for the explained and explanatory variables, Table 3 confirms that the studied variables included in the model are proper, as they are not highly correlated. Consequently, the issue of multicollinearity did not pose a significant worry in the examination of correlations since none of the explanatory variables had coefficients above the threshold of 0.700 (Mansour et al., 2024; Saha et al., 2023). The correlation coefficient in Table 3 highlights the interplay between the market performance of the banking sector, board gender diversity, and relevant control variables. The findings confirmed the expected positive correlation between BGD, BI, BM, and Tobin’s Q in listed banks in ASE. When scrutinizing the correlation between various control variables and Tobin’s Q, positive and significant correlations were found between SIZE, the WOTM, CAR, and Tobin’s Q. However, a negative and significant correlation was observed between the SIZE

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

Variables	Obs.	Mean	SD	Min	Max	Skewness	Kurtosis
TOBIN'S Q	182	0.910	0.338	0.497	1.752	1.029	3.387
No. BGD	182	1.039	0.898	0	4	0.654	3.0589
BI	182	4.45	1.07	2	6	-0.191	2.754
BM	182	8.04	2.01	6	13	1.026	3.263
LEV	182	0.8645	2.929	0.8183	0.906	-0.063	1.762
SIZE	182	7.04	0.64	5.877	8.158	-0.037	1.676
WOTM	182	1.96	1.576	0	6	0.627	2.171
CAR	182	0.177	0.051	0.112	0.47	0.857	3.046

and Tobin's Q. In terms of robustness, it is worth noting that the VIF results demonstrate no evidence of multicollinearity, with the highest VIF value recorded at 1.437. Additionally, the mean VIF value of 1.56 is significantly lower than the benchmark of 10 (Mansour et al., 2023b). Resultantly, this paper can elucidate the regression analysis results more with confidence.

3.3. Regression results

This section discusses the results of the pooled OLS regression, random-effect regression analysis, and robustness test on the panel data.

3.3.1. Pooled OLS regression

Initially, this study conducted the OLS regression. It presented the pooled OLS results for the bank performance equation in the first column of Table 4, with Tobin's Q as the explained variable. This study hired Tobin's Q as an indicator of growth opportunities (Đặng et al., 2020), to assess market performance in Jordan's banking industry. Table 4 reveals a substantial positive correlation between gender diversity in bank boards and market performance, with the BGD coefficient estimators showing a strong positive association at the 1% level. Specifically, in column 1, the coefficient of the BGD is 0.369, indicating that a 1% increase in BGD will cause a roughly 0.37% increase in Tobin's Q, assuming all other factors remain constant. From analyzing the control variables, it is clear that most have a notable positive impact on Tobin's Q. This is evident from the coefficients offered in Table 4. The association coefficients in Table 4 reveal that a one-unit change in BI, BM, SIZE, WOTM, and CAR, with all other variables held constant, leads to corresponding changes of 7.17 cents, 22.2 cents, 21.98 cents, 7.6 cents, and 6.1 cents in the Tobin's Q, respectively. While the estimated coefficient for the LEV variable was negative (-0.0344) at a 5% level with Tobin's Q. Another noteworthy aspect is that the models exhibit good fitness, as exhibited by overall F-tests yielding p-values lower than 1%. Additionally, the R-squared value of 60.6% reflects that the model can explain 60.6% of the change in Tobin's Q. It is important to note that the OLS method of regression does not provide

a solution for controlling unobserved individual effects (Mansour et al., 2023b), a common challenge in panel dataset research (Alodat et al., 2023). Thus, to account for unobserved individual effects (Saleh et al., 2022), this paper carried both fixed and random effects models out alongside pooled OLS.

3.3.2. Random-effect regression analysis

Furthermore, the outcomes of the random effect (RE) model are displayed in column 2 of Table 4. The results from the RE model indicate that the coefficients of BGD are positive, albeit with slight variations in their significance levels. In an effort to find the best model between RE and FE, this paper conducted the Hausman test for evaluation purposes (Saha et al., 2023; Saleh & Islam, 2020). According to the chi-square statistics, there is a clear distinction between the RE and FE models, with the RE model being favored at the 1% significance level. Moreover, according to the Wald test, the RE model manifests superior performance compared to the pooled OLS model. This study should also consider heteroskedasticity and the autocorrelation phenomenon, apart from unobserved individual factors (Mansour et al., 2022a), as they can affect the efficiency of the model coefficients. To address these issues, the study implemented the RE model while adjusting for standard errors (Mansour et al., 2022b). To analyze the connection between BGD and banks' performance, the RE estimator (GLS regression) with adjusted standard error (Robust) was engaged. The results displayed in Table 4 from the empirical model using the RE method confirm a positive correlation between BGD and bank performance. The marks highlight a favorable link between gender diversity and market performance. The significant and positive coefficients of BGD, measured by the total number of females in bank boards, in Tobin's Q regression, support this finding at a 1% significance level. On average, a 1% increase in BGD will boost 0.372 units in Tobin's Q. The control factors have all been uncovered to have a substantial positive influence on Tobin's Q. This is evident from the coefficients shown in Table 4. Table 4 shows that a one-unit change in BI, BM, LEV, SIZE, WOTM, and CAR, with all other variables held constant, results in Tobin's

Table 3. Pairwise correlation and multicollinearity (VIF) tests

Variables	TOBIN'S Q	BGD	BI	BM	LIV	SIZE	WOTM	CAR
TOBIN'S Q	1	–	–	–	–	–	–	–
BGD	0.195**	1	–	–	–	–	–	–
BI	0.029	–0.0022	1	–	–	–	–	–
BM	0.1897**	0.0334	0.981	–0.133	–	–	–	–
LIV	0.1764*	0.048	0.0294	0.137	1	–	–	–
SIZE	–0.197**	–0.0743	–0.129**	–0.0805	0.027	–	–	–
WOTM	0.429*	0.354*	0.0213	–0.046	0.4085	–	–	–
CAR	0.0000	0.0000	0.813	0.609	0.0037	0.3703	–	–
VIF	–	1.154	1.073	1.272	1.437	1.145	1.369	1.221

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

Q changes of 2.57 cents, 32.8 cents, 5.78 cents, 51.2 cents, 30.55 cents, and 22.86 cents, respectively, and in the same direction.

3.3.3. Robustness test

To strengthen the validity of the main findings, this study conducted alternate panel dataset regression analyses, namely a fixed-effect (FE) model (Marquez-Cardenas et al., 2022). Column 3 of Table 4 reports the connection outcomes concerning gender diversity and market performance, which were estimated by the FE estimator with adjusted standard error (Mansour et al., 2022a). In essence, the results consistently uphold the positive connection between BGD and Tobin's Q in Jordanian listed banks, providing further support for the RE model. Specifically, the BGD variable coefficients demonstrate a positive and statistically significant connection at the 1% significance level. Holding all other factors constant, a higher presence of female directorship on bank boards leads to improved market performance. Notably, the coefficient of determination values in all regression models are commendably bang-up, ranging from 0.606 to 0.7179. The figures in the FE model are notably elevated, reaching around 72%. This renders that the model can explain up to 72% of the variations in Tobin's Q among Jordanian-listed banks. Furthermore, the F-test results exhibit that the fitness of models is quite satisfactory.

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

Variables	Pooled OLS	Random effects	Fixed effects
_Cons	–3.648*	–1.871***	–7.77*
	(4.45)	(1.93)	(6.52)
BGD	0.369*	0.372*	0.354*
	(3.15)	(6.08)	(3.99)
BI	0.0717*	0.0257***	0.0357**
	(3.14)	(1.89)	(2.38)
BM	0.222***	0.328*	0.301*
	(1.89)	(6.92)	(10.01)
LEV	–0.0344**	0.0578*	0.0925*
	(2.29)	(4.04)	(6.01)
SIZE	0.2198***	0.512*	0.645*
	(1.86)	(2.79)	(4.86)
WOTM	0.076*	0.3055*	0.116*
	(3.76)	(6.26)	(7.29)
CAR	0.061*	0.2286*	0.2179*
	(4.94)	(3.88)	(7.26)
Year Dummy	√	√	√
F-test	10.48	–	13.05
Prob. > F	0.0000	–	0.0000
Wald Chi ²	–	18.15†	–
R ²	0.606	0.7057	0.7179
Adj-R ²	0.585	–	–
Obs.	182	182	182

Note: *** P < 0.1, ** P < 0.05, and * P < 0.01. † P – insignificant. The t-statistic is in parentheses.

3.4. Additional analysis

To confirm the durability the primary findings, this study undertook two additional analyses.

3.4.1. Alternative measure for the main explained variable

As a substitute measure of bank performance (Almarayeh, 2021; Fatma & Chouaibi, 2023), the present study relied on the ROA ratio as an accounting-based measure. The ratio used to calculate ROA compares a bank’s annual net income to the average total assets during a fiscal year. The detailed analysis conducted by Brahma et al. (2021) highlighted the virtues of ROA as a reliable metric for operating performance. ROA considers firm size, unlike net income, enabling easier performance comparison between firms. Table 5 serves as further validation that the major discovery remains consistent overall.

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

Variables	Coefficients (Std. Err.)	Z
_Cons	1.542* (0.468)	3.29
BGD	0.1334* (0.2103)	6.34
BI	0.0329* (0.0106)	3.12
BM	0.3489* (0.0543)	6.43
LEV	0.0597** (0.0273)	2.19
SIZE	0.0777** (0.0271)	2.86
WOTM	0.1432* (0.0222)	6.45
CAR	0.3045* (0.0613)	4.97
Year Dummy	√	
Wald chi ²	106.12	
Prob. > chi ²	0.0000	
R ² (overall)	0.519	
Breusch & Pagan Test	83.76*	
Hausman Test	10.29†	
Obs.	182	

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

3.4.2. Alternative measure for the main explanatory variable

To support the reliability of the current findings, this study references previous research conducted by Gharbi and Othman (2023). Additionally, an alternate measurement of BGD was utilized to strengthen the regression analysis (Mansour et al., 2023b), the ratio of female directorship on the bank’s board (BGD %). Therefore, the more WOCBs there are, the more diverse it becomes. The current study calculates the number of women serving as directors on the bank board. Subsequently, the next step involves dividing it by the total board size to establish the percentage of BGD. Without any modifications, Table 6 portrays the identical findings.

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

Variables	Coefficients (Std. Err.)	t
_Cons	1.925* (0.369)	5.21
BGD%	0.3336* (0.0485)	6.87
BI	0.2392** (0.0741)	3.23
BM	0.0469** (0.0186)	2.52
LEV	0.2149** (0.0887)	2.42
SIZE	0.3044* (0.0612)	4.98
WOTM	0.5629* (0.1155)	4.87
CAR	0.2396* (0.0309)	7.75
Year Dummy	√	
F-test	123.58	
Prob > chi ²	0.0000	
Within R ²	0.6489	
Breusch & Pagan Test	18.15*	
Hausman Test	33.06*	
Obs.	182	

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

4. DISCUSSION

Through an accomplished analysis, this article will comprehensively explain the findings and engage in an in-depth discussion of the results. The base-

line regression model, which employs the RE model, shows a substantial positive link between BGD and Jordan's banking sector market performance, highlighting the importance of gender equality in bolstering bank performance. The discovery corresponded to the outcome hypothesis of the agency approach and earlier studies (Terjesen et al., 2016; Unite et al., 2019; Vafaei et al., 2015), yet incompatible with Abdullah (2014), Almarayeh (2021), and Marquez-Cardenas et al. (2022). So, increased monitoring because of gender diversity lowers agency costs by resolving information asymmetry and constraining opportunistic behavior (Saleh et al., 2020). The discovery aligns with the resource dependency theory, showing a connection between board member diversity and the external environment (Khan et al., 2023). Linking BGD with external factors improves the bank's performance in this relationship (Hazaea et al., 2023). Additionally, it requires leadership to provide resources such as experience, qualifications, financing options, diversity, and skills (Fatma & Chouaibi 2023). The OLS regression results in Table 4 show that all control variables have a significant positive influence on the market performance of banking sectors in Jordan. Controlling for other bank characteristics, this study finds a significant positive relationship, at a 10% level, between board independence (BI), board meetings (BM), capital structure (LEV), bank size (SIZE), women's representation in top management (WOTM), Capital Adequacy ratio (CAR) and bank market performance (Tobin-Q). According to the current findings, Tobin-Q is significantly impacted by the BI and BM of banks, which aligns with prior literature highlighting the positive connection between Tobin and both internal governance attributes (Almarayeh, 2021; Bennouri et al., 2018). Thus, the BI serves as a reliable indicator of shareholders' interests and boosts bank performance (Gharbi & Othmani, 2023), and this finding is consistent with Arora and Soni (2023). Furthermore, regular board meetings (BM) are deemed critical in assessing the board members' power to oversee executive managers and ensure shareholders' protection,

thus increasing bank performance, which aligns with Bennouri et al. (2018). The strong connection between a bank's capital structure (LEV) and market performance implies that capital structure is indicative of its capacity to achieve advantages rather than debt costs (Mansour et al., 2023b), resulting in positive bank performance (Mansour et al., 2023a), consistent with Brahma et al. (2021) but not with Fatma and Chouaibi (2023). The strong connection between a bank's size (SIZE) and market performance suggests that SIZE points to its capability to attain economies of scale (Arora & Soni, 2023). Consequently, bigger banks can attain superior performance (Mansour et al., 2023b), consistent with Fatma and Chouaibi (2023). In addition, enhanced bank performance is coupled with the inclusion of women's representation in top management (WOTM). Similarly, the results of the present paper align with the findings of Bennouri et al. (2018), but not with Saha et al. (2023). A higher capital adequacy ratio (CAR) leads to increased market performance of Jordanian banks, as indicated by the significant favorable coefficient. This evidence suggests that a higher CAR signifies the bank's financial stability, safeguarding depositors and promoting the efficiency and profitability of banks, congruent with (Gupta & Mahakud, 2020). The paper used panel dataset regression methods, including fixed effects (FE) models, to address limitations in OLS regression models and validate our findings in the RE model. BGD shows significant correlations with market banks' performance in Table 4, column 3. The findings are consistent with Marquez-Cardenas et al. (2022) regarding the use of a fixed-effect model. The regression results in Column 3 of Table 4 demonstrate the impact of control variables on Tobin's Q. Generally, the results in Table 4 Column 3 align with the baseline findings in Table 4 columns 1 and 2. Moreover, this study utilized ROA as an alternative measure for Tobin's Q, while BGD% was adopted as an alternative measure for BGD. Table 4, Table 5, and Table 6 all showcase similar outcomes, with slight discrepancies.

CONCLUSION

This article analyzes the link between gender diversity and Jordanian bank performance. The study involved OLS, RE, and FE regression models. It informs a strong positive connection between BGD and market-based performance of listed banks in Jordan from 2010 to 2022. An increase in BGD by one unit raises Tobin-Q by up to 37.2 cents. Importantly, the study shows that BGD positively affects estab-

lishing an effective governance framework, particularly board effectiveness, which significantly simulates decision-making, enhances managerial oversight, and directly affects banks' performance. This verifies the expectations of agency theory besides resource dependency theory and is consistent with the majority of global studies. Accordingly, increasing BGD in board banks ensures leaders cater to the interests of shareholders. These novel insights remain relevant to many sorts of alternative measures for both explained and explanatory factors. The outcomes of this empirical study expand the knowledge of CG in different domains. First, the study's findings exhibit that Jordanian banks can enhance their performance and address agency issues by prioritizing good governance practices, particularly by promoting gender diversity on boards. Additionally, it enhances our understanding of gender diversity in Jordan's banking industry by investigating the implementation of CG regulations in banks, a topic that previous research has overlooked to some extent. This study stands out by addressing this particular nexus and employing diverse identification and estimate methodologies to ensure accurate findings, thereby enhancing research methodology in developing countries. The current study's findings are undeniably vital for bank owners, top leadership, academics, and regulators in the ASE. To secure ongoing progress in bank performance, we advise banks to uphold gender equality and prioritize female members on bank boards, as this will foster increased performance. It is crucial to highlight the limitations of this study, such as the small sample size of Jordanian listed banks, which should be considered in subsequent quests. Future research should aim to expand the empirical attempts to other banking sectors in the MENA region. Moreover, utilizing the model in cross-national settings, especially in developing countries, may produce fresh perspectives.

AUTHOR CONTRIBUTIONS

Conceptualization: Marwan Mansour, Mo'taz Al Zobi, Dheif Allah E'leimat, Ahmad Marei.

Data curation: Marwan Mansour, Mo'taz Al Zobi, Ahmad Marei.

Formal analysis: Marwan Mansour, Mo'taz Al Zobi, Sad Abu Alim.

Funding acquisition: Marwan Mansour, Dheif Allah E'leimat, Sad Abu Alim.

Investigation: Marwan Mansour, Mo'taz Al Zobi, Dheif Allah E'leimat, Ahmad Marei.

Methodology: Marwan Mansour, Mo'taz Al Zobi, Ahmad Marei.

Project administration: Sad Abu Alim.

Resources: Marwan Mansour, Mo'taz Al Zobi, Dheif Allah E'leimat.

Software: Marwan Mansour, Mo'taz Al Zobi, Ahmad Marei.

Supervision: Mo'taz Al Zobi, Dheif Allah E'leimat.

Validation: Dheif Allah E'leimat, Sad Abu Alim.

Visualization: Sad Abu Alim, Ahmad Marei.

Writing – original draft: Marwan Mansour, Mo'taz Al Zobi, Dheif Allah E'leimat, Sad Abu Alim.

Writing – reviewing & editing: Marwan Mansour, Mo'taz Al Zobi, Dheif Allah E'leimat, Sad Abu Alim, Ahmad Marei.

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