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The Impact of Board Characteristics on the Performance of Banks in the MENA Region

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Abstract:

Purpose: *This paper examines the impact of board characteristics on bank performance variability in the Middle East and North Africa (MENA) region.*
Design/Methodology/Approach: *Using a sample of 97 banks from the MENA region over the period 2016–2020, the study investigates the effect of four corporate governance mechanisms on two bank performance measures: return on assets (ROA) and return on equity (ROE). Additionally, three control variables are included to isolate the impact of corporate governance characteristics on bank performance. Panel data regression techniques are employed for empirical analysis.*
Findings: *The results indicate that board size, CEO duality, and the presence of institutional directors on the board have a positive and statistically significant effect on return on assets (ROA). Board size exhibits a negative and significant relationship with return on equity (ROE), whereas the presence of institutional directors has a positive and significant impact on ROE.*
Practical Implications: *The findings provide valuable insights for regulators, policymakers, and bank stakeholders in the MENA region by highlighting the importance of board structure in enhancing bank performance. Improving board composition and governance practices may contribute to stronger financial outcomes and greater stability in the banking sector.*
Originality/Value: *This study contributes to existing literature by offering empirical evidence on the relationship between board characteristics and bank performance in the underexplored MENA region. It enhances understanding of how specific governance mechanisms influence different dimensions of bank performance.*

Keywords: *Banks, board structure, corporate governance, performance, MENA.*

JEL Classification: *G21, G34, C23.*

Paper type: *Research article.*

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1. Introduction

Corporate governance has attracted significant attention from scholars and policymakers over the past three decades due to its critical role in shaping firm performance and stability. It is broadly defined as the systems, structures, and processes through which companies are directed, controlled, and held accountable (Lee, 2008). Extensive research (Brick *et al.,* 2005; Kajola, 2008; Jackling and Johl, 2009; Black and Kim, 2012; Zaman, 2015; Suryanto *et al.,* 2017 ; Taguchi and Wanasilp, 2018 ; Hoang *et al.,* 2022) has consistently shown that effective corporate governance mechanisms enhance profitability, improve operational efficiency, and contribute to the long-term sustainability of firms.

Sound corporate governance not only improves financial outcomes but also mitigates risks associated with mismanagement, fraud, and corporate scandals, while enhancing corporate reputation and stakeholder confidence (Todorovic, 2013). This function is particularly crucial in developing economies, where governance frameworks can serve as vital tools to facilitate globalization and improve investor confidence (Narwal and Jindal, 2015).

The banking sector occupies a unique position in both developed and emerging economies, as banks are pivotal for financial stability, economic growth, and the allocation of resources. Consequently, governance practices in banks are subject to heightened scrutiny, given their capacity to amplify systemic risks if mismanaged.

Scholars have underscored that effective corporate governance in banks strengthens risk management, ensures regulatory compliance, and enhances resilience against both internal and external shocks (Mulbert, 2010; Caprio *et al.,* 2007; Mangla, 2012).

Furthermore, empirical evidence indicates that governance structures, such as board composition, executive leadership, and ownership concentration, significantly influence banks' financial performance.

Building on this foundation, the present study investigates the impact of corporate governance mechanisms on the performance of banks in the MENA region, an area characterized by unique institutional, economic, and regulatory challenges. Using a sample of 97 banks over the period 2016–2020, this study examines how board characteristics, leadership structures, and institutional ownership affect bank performance, measured through return on assets (ROA) and return on equity (ROE).

By providing empirical evidence from a context that remains underexplored, this research contributes to the literature on corporate governance and offers insights for policymakers, regulators, and banking practitioners seeking to enhance financial stability and performance in emerging markets.

2. Literature Review and Hypotheses Development

According to agency theory, the board of directors is responsible for monitoring management decisions (Sumner and Webb, 2005). However, agency conflicts can arise within the board. Thus, board structure appears to affect performance. In our study, we focus on the size and composition of bank boards (CEO duality, presence of independent and institutional directors).

2.1 Board Size

The primary function of the board of directors is to supervise and advise management (Jensen, 1993). Board size is mainly used as an indicator of its effectiveness. According to resource dependence theory (Pfeffer and Salancik, 1978), a large board facilitates oversight of management while bringing a wealth of skills and managerial experience, making it more difficult for the CEO to manipulate the board (Zahra and Pearce, 1989).

However, proponents of agency theory (Jensen, 1993) argue that a large board may create coordination, monitoring, and decision-making flexibility issues because board members may collude with management to expropriate other stakeholders. According to agency theory, a smaller board is expected to be more effective. Previous studies have reported mixed results regarding the relationship between board size and bank performance.

Some studies have identified a significant positive relationship between board size and bank performance. For example, Al-Smadi (2013) observed a significant positive correlation in Saudi Arabia. Similarly, Al-Amarneh (2014) examined 13 listed banks in Jordan over the period 2000–2012 and found that an increase in board size was associated with improved bank performance, highlighting the importance of good governance practices for stakeholders and investors. Bace (2017), over the period 2010–2015, also noted a positive correlation between board size and the profitability of Saudi banks, measured by ROE.

Rahman and Islam (2019) found a positive influence of board size on bank performance in Bangladesh. Mertzanis *et al.* (2019) also documented a significant positive relationship between board size and firm performance in the MENA region. Djebali and Zaghdoudi (2020), using a sample of ten listed Tunisian commercial banks observed over 1998–2015, found that the correlation between board size and performance was positive and significant.

Habtoor (2022), studying 12 listed banks on the Saudi Stock Exchange over a ten-year period (2009–2018), also discovered a positive relationship between board size and bank performance measured by ROA.

On the other hand, some studies reported an inverse relationship between board size and bank performance. Boussaada and Karmani (2015), examining a sample of 38 MENA region banks over 2004–2011, concluded that reducing board size was associated with improved bank performance. Al-Sahafi *et al.* (2015) also found a significant negative association between board size and financial performance, using indicators such as ROA, ROE, and Tobin's Q. Bhattrai (2017) conducted a study on 13 commercial banks in Nepal from 2010 to 2015 and found a negative impact of board size on financial performance.

Sbai and Meghouar (2017) studied six listed banks on the Casablanca Stock Exchange over 2009–2015 and obtained similar results, showing a negative influence of board size on performance, measured by ROA and ROE. Fatiha *et al.* (2022) examined the relationship between board size and bank performance in Qatar over 2011–2020 and found a negative relationship between the two variables. Mkadmi *et al.* (2022) also reported a negative relationship between board size and bank performance. Widarwati *et al.* (2022) noted that a high number of board members was associated with lower bank performance.

Moreover, some studies did not find a significant relationship between board size and bank performance. James and Joseph (2015), analyzing a sample of 18 Malaysian banks from 2009 to 2013, concluded that board size had no significant relationship with bank performance. Al-Sagr *et al.* (2018) found no significant relationship between board size of nine Saudi banks over 2011–2016 and their performance. Even during the COVID-19 pandemic in the MENA region, El-Chaarani *et al.* (2022) found that board size had no significant effect on bank performance.

Based on these studies, we propose the following hypothesis:

H1: Board size has a negative impact on the performance of banks in the MENA region.

2.2 CEO Duality

CEO duality refers to the situation where the same individual holds both the positions of CEO and board chairman. This duality can affect the independence of the board of directors (Fama and Jensen, 1983) and enhance the CEO's power (Boyd, 1995). Separating these two roles is beneficial for the board's effectiveness in its monitoring function (Beatty and Zajac, 1994).

Agency theory highlights the importance of separating the CEO and chairman roles to ensure board independence and improve corporate transparency (Jensen, 1993). Concentration of power can exacerbate potential conflicts of interest and reduce monitoring effectiveness, as it limits the flow of information to other board members, thereby compromising independent oversight of management by the board

(Fama and Jensen, 1983; Jensen, 1993).

Several studies have examined the impact of CEO duality on bank performance, and the results are mixed.

Some studies have identified a significant positive relationship between CEO duality and bank performance. For example, Mamatzakis *et al.* (2015) found that CEO power had a positive effect on the performance of U.S. investment banks. Chenini and Jarboui (2016) revealed that the combination of CEO and board chairman roles had a significant positive influence on performance. Mertzanis *et al.* (2019) found that separating the roles of CEO and chairman positively impacted bank performance in the MENA region.

Conversely, some studies reported a negative relationship between CEO duality and bank performance. Georgantopoulos et al. (2017) analyzed Greek banks and found a negative effect of CEO duality on performance. Similarly, Sbai and Meghouar (2017) studied Moroccan banks and also observed a negative influence of CEO duality on performance.

Belkebir *et al.* (2018) indicated that variables representing duality had a statistically significant negative effect on bank performance. Sarkar *et al.* (2018) showed that CEO duality negatively impacted bank performance in India. Nuanpradit (2018) emphasized that combining the CEO and chairman roles could harm overall firm performance.

Other research concluded that there was no significant link between CEO duality and firm performance. Al-Amarneh (2014) found a positive but non-significant association between CEO duality and the performance of Jordanian banks. Boussaada and Karmani (2015) reported no significant relationship between CEO duality and bank performance. Belhaj and Mateus (2016) concluded that CEO duality had no significant effect on European banks' performance.

Abdul Gafoor *et al.* (2018) found that separating the CEO and chairman roles did not significantly improve bank performance in India. Djebali and Zaghdoudi (2020) also concluded that CEO duality had no significant impact on banks' financial performance.

Finally, the study by El-Chaarani *et al.* (2022) during the COVID-19 pandemic in the MENA region showed that CEO duality did not have a significant effect on bank financial performance during this crisis period.

Based on these findings, we propose the following hypothesis:

H2: CEO-Chair duality has a negative impact on the performance of banks in the MENA region.

2.3 Independent Directors

According to agency theory, independent directors are motivated to act as monitors of management because they seek to protect their reputation as effective and impartial decision-makers (Fama and Jensen, 1983). A larger number of independent directors is considered an important feature of an effective board (Yermack, 1996; Fama and Jensen, 1983).

However, the presence of independent directors may make information exchange within the board more difficult, as they may limit the participation of bank managers with specialized knowledge on the board (Adams and Ferreira, 2007; Andres and Vallelado, 2008). Executive directors, in contrast, facilitate the transfer of information between board members and management (Adams and Ferreira, 2007; Coles *et al.,* 2008). Nonetheless, empirical results regarding board independence and performance are mixed.

Several studies have shown a positive relationship between board independence and bank performance. Fernandes *et al.* (2016) found that banks with large independent boards performed better during the 2007–2008 financial crisis. Dong *et al.* (2017) reported that board independence is associated with increased earnings efficiency in banks. Abdul Gafoor *et al.* (2018) found a significant positive relationship between board independence and bank performance. Ataur and Jahurul (2018) indicated that the presence of an independent board had a significant positive impact on return on equity (ROE) and earnings per share (EPS).

Sarkar and Sarkar (2018) found that the proportion of independent directors positively affected the performance of private banks in India. Handriani and Robiyanto (2019) reported that an independent board had a significant positive effect on the financial performance of listed companies on the Indonesian Stock Exchange.

Bezawada and Adavelli (2020) found that board independence had a positive and significant impact on return on assets (ROA). Djebali *et al.* (2020) observed a positive effect of board independence on the performance of Tunisian banks. During the COVID-19 pandemic, El-Chaarani *et al.* (2022) analyzed a sample of 148 banks in the MENA region and found that the presence of independent board members had positive effects on banks' financial performance during the crisis period.

Conversely, some studies reported a negative relationship. Using a sample of 15 Chinese and 21 Indian listed banks over 2007–2011, Battaglia and Gallo (2015) showed that a higher percentage of external directors led to a deterioration in ROE and ROA. Furthermore, Sarkar and Sarkar (2018) found that the proportion of independent directors negatively impacted the performance of public banks in India.

Al-Sagr *et al.* (2018) showed that an increase in the percentage of independent board members harmed the performance of Saudi banks. Mertzanis *et al.* (2019) found that board independence is a significant negative predictor of firm performance in the MENA region. Gwaison *et al.* (2021) reported that board independence negatively affected the financial performance (ROA) of commercial banks in Nigeria.

Additionally, existing literature also reports a non-significant relationship between independent directors and performance. Boussaada and Karmani (2015) concluded that there is no significant link between the presence of independent directors on boards and bank performance in the MENA region.

Rashid (2018) found no effect of board independence on the performance of 135 firms listed on the Dhaka Stock Exchange. Similarly, a study of 12 listed Saudi banks from 2009 to 2018 revealed a non-significant association between board independence and bank performance.

Based on these findings, we propose the following hypothesis:

H3: The proportion of independent directors is positively related to bank performance in the MENA region.

2.4 Presence of Institutional Directors

Proponents of activism theory refer to agency theory and argue that institutional investors are more aware and competent than other shareholders (Pearce and Zahra, 1992). Conversely, supporters of passivity theory contend that institutional investors are expected to play a passive role in bank governance. However, studies examining the impact of institutional directors on bank performance have produced mixed results.

Hutchinson *et al.* (2015) found a positive relationship between institutional investors and firm performance in China. Similarly, Lin and Fu (2017) showed that institutional ownership positively affects firm performance. In the Lebanese context, Azoury *et al.* (2018) analyzed 35 of the largest banks operating between 2009 and 2014, and their empirical results revealed that the presence of institutional directors had a positive and significant effect on the ROA of Lebanese banks.

In the same context, Derbali *et al.* (2020) analyzed a sample of 11 Tunisian banks over the period 1999–2018 and found that the number of institutional directors played an important role in enhancing the financial performance of Tunisian banks.

Among studies highlighting a negative link between institutional directors and bank performance, Chenini *et al.* (2016) found a negative effect of the presence of institutional directors on the performance of Tunisian banks. In France, Fattoum-Guedri *et al.* (2018) showed that institutional investors have a negative and significant impact on firm performance. Djebali and Zaghdoudi (2020), using a sample of ten Tunisian commercial banks over 1998–2015 and applying the

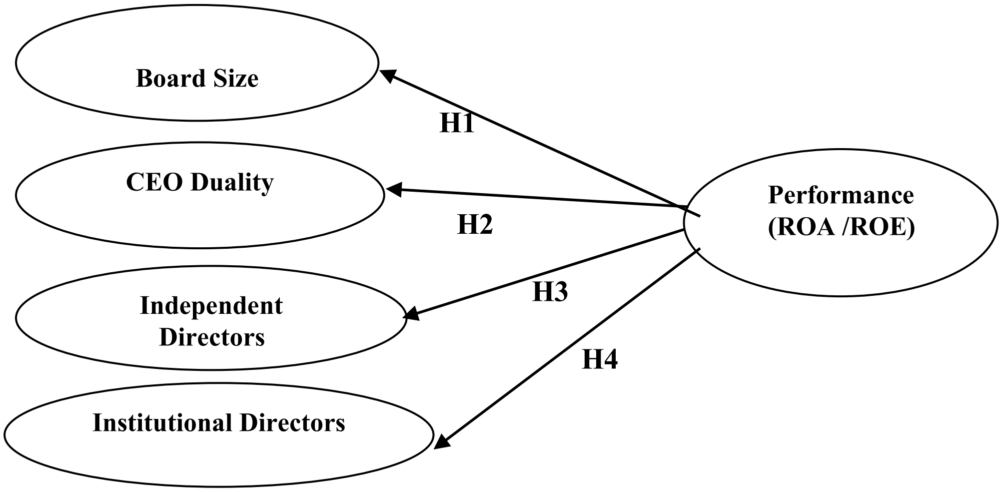
Generalized Method of Moments (GMM), found a negative impact of institutional investors on bank performance.

Other studies have observed a non-significant relationship between institutional directors and performance. Rahman and Reja (2015) conducted a study on a sample of 22 Malaysian commercial banks from 2000 to 2011 and found no association between institutional investors and bank performance. Similarly, Boussaada and Karmani (2015) concluded that the participation of institutional directors on the board had no significant impact on the performance of 38 banks in the MENA region.

Based on these findings, we propose the following hypothesis:

H4: The proportion of institutional directors has a positive impact on bank performance in the MENA region.

Figure 1. *Conceptuel Framework of the Study.*



Source: *Developed by the author.*

3. Empirical Methodology

3.1 Sample

This study focuses on the impact of board characteristics on the financial performance of conventional banks in the MENA region, measured through ROA and ROE. We used a sample of 97 conventional banks from 11 countries in the Middle East and North Africa region (Saudi Arabia, Bahrain, Egypt, United Arab Emirates, Jordan, Kuwait, Lebanon, Morocco, Oman, Qatar, and the Syrian Arab Republic) over a five-year period from 2016 to 2020, totaling 485 observations in a panel data framework. Analyses were conducted using STATA, focusing on governance variables, and only banks that published their management information were included.

Information on board characteristics and financial data was collected by examining the Bankscoop database as well as the annual reports of the selected banks. However, some banks were excluded from the sample due to the absence of the necessary governance variables for analysis. Consequently, our study was limited to the countries listed in Table 1.

Table 1. *Sample Description*

Country	Observations	Number of Selected Banks
Saudi Arabia	25	5
Bahrain	60	12
Egypt	30	6
United Arab Emirates	105	21
Jordan	60	12
Kuwait	50	10
Lebanon	30	6
Morocco	10	2
Oman	30	6
Qatar	60	12
Syrian Arab Republic	25	5
Total	**485**	**97**

Source: *Developed by the author.*

3.2 Variables Used

3.2.1 Dependent Variables: Financial Performance

Bank performance can be either accounting-based or market-based. Accounting-based performance reflects past results, whereas market-based performance depends on future expectations.

Several studies use accounting measures of performance, such as return on assets (ROA), return on equity (ROE), net income, and earnings per share (EPS). Given data availability, this study uses return on assets (ROA) and return on equity (ROE).

Return on Assets (ROA): This ratio is defined as the net income of the bank divided by total assets:

$$ROA = \frac{\textbf{Net Income}}{\textbf{Total Assets}}$$

Return on Equity (ROE): This ratio is defined as the net income of the bank divided by total equity reported on the balance sheet:

$$ROE = \frac{\textbf{Total Equity}}{\textbf{Total Equity}}$$

3.2.2 Explanatory Variables

Board characteristics include the size and composition of the bank's board of directors. The explanatory variables used in this study are related to board characteristics, including board size, CEO duality, the presence of independent directors, and the presence of institutional representatives on the board.

Control variables measure differences in bank structure. We include bank size, bank capital, and bank liquidity (Table 2).

- Board Size (TCA): This is the number of directors sitting on the board.
- CEO Duality (DUAL): This refers to the combination of the CEO and board chairman roles. It takes the value 1 if the CEO also serves as the chairman of the board and 0 otherwise.
- Independent Directors (INDEP): This is the number of independent directors on the board.
- Institutional Directors (INST): This is the percentage of directors representing institutional investors on the board.
- Bank Size (SIZE): This variable is measured as the natural logarithm of the bank's total assets at the end of the fiscal year (log total assets).
- Bank Capital (CAP): This measure is calculated as the ratio of equity to total assets.
- Bank Liquidity (LIQ): This ratio is calculated by dividing total loans granted by a bank by its total assets.

Table 2. *Variables Used*

Variable Type	**Abbreviation**	**Measurement**	**Expected Sign**
Dependent Variables	ROA	Net Income / Total Assets	
	ROE	Net Income / Equity	
Independent Variables	TCA	Number of directors on the board	-
	DUAL	1 if the CEO is also the Chairman of the Board, 0 otherwise	-
	INDEP	Percentage of independent directors on the board	+
	INST	Percentage of directors representing institutional investors on the board	+
Control Variables	SIZE	Log (total assets)	+
	CAP	Equity / Total Assets	-
	LIQ	Total Loans / Total Assets	+

Source: *Developed by the author.*

3.3 Regression model

We use the following regression model to examine the impact of board characteristics on the performance of banks in the MENA region:

$\text{Performance}_{i,t} = f\,(\text{Board Characteristics}_{i,t}\,,\ \text{Control Variables}_{,t}\,) + \varepsilon t_{i,t}$

The modeling relies on two regression specifications.

We developed two regression models for our study. In the first model, ROA is explained by the governance variables of banks operating in the MENA region.

In the second model, ROE is explained by the same governance variables of banks in this region. Accordingly, we proceeded to estimate both models.

$$\begin{aligned} ROA_{i,t} = \beta_0 + \beta_1 TCA_{i,t} + \beta_2 \text{INDEP}_{i,t} + \beta_3 DUAL_{i,t} + \beta_4 INST_{i,t} \\ + \beta_5 ETAT_{i,t} + \beta_6 SIZE_{i,t} + \beta_7 CAP_{i,t} + \beta_8 LIQ_{i,t} + \beta_9 RD_{i,t} \\ + \varepsilon_{i,t} \quad (1) \end{aligned}$$

$$\begin{aligned} ROE_{i,t} = \beta_0 + \beta_1 TCA_{i,t} + \beta_2 \text{INDEP}_{i,t} + \beta_3 DUAL_{i,t} + \beta_4 INST_{i,t} \\ + \beta_5 ETAT_{i,t} + \beta_6 SIZE_{i,t} + \beta_7 CAP_{i,t} + \beta_8 LIQ_{i,t} + \beta_9 RD_{i,t} \\ + \varepsilon_{i,t} \quad (2) \end{aligned}$$

Where:

i : represents the individual dimension, indicating the number of banks **(**i= 1,…97).
t : represents the time dimension, corresponding to the study period (t= 2016,... 2020).
$ROA_{i,t}$: is the return on assets of bank (i) in year (t).
$ROE_{i,t}$: is the return on equity of bank (i) in year (t).
$TCA_{i,t}$: is the board size of bank (i) in year (t)
$INDEP_{i,t}$: is the board independence of bank (i) in year (t)
$DUAL_{i,t}$: represents CEO duality for bank (i) in year (t).
$INST_{i,t}$: represents the institutional directors for bank (i) in year (t).
$SIZE$: is the size of bank (i) in year (t).
$CAP_{i,t}$: is the capital of bank (i) in year (t).
$LIQ_{i,t}$: is the liquidity of bank (i) in year (t).
$\varepsilon_{i,t}$: is the error term.

4. Data Analysis and Empirical Results

4.1 Descriptive Statistics

Table 3 below presents the descriptive statistics for the minimum, maximum, mean, and standard deviation of all variables included in the study.

Table 3. *Descriptive Statistics of Variables*

Variable	Observations	Mean	Std.Dev	Min	Max
ROA	485	.013	.008	0	.049
ROE	485	.047	.016	.003	.092
TCA	485	11.748	2.608	6	18
DUAL	485	.309	.463	0	1
INDEP	485	.54	.145	.187	.938
INST	485	.034	.029	0	.16
SIZE	485	20.293	3.384	13.773	26.39
CAP	485	1.399	.764	.002	4.737
LIQ	485	.118	.093	.003	.553

Source: *Prepared by the author.*

The descriptive statistics in Table 3 indicate that the average ROA and ROE are 0.013 and 0.047, respectively. On average, the banks in our MENA region sample have 18 members on their boards. Regarding board composition, the presence of independent directors appears higher than that of institutional directors. We also observe that in most MENA banks, the functions of decision-making and control are separated. In 30% of the sampled banks, the CEO serves as the board chairman.

Concerning the control variables, bank size has a mean of 20.293 and a standard deviation of 3.384. Descriptive analysis shows that bank capitalization ranges from a maximum of 4.737 to a minimum of 0.002, with an average of 1.399. Finally, the average liquidity ratio of MENA banks is 11.8%.

4.2 Correlation Analysis

The Pearson correlation matrix is used to test the relationship between independent variables and the dependent variable, as well as the relationships among the independent variables themselves. Furthermore, the correlation matrix is used to detect multicollinearity among the independent variables (Weisberg, 2005).

Generally, a correlation coefficient above 0.8 would indicate a severe multicollinearity problem (Kennedy, 2003). The Pearson correlation analysis shows that there is no multicollinearity issue among the independent variables.

The highest correlation is 67.7% between ROA and CAP, reinforcing the absence of multicollinearity in the models.

Table 4. *Pearson Correlation Matrix*

Variables	ROA	ROE	TCA	DUAL	INDEP	INST	SIZE	CAP	LIQ
ROA	1.000								
ROE	0.093	1.000							
TCA	0.085	-0.094	1.000						
DUAL	0.207	-0.010	0.012	1.000					
INDEP	-0.015	-0.148	-0.073	-0.120	1.000				
INST	0.093	0.144	-0.076	-0.070	-0.037	1.000			
SIZE	0.082	0.257	-0.100	0.128	-0.396	-0.118	1.000		
CAP	0.677	0.043	0.060	0.113	0.064	0.052	0.039	1.000	
LIQ	0.054	-0.052	-0.053	-0.016	0.043	-0.137	0.168	-0.085	1.000

Source: *Prepared by the author.*

4.3 Multivariate Analysis

Our research focuses on a sample of 97 banks operating in the MENA region, observed over a five-year period. This approach necessitates the use of a regression model suitable for panel (or longitudinal) data. Given the particularity of our sample, with both individual and temporal dimensions, it is essential to follow specific econometric steps to estimate the parameters of our model.

We conducted several tests on the panel data, including tests for individual effects, the Hausman test, inter- and intra-individual heteroskedasticity tests, and finally the Wooldridge test, in order to select the most appropriate method for estimating the equations.

4.3.1 Econometric Tests

The first step is to assess the homogeneity or heterogeneity of the panel structure by examining the presence of individual effects in the data. The objective is to determine whether bank-specific effects exist or if the theoretical model applies uniformly across all banks.

Table 5. *Results of the Individual Effects Test*

Variables	**F-calculated**	**P-value**	**Individual Effects**
ROA	$F(96, 381) = 3.15$	$Prob > F = 0.0000$	Presence of individual effects
ROE	$F(96, 381) = 8.01$	$Prob > F = 0.0000$	Presence of individual effects

Source: *Prepared by the author.*

For both equations (ROA and ROE), we reject the null hypothesis and conclude that our models include individual effects, since the Fisher statistic shows a probability of zero.

Next, it is necessary to choose between the fixed-effects model and the random-effects model. The Hausman specification test (1978) helps in making this decision. By examining the results presented in the table below, we conclude that the fixed-effects estimators are the most appropriate for our panel data set.

Table 6. *Hausman Test Results*

Variables	**ROA**	**ROE**
Hausman Statistic	Chi2(7) = 59.04	Chi2(7) = 14.73
P-value (Prob)	(0.0000)	(0.0396)
Nature of Individual Effects	Fixed	Fixed

Source: *Prepared by the author.*

According to the Hausman test results, the individual effects are fixed for ROA, with a Chi2(7) statistic equal to 59.04 and a significance level (0.000) below 5%. Similarly, for ROE, the Hausman test indicates a Chi2(7) statistic equal to 14.73 with a P-value (0.0396) below 5%.

To identify heteroskedasticity, we applied two tests: the Breusch-Pagan LM test and the Modified Wald test. The results of these tests highlight the presence of both intra-individual and inter-individual heteroskedasticity in our regression models.

Regarding autocorrelation of errors, we chose to use the Wooldridge test (2002) to verify whether serial correlation exists. The null hypothesis (H_0) of this test indicates that there is no autocorrelation of errors. The test results show that the p-value of the F-statistic for the ROA and ROE models is below the 5% threshold. Therefore, we reject the null hypothesis and conclude that autocorrelation of errors is present in these models.

Table 7. *Summary of Econometric Tests*

Problem	Econometric Test	Model	**Statistic**	**P-value**
Heteroskedasticity	Breusch-Pagan (intra-individus)	ROA	$chibar^2(01) = 45.85$	0.0000
		ROE	$chibar^2(01) = 304.34$	0.0000
	Modified Wald (interindividus)	ROA	$chi^2\ (97) = 1.1e+05$	0.0000
		ROE	$chi^2\ (97) = 15761.30$	0.0000
Autocorrelation	WOODRIDGE	ROA	F (1, 96) = 2.520	0.0157
		ROE	F (1, 96) = 95.127	0.0000

Source: *Prepared by the author.*

4.3.2 Regression Analysis and Discussion of Results

When analyzing panel data, it is essential to address issues identified by econometric tests, such as heteroskedasticity and autocorrelation of errors. To resolve these problems, we apply the Panel Corrected Standard Errors (PCSE) method proposed by Beck and Katz (1995).

This approach corrects for heteroskedasticity and autocorrelation of errors while providing more robust results. The regression results obtained using this estimation method are presented in the table below:

Table 8. *Panel Linear Regression Results*

Correlated Panels Corrected Standard Errors (PCSEs)				
Variables	**Modèle 1: ROA**		**Modèle 2: ROE**	
	Coefficient	**Significance**	**Coefficient**	**Significance**
TCA	0.00017	0.007***	-0.00038	0.004***
DUAL	0.00226	0.000***	-0.00144	0.164
INDEP	-0.00165	0.260	-0.00483	0.233
INST	0.02476	0.010***	0.08444	0.000***
SIZE	0.00005	0.437	0.00125	0.000***
CAP	0.00685	0.000***	0.00060	0.395
LIQ	0.01065	0.000***	-0.01271	0.003***
Constant	-0.00122	0.374	0.02687	0.000***
Nombre d'observations	485		485	
Nombre de groupes	97		97	
R²	0.5002		0.1092	
Wald chi2	535.32		1172.66	
Prob >chi2	0.0000		0.0000	

ROA refers to **Return on Assets**, ROE refers to **Return on Equity**, TCA represents the **number of board members**, DUAL is a **binary variable** taking the value of 1 if the CEO also serves as the Chairman of the Board, and 0 otherwise, INDEP is the **proportion of independent directors** on the board, INST is the **proportion of institutional directors** on the board, SIZE is the **natural logarithm of the bank's total assets**, CAP is the **ratio of equity to total assets**, and LIQ is the **ratio of total loans to total assets**. The symbols (***), (**), and (*) indicate statistical significance at the 1%, 5%, and 10% levels, respectively. The estimation method employed is the **Panel-Corrected Standard Errors (PCSEs)**.

Source: *Prepared by the author.*

The results of the multiple regression analysis are presented in Table 8 above for Models 1 and 2. In Model 1, the dependent variable is explained by the explanatory variables, with an R^2 of 0.5002. The Wald Chi-square test indicates that the model is highly significant at the 1% level (Prob > chi2 = 0.0000), suggesting that the independent variables retain strong explanatory power.

In Model 2, the R^2 equals 0.1092, indicating that the independent variables explain approximately 11% of the variation in the dependent variable (ROE). The Wald Chi-square test is also significant at the 1% level (Prob > chi2 = 0.0000), confirming that variations in the dependent variable are adequately explained by the model's independent variables.

Regarding board size, the coefficient of board size (TCA) is positive and statistically significant for ROA, implying that larger boards enhance banks' return on assets.

This result suggests that larger boards are more likely to include members with greater qualifications, experience, skills, and diverse perspectives, which can improve bank performance (Pfeffer and Salancik, 1978).

Our findings are consistent with those of Al-Amarneh (2014), Djebali *et al.* (2020), and Habtoor (2022). However, for ROE, the coefficient of board size is negative and significant, indicating that adding more directors to bank boards in the MENA region may adversely affect bank performance. Smaller boards appear to be more effective in monitoring and control processes than larger boards. These findings align with those of Boussaada and Karmani (2015) for a panel of MENA banks.

Moreover, the coefficient of CEO duality (DUAL) is positive and statistically significant for ROA. This result may be explained by the fact that combining the roles of board chair and CEO enhances knowledge of banks' internal and external environments in the MENA region. Mamatzakis *et al.* (2015), Chenini and Jarboui (2016), and Rahman and Islam (2019) also report a positive impact of CEO duality on bank performance. In contrast, for ROE, the coefficient of DUAL is statistically insignificant, leading us to reject our hypothesis.

We conclude that CEO duality does not affect the performance of banks in the MENA region. This finding contradicts the empirical evidence of Simpson and Gleason (1999) and Pathan (2009) for U.S. banks but is consistent with the results of Boussaada and Karmani (2015), Gafoor *et al.* (2018), and El-Chaarani *et al.* (2022). This outcome may be attributed to variations in board leadership structures during the sample period, which make it difficult to identify the effect of duality on performance.

As for board independence, the coefficient of INDEP is statistically insignificant. We therefore conclude that the presence of independent directors on MENA bank boards does not influence bank performance. Even when boards include independent members, they may be unable to counterbalance the interests of other stakeholders. In the MENA region, banks were required to increase the number of independent directors regardless of their performance levels.

Consistent with expectations, the coefficient of institutional directors (INST) is positive and statistically significant for both performance measures. Institutional directors play a crucial role in enhancing the financial performance of banks in the MENA region. Institutional investors can provide additional expertise and skills, enabling banks to achieve higher profitability due to their prior experience in brokerage activities, mutual funds, securities, and insurance underwriting. These results are in line with previous findings by Azoury *et al.* (2018) and Derbali *et al.* (2020).

In most regression analyses, bank size appears to play an important role in explaining performance variation. Our findings indicate that bank size (SIZE) is positive and statistically significant for ROE. Larger banks, benefiting from economies of scale, tend to possess the expertise and resources required for effective managerial monitoring, resulting in improved financial performance.

This result is consistent with earlier studies by Boussaada *et al.* (2015), Shawtari (2018), and Hasanov *et al.* (2018). However, regarding ROA, our results show that bank size does not have a significant impact on bank performance in the MENA region. We therefore conclude that bank size does not affect banks' return on assets.

Our results further reveal that bank capitalization (CAP) has a positive and significant impact on ROA. A higher equity-to-assets ratio reduces the need for external financing and enhances bank profitability. These findings support the results of Nora (2015), Leone *et al.* (2018), and Atuahene (2021). Increased capitalization reduces external borrowing, strengthens bank performance, and enhances resilience to potential shocks, thereby improving financial stability. However, for ROE, the results suggest no significant relationship between bank capitalization and the performance of MENA banks.

Finally, liquidity (LIQ) has a positive and statistically significant effect on ROA. Our results clearly demonstrate that higher liquidity ratios are associated with better bank performance in the MENA region. Adequate liquidity enables banks to quickly seize profitable investment opportunities, thereby improving returns and overall profitability. These findings are consistent with previous studies by John and Olusegun (2015), Daly and Frikha (2017), and Chahine (2019).

In contrast, for ROE, the coefficient of LIQ is negative and statistically significant. Banks facing liquidity shortages may experience a decline in lending activity, leading to lower interest income, reduced interest margins, and ultimately weaker bank performance.

5. Conclusion

The field of corporate governance was initially shaped by Berle and Means (1932), who highlighted the separation between ownership and managerial control. Subsequently, Charreaux (1997; 2000) provided a comprehensive definition of corporate governance, emphasizing its role in guiding and monitoring corporate activities.

While governance originally focused on firms in general, it has become particularly crucial in the banking sector, which occupies a central role in the global economy due to economic developments, liberalization, and deregulation. Effective corporate governance serves as a critical mechanism for banks, mitigating undue risk-taking and enhancing their ability to adapt to a deregulated financial environment (Black *et al.,* 2006). These considerations motivated the present study, which examines the relationship between board characteristics and bank performance.

Using panel data regression, chosen for its ability to account for individual heterogeneity and superior estimation properties, the results reveal that board size, CEO duality, and the presence of institutional directors positively and significantly influence return on assets (ROA). In contrast, board size has a negative and significant effect on return on equity (ROE), whereas the presence of institutional directors exerts a positive and significant impact on ROE.

It is noteworthy that the effects of board characteristics on the financial performance of banks in the MENA region are not entirely conclusive. This may be attributed to the presence of other internal governance mechanisms—such as ownership structure, audit committees, and risk management committees—or external governance factors, which were not included in the present analysis. Additionally, other board attributes, including gender diversity, meeting frequency, member compensation, expertise, and overall board heterogeneity, may also influence bank performance but were not captured in this study.

Despite these limitations, the findings provide valuable guidance for banks and financial institutions seeking to implement sound corporate governance practices. Weak governance has been identified as a key factor contributing to the failure of prominent financial institutions, highlighting the practical relevance of these results.

Future research could expand the scope of governance variables, extend the study period, or examine the relationship between governance and performance across different types of banks in the MENA region, thereby offering further insights into the determinants of banking sector performance.

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