The impact of corporate governance on the financial performance of banks

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A B S T R A C T

The paper aimed to examine the impact of corporate governance on the financial performance of commercial banks in Jordan. The variables used to measure corporate governance were the board of directors' size, independent members of the board of directors, and the number of audit committee members, while those used to measure financial performance were return on investment, return on equity and earnings per share. The study used a quantitative approach based on the data of 12 commercial banks in Jordan during the period 2005-2022. The panel data were analyzed using the EViews software based on the ordinary least squares time series technique. The paper found the effect of all corporate governance variables on both return on investment and return on equity. However, it indicated that the board of directors' size and the independent members of the board of directors had an impact on earnings per share. This study highlighted corporate governance variables in one of the significant sectors of developing economies. Moreover, it recommended the need to review the principles used in selecting members of the audit committee for commercial banks in Jordan, due to their importance in developing long-term financial performance.

1. Introduction

Financial performance is one of the quantitative measures used by stakeholders to determine the strengths and weaknesses of corporations. Indeed, financial performance provides a clear perception of management efficiency in achieving corporate's purposes over time (Tien et al., 2020). Moreover, Alabdullah (2019) considered financial performance as a control tool to identify deviations from the strategic plan and take appropriate corrective measures to achieve a distinct market position for the corporation. Good financial performance indicators contribute to attracting capital and investment in the corporation, which enhances its financial ability to enter new markets and increases flexibility to face successive crises, especially in emerging economies (Gomes, 2021). Although the mutual trust between the owners and the administrative authorities of the corporation, it should be subject to continuous monitoring because of the mandate granted by the owners to efficiently invest their financial resources to maximize their wealth (Naciti et al., 2022). Hence, the agency problem arises between the owners and managers because of the conflict of interests that each party seeks to achieve. The agency problem that limits the ability to improve the financial position could be reduced by following the rules of good corporate governance. Hoiet al. (2019) found corporate governance contributes to reducing the risks of management misuse of its authority and decreasing essential

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errors and fraud in financial statements used by stakeholders. Attention to corporate governance has become a serious matter at the present time because of its focus on ensuring the rights of stakeholders to obtain fair information about the actual performance of the corporations (Sakawa & Watanabel, 2020). However, the results of studies conflicted on the issue of corporate governance and its reflection in limiting the flexibility of decision-making in challenging and rapidly changing environments, especially those like emerging economies (Brennan et al., 2019; Borghesi et al., 2019; Huu Nguyen et al., 2020). The soundness of the banking sector is an indicator of the stability of countries' economies, as the operational activities of this sector are relying on money entrusted to it by customers. Without the intervention of this sector through its operations, the domestic economy may be paralyzed and unable to grow (Purbawangsa et al., 2019). Therefore, it is significant to support the banking sector's orientation to adopt advanced administrative systems that consider ethical principles in financial disclosure. Moreover, the selection of manpower according to the requirements of the role and the application of supervision and risk management systems are among the basic issues for banking institutions in order to achieve high levels of compliance and discipline with the rules of transparency (Al-Smadi, 2019).

Accordingly, banking institutions are required to fill out an annual self-assessment to clarify the classification of each corporate governance standard set by the Central Bank, which is one of the tools for building the confidence of customers and the international community and an absolute requirement for the development of the banking sector. The comprehensive guide to banking governance issued by the Central Bank of Jordan stressed the need for banking institutions to disclose their board of directors, the mechanism for separating duties, and the components and terms of reference of committees emanating from the board of directors (Kopti, 2020). These measures seek to strengthen corporate governance to build long-term trust between banking institutions, as a fundamental pillar of the Jordanian economy, and stakeholders. Therefore, this research seeks to examine the impact of corporate governance on the banks' financial performance in Jordan.

2. Literature Review and hypotheses

2.1 Corporate Governance

The concept of corporate governance occupies a distinguished position and great interest among researchers because of its impact on the economic and financial results of corporations and its essential role in supporting social welfare (Borghesi et al., 2019). Baskentli et al. (2019) defined corporate governance as the rules and foundations that enable to monitor and control of the optimal usage of the corporation's financial resources. Basically, corporate governance is a focal point for determining the relationship framework between managers and stakeholders, especially the owners or shareholders of a corporation. Almagtome et al. (2020) explained it as the oversight mechanism implemented by the board of directors over the corporation's managers to ensure coordination and integration between the various stakeholder objectives. Besides, Sakawa and Watanabel (2020) believed that corporate governance is one of the fields of the oriented economy to stimulate the efficient management of the corporation based on compliance with the regulatory rules and legislation, as well as the creation of organizational structures that enable the follow-up of the implementation of the corporation's activities in the best ways.

Studies indicated that corporate governance is developing steadily with the development of economic and financial systems in countries (Orazalin, 2019; Naciti et al., 2022). Accordingly, it is noted that there is a significant difference in the strictness of governance rules between developed countries, which have strict systems of governance, and developing countries, which have less strict systems of governance (Bhaumik et al., 2019). Although the application of the principles of governance in many economic sectors, the banking sector is considered the most adopting good governance standards. The quality of the application is due to the asymmetry of the information and the subjection of the banking sector to the supervision of the Central Bank, which imposes its rules on the general financial structure of the country (Brogi & Lagasio, 2022). In this context, the board of directors of banks is considered the cornerstone of good governance, as most studies have found that the structure of the board of directors of banks has an impact on the quality of financial reports intended for the public (Almoneef & Samontaray, 2019).

Corporate governance was measured based on the board of directors' size, the number of independent members of the board of directors, and the number of members of the audit committee (Huu Nguyen et al., 2020; Purbawangsa et al., 2019; Aslam & Haron, 2020). The board of directors' size reflects the number of members who make up it, as opinions differed on determining the optimal size of the board of directors (Matuszak et al., 2019). In the Jordanian context, the Central Bank recommends that the board of directors be a minimum of three members and not more than 13 members (Kopti, 2020). The number of independent members of the board of directors represents the persons who have no interests in the corporation other than their membership in its board of directors, as these members implement their duties and express their opinion freely to achieve the company's objectives (Abdelbadie & Salama, 2019). The members of the audit committee are the non-executive members elected by the board of directors to verify the corporation's compliance with the standards of financial control and transparent disclosure (Naciti et al., 2022). The Central Bank of Jordan indicated that the members of the audit committee in banks should not be less than three members headed by the most experienced in the field of accounting and financial auditing (Al-Smadi, 2019).

2.2 Financial Performance

Performance expresses the bottom line of all corporations' operations, and its accurate measurement is critical for all types of corporations. Although performance is a comprehensive measure, its concept changes according to the set of indicators used to measure it and the objective of the measurement process, e.g., organizational performance, financial performance, or competitive performance. Financial performance represents the corporation's ability to make efficient use of its resources (Gomes, 2021). Danso et al. (2019) expressed financial performance as a measure of the degree to which the corporation's core activities contribute to achieving financial goals at the lowest cost. As for Arsyad et al. (2021), it means the ability to invest capital in generating revenues for the corporation that would enable it to fulfill its obligations.

The financial performance of corporations is affected by a set of internal factors, most notably the efficiency of management, the cost of capital, and financial leverage (Franco et al., 2020). Besides external factors, for example, financial laws and regulations, customer satisfaction level, business environment risks (Nzisaa & Mbugua, 2019). Financial reports represent the primary and most reliable source of data used in evaluating the financial performance of corporations. Therefore, the management of corporations is required to provide periodic financial, annual, or semi-annual, that demonstrates its commitment to adopting the best administrative methods to maximize the profitability of the corporation (Tien et al., 2020).

The financial ratios extracted from the audited financial statements are the commonly used indicators for evaluating the financial performance of corporations. Researchers rely on return on investment (ROI), sometimes known as return on assets (ROA), and return on equity (ROE) to evaluate financial performance (Ekinci & Poyraz, 2019; Naknok, 2022, Li et al., 2020). In this research, return on investment, return on equity, and earnings per share (EPS) were used to measure the financial performance of commercial banks in Jordan. ROI is defined as an indicator of investment efficiency and shows the ability of invested money to generate profits (Omran et al., 2021). ROE is an indicator of the corporation's ability to fulfill its obligations towards the owners/shareholders. It also expresses competitiveness as it is positively related to the company's reputation (Kithandi, 2022). EPS expresses the share of profits per share during a specific period. Moreover, it is considered an indicator to attract new investors as it is a measure of the real and fair price of the corporation's shares (Naknok, 2022).

2.3 Corporate Governance and Financial Performance

The ownership structure represents the most important determinant of shareholder wealth resulting from the good performance of the corporation and the adoption of appropriate governance principles. Accordingly, Abdelbadie and Salama (2019) confirmed that an effective ownership structure could remove the influence of individual control when making strategic decisions related to the future of the corporation. It is the responsibility of the board of directors to protect the rights of shareholders and preserve their benefits from the corporation. As such, Brogi and Lagasio (2022) stated that the board of directors becomes a controller over the behavior of executives, as it evaluates their performance and replaces executives who are not working for the owners/shareholders. Furthermore, financial performance correlates with board size, although there is inconsistency regarding the most appropriate board size (Purbawangsa et al., 2019). Some studies have argued that the large board of directors constitutes a burden on the decision-making process because of the diversity of members' opinions (Al Farooque et al., 2020). However, some believe that a large board of directors prevents information asymmetry and enables more independent members to be included, thus improving the corporation's performance (Dewri, 2022). Given the mixed results of the literature, the relevant hypothesis for the effects of corporate governance variables on return on investment is built as follows:

H1: *Corporate governance variables impact the return on investment.*

The duties of the audit committee are related to verifying the effectiveness of the board of directors and studying appropriate compensation for its members. When the audit committee exercises its duties independently, it could monitor the behavior of the executives on behalf of the board of directors and owners, which means higher levels of fair control over the financial statements (Akinleye & Fajuyagbe, 2019). Consequently, the financial performance of the corporation improves, and the wealth accumulation of the owners/shareholders increases (Dewri, 2022). Al Farooque et al. (2020) found a positive correlation between the number of members of the audit committee of banks and financial performance, as it reduces the rates of fraud and errors contained in the financial reports. Moreover, theoretical, and empirical evidence confirmed the poor financial performance of corporations that include dual management positions for members of their board of directors or executives (Kyere & Ausloos, 2021). Similarly, studies have argued that corporations with a high frequency of meetings exacerbate costs resulting from travel costs and compensation granted to members for attending meetings, thus are reflected in the corporation's financial results (Karamoy & Tulung, 2020). Therefore, the following hypothesis was proposed to clarify the relationship between the corporate governance variables and the financial performance of commercial banks in Jordan by enhancing the return on equity index:

H2: *Corporate governance variables impact the return on equity.*

The concentration of ownership problem results from the tendency of board members to engage in behavior that affects the financial performance of the corporation to achieve personal benefits. Sakawaand and Watanabel (2020) considered that corporations are seeking to appoint independent members to limit the opportunities to control the decisions resulting from the

concentration of ownership. On the other hand, Hoi et al. (2019) found that the concentration of ownership limits the impact of the agency problem, since the ability of a concentrated group of shareholders to bring its representatives on the board of directors or the executive team should mitigate the conflicts between the owners and their agents. as a result, the performance of the corporation should improve. It does not seem logical for the banking sector, where the general council is composed of many members. Therefore, banks apply the preferred share strategy to maintain high levels of financial performance (Brogi & Lagasio, 2022). Musah and Padi (2022) explained that involving the executives in the ownership of the company by giving them preference shares leads to an increase in their efforts to gain more of those shares. Accordingly, those endeavors and efforts made by the executives produce a significant improvement in the company's performance (Al Farooque et al., 2020). Kyere and Ausloos (2021) emphasized increasing the level of management ownership to improve the strategic performance of the corporation. Depending on this perspective and empirical evidence in the literature, the following hypotheses are considered to predict the relationships between corporate governance variables and earnings per share as one of the financial performance measures of commercial banks in Jordan as follows:

H₃: *Corporate governance variables impact the earnings per share*.

3. Material and Methods

3.1 Data Collection

The current research targeted the banking sector in Jordan for the period 2005-2022. The research used secondary data collected from the archives of the Amman Stock Exchange (ASE) and the official websites of the banks. Initially, a comprehensive survey was conducted of the banks listed on the ASE to determine their type and select the most appropriate sample for the purposes of examining the impact of corporate governance on financial performance. Preliminary results demonstrated that the structure of the Jordanian banking sector consists of 17 banks which are: 12 commercial banks, 2 foreign banks, and 3 Islamic banks. Accordingly, a purposive sample including 12 commercial banks was selected. The panel data related to the period 2005-2022 were collected after verifying the selection criteria represented by: (a) the availability of financial data for the target period, (b) the date of listing on the ASE precedes the year 2005, (c) the financial statements are annually published in the Jordanian dinar.

3.2 Variables and Measures

Corporate governance represented the independent variable in the research. This variable was defined procedurally as a system for preventing serious errors and fraud resulting from the management of commercial banks in Jordan and preserving the rights of stakeholders, especially shareholders and customers. This variable was measured according to Kopti (2020) using three indicators. The first indicator was the size of the board of directors, which determines the total number of members on the board of directors of commercial banks in Jordan. The second indicator was the number of independent members of the board of directors of commercial banks in Jordan. The last indicator was the number of audit committees of commercial banks in Jordan.

The dependent variable in the research was financial performance. Financial performance was procedurally defined as a quantitative measure that explains the ability of commercial banks in Jordan to achieve financial goals and generate revenues from their use of their assets. This variable was measured according to the recommendations of () using three financial indicators. Return on investment (ROI) was the first indicator calculated by the ratio between the bank's annual net income and the bank's total assets (see Eq. (1)). Return on equity (ROE) was the ratio of the bank's annual net income to the bank's shareholders' equity (see Eq. (2)). Earnings per share (EPS) was the ratio of the bank's net income to the total number of subscribed shares subscribed in the bank (see Eq. (3)).

$$ROI = \frac{Total\ Income}{Total\ Assets} \tag{1}$$

$$ROE = \frac{Total\ Income}{Shareholders\ Equity} \tag{2}$$

$$EPS = \frac{Total\ Income}{No.\ Of\ Subscribed\ Shares} \tag{3}$$

3.3 Statistical Models

A multiple linear regression model was used to test the hypotheses of the study. The first hypothesis indicated that corporate governance, i.e., board of directors' size (BOD), number of independent members in the board of directors (IM), and number of audit committee members (AC), has an impact on the return on investment (ROI) of commercial banks in Jordan. Equation 4 was developed to express the multiple regression model used in the analysis.

$$ROI_i = \beta_0 + \beta_1\,BOD + \beta_2\,IM + \beta_3\,AC + \varepsilon_i \tag{4}$$

The second hypothesis argued that corporate governance, i.e., board of directors' size (BOD), number of independent members in the board of directors (IM), and number of audit committee members (AC), has an impact on the return on equity (ROE) of commercial banks in Jordan. Eq. (5) was developed to express the multiple regression model used in the analysis.

$$ROE_i = \beta_0 + \beta_1\,BOD + \beta_2\,IM + \beta_3\,AC + \varepsilon_i \tag{5}$$

The third hypothesis considered that corporate governance, i.e., board of directors' size (BOD), number of independent members in the board of directors (IM), and number of audit committee members (AC), has an impact on the earnings per share (EPS) of commercial banks in Jordan. Equation 6 was developed to express the multiple regression model used in the analysis.

$$EPS_i = \beta_0 + \beta_1\,BOD + \beta_2\,IM + \beta_3\,AC + \varepsilon_i \tag{6}$$

where: (i): Banking corporations = 1, 2, 3, …, n, (β_0): constant, (β_i): slop coefficients, (ε_i): random error.

3.4 Analysis Techniques

The research used quantitative panel data that was processed by version 12 of EViews software. Before conducting the hypothesis test to identify regression coefficients, a set of pre-tests was applied to determine the optimal statistical method. First, the normal distribution of the data was verified as a prerequisite for applying the generalized least squares model (GLS) by extracting descriptive statistics for all research variables. Secondly, the stationarity of the time series of the study variables was examined through the unit root test and the levels of integration for each variable were determined. Third, the multicollinearity between the independent variables was verified using the correlation matrix and variance inflation factor (VIF). Then, Heteroscedasticity tests were performed, as well as the models used to test each hypothesis in the research were determined, whether common, fixed, or random models. Finally, the hypotheses were tested, and regression coefficients were extracted to write the final equation expressing the testing of each hypothesis and the relationship of the variables among them.

4. Results

4.1 Descriptive Statistics

Table 1 shows the symmetrical characteristics of the data used in the research based on the theory of central tendency and measures of dispersion.

Table 1
Result of descriptive analysis

	AC	BOD	IM	ROE	ROI	EPS
Mean	4.122549	11.83824	4.323529	9.590593	1.311534	0.240191
Maximum	6.000000	15.00000	7.000000	39.84100	4.965000	1.137000
Minimum	2.000000	9.000000	3.000000	-1.448000	-0.166000	-0.030000
Std. Dev.	0.967288	1.227079	0.953725	4.973112	0.670088	0.183936
Jarque-Bera	10.97962	2.326274	5.517615	426.7952	223.5650	200.4272
Probability	0.004129	0.312504	0.063367	0.000000	0.000000	0.000000
Observations	204	204	204	204	204	204

The results presented in Table 1 indicated that the number of audit committee members in commercial banks in Jordan ranged around 4 members, with a maximum of 6 and a minimum of 2. The board of directors' size in these banks ranged between the upper limit of 15 and the lower limit of 9, although this variable was the most variance variable, as its standard deviation was 1.227. Moreover, most of the boards of directors of commercial banks in Jordan included independent members ranging from 7 to 3. The mean return on equity in commercial banks in Jordan was 9.590 and the mean return on investment was 1.311. The results demonstrated that the mean earnings per share for commercial banks in Jordan was 0.240. Regarding normality tests, the results confirmed that most of the variables were non-normally distributed, except for the board of directors' size (JB= 2.326274, p> 0.05) and independent members in banks' board of directors (LB= 5.517615, p> 0.05) which were normally distributed (Song & Zhao, 2021). Accordingly, one of the requirements for applying the generalized least squares model (GLS) has been violated. Therefore, the ordinary least squares model (OLS) will be used in analyzing the research data (Hansen, 2007).

4.2 Stationarity Tests

Salles et al. (2019) argued that non-stationarity time series, i.e., involving the unit root, lead to unrealistic estimates of the parameters of the research model. Moreover, determining the integration level for each variable is considered the basis for determining whether the researcher will apply the error correction model (ECM) or will suffice with the ordinary least squares model (Ali et al., 2022). Table 2 reported the unit root test results for the search variables and their respective integration levels.

Table 2
Results of unit root tests

	ADF - Fisher Chi-square		PP - Fisher Chi-square		Level
	Statistic	Prob.	Statistic	Prob.	
AC	106.885	0.0000	121.493	0.0000	I (1)
BOD	85.6063	0.0000	114.406	0.0000	I (1)
IM	58.4600	0.0001	127.685	0.0000	I (1)
ROI	62.9916	0.0000	132.458	0.0000	I (1)
ROE	64.9162	0.0000	130.719	0.0000	I (1)
EPS	84.8942	0.0000	91.0613	0.0000	I (1)

The augmented Dickey-Fuller (ADF) and Phillips-Perron (PP) tests were used to verify the presence of the unit root within the research variables. The null hypothesis (H_0) for both tests indicates that there is a unit root in the series, while the alternative hypothesis (H_a) indicates that the time series does not have a unit root (Afriyie et al., 2020). It is evident from the results presented in Table 2 that the ADF-Fisher Chi-square values were within the range (58.460-106.885) and with probability values less than 0.05. Thus, the time series of the research variables were stationarity and free from the unit root (Ajewole et al., 2020). This result was confirmed by the probability values of the PP-Fisher Chi-square test that were less than 0.05, which means rejecting the null hypothesis of the test, which indicated that the time series contains the unit root (Vogelsang & Wagner, 2013). Nevertheless, the integration levels explained that the time series in the research achieved stationarity at the first difference I(1). Therefore, it was non-stationarity at level values I(0). Consequently, the tests were performed using the common, fixed, and random models after checking the rest of the OLS assumptions (Harris et al., 2020).

4.2 Multicollinearity Tests

The multicollinearity test was used to find out whether the corporate governance variables had a significant correlation that affected the results of the tests. To discover the relationship between the variables used in the research, correlation coefficients and variance inflation factor (VIF) were extracted with an upper limit of 10 (Senaviratna & Cooray, 2019). Table 3 lists the results obtained from these tests.

Table 3
Coefficients of variance inflation factor and correlation

	VIF	AC	BOD	IM	ROE	ROI	EPS
AC	1.415987347	1.000000					
BOD	1.965911101	0.531417***	1.000000				
IM	1.715289404	0.421373***	0.638449***	1.000000			
ROE	NA	0.502080***	0.610512***	0.607999***	1.000000		
ROI	NA	0.547048***	0.641478***	0.657802***	0.907299***	1.000000	
EPS	NA	0.225215***	0.386756***	0.355434***	0.603292***	0.579307***	1.000000

Note: *** Correlation coefficients is significant at less than 0.001 level.

The results in Table 3 indicated that the centred VIF extracted for all independent variables was less than 10. Accordingly, the research variables were linked to each other at acceptable levels and did not suffer from the multicollinearity problem (Assaf et al., 2019). Moreover, the results showed that the correlation coefficients between the independent variables were within the range (0.421-0.638), which was another evidence of the absence of the multicollinearity problem being less than 0.80 (Oke et al., 2019).

4.3 Heteroscedasticity Tests

The main purpose of the heteroscedasticity test of variance is to verify that the regression model occurs from one residual inequality to another observation. Therefore, the regression model is considered good if it is devoid of heteroscedasticity. This problem could be checked by looking at the R- square value which is inflated if the problem exists. Furthermore, Breusch-Pagan LM, Pesaran scaled LM, and Pesaran CD tests are applied simultaneously to check the heteroscedasticity relying on the probability value. The results in Table 4 refer to the validation results of heteroscedasticity. The current research included three regression models to examine the impact of corporate governance on the performance of commercial banks in Jordan. The first regression model examines the impact of corporate governance variables on return on investment. The second one examines the impact of corporate governance variables on return on equity, while the third model examines the impact of corporate governance variables on earning per share. The results in Table 4 confirmed that although Pesaran scaled LM test indicated the heteroscedasticity problem in the three models, the rest of the tests, i.e., Breusch-Pagan LM and Pesaran CD,

proved that the three research models were free of this problem. This result was derived from the probability values of tests for which the regression model is problem free if the probability value is greater than 0.05 (Li et al., 2020).

Table 4
Results of heteroscedasticity tests

	Model (1) *			Model (2) **			Model (3) ***		
	Statistic	d.f.	Prob.	Statistic	d.f.	Prob.	Statistic	d.f.	Prob.
Breusch-Pagan LM	11.10568	66	1.0000	12.33735	66	1.0000	18.67480	66	1.0000
Pesaran scaled LM	-4.777937		0.0000	-4.670734		0.0000	-4.119130		0.0000
Pesaran CD	0.402036		0.6877	0.064514		0.9486	0.244270		0.8070
Note: * Dependent variable is ROI, ** Dependent variable is ROE, *** Dependent variable is EPS.									

4.4 Hausman Test

Regression analysis could be performed according to the OLS approach using three basic models, the common effect model (CEM), the random effect model (REM), and the fixed effect model (FEM). To determine the most appropriate model, the Hausman test was used to compare between the REM and the FEM after excluding the CEM using the Lagrange Multiplier and Likelihood Ratio tests whose probability values were less than 0.05 (Hutagalung, 2022). The results of the test Hausman for the three research models were shown in Table 5.

Table 5
Results of the Hausman test

	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.	Result
Model (1) *	12.366055	3	0.0062	Fixed Effect Model
Model (2) **	2.076678	3	0.5566	Random Effect Model
Model (3) ***	0.372162	3	0.9459	Random Effect Model
Note: * Dependent variable is ROI, ** Dependent variable is ROE, *** Dependent variable is EPS.				

The null hypothesis (H_0) of Hausman test states that the random effect model is most suitable for estimating the parameters of the research model, while the alternative hypothesis (H_a) states that the fixed effect model is most suitable for estimating the parameters of the research model (Lee & Yu, 2020). Accordingly, the results in Table 5 showed the rejection of the null hypothesis of the Hausman test related to examining the impact of corporate governance variables on the return on investment of commercial banks in Jordan, since its probability value was less than 0.05. Therefore, the fixed effect model was applied for testing the first hypothesis. The null hypothesis of the Hausman test related to examining the impact of corporate governance variables on each of the return on equity and earnings per share of commercial banks in Jordan was rejected, as its probability value was greater than 0.05. Accordingly, the random effect model was conducted for testing the second and third research hypotheses.

4.5 Panel Data Regression Analysis

The first research hypothesis stated that the variables of corporate governance have an impact on the return on investment in commercial banks in Jordan. Based on the previous discussion of the assumptions of the regression model, the fixed effect model was the most appropriate regression model to use in testing this hypothesis. Table 6 shows the impact coefficients to test the first hypothesis.

Table 6
The impact of corporate governance on ROI using fixed model

Dependent Variable: ROI
Method: Panel Least Squares
Sample: 2005 2021
Periods included: 17
Cross-sections included: 12
Total panel (balanced) observations: 204

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-2.827497	0.382531	-7.391544	0.0000
IM	0.252444	0.044765	5.639358	0.0000
BOD	0.206415	0.043930	4.698697	0.0000
AC	0.146509	0.041927	3.494360	0.0006
Cross-section fixed (dummy variables)				
Root MSE	0.414888	R-squared		0.614759
Mean dependent var	1.311534	Adjusted R-squared		0.586223
S.D. dependent var	0.670088	S.E. of regression		0.431038
Akaike info criterion	1.225443	Sum squared resid		35.11496
Schwarz criterion	1.469423	Log likelihood		-109.9952
Hannan-Quinn criter.	1.324137	F-statistic		21.54302
Durbin-Watson stat	1.790532	Prob(F-statistic)		0.000000

The results presented in Table 6 confirmed support for the first research hypothesis (F= 21.54302, p= 0.000000). Hence, the corporate governance variables collectively had a statistically significant impact on the return on investment. Moreover, the determination coefficient of the regression model (R^2) used to measure the impact of corporate governance variables collectively on the return on investment was 0.614759. This result indicates that approximately 61% of the variance of return on investment was explained by the change in the corporate governance variables, while 39% of the variance of return on investment was explained by other factors that were not addressed in the current research. Moreover, the board of directors' size (β= 0.206415, p= 0.0000), the number of independent members of the board of directors (β= 0.252444, p= 0.0000), and the number of the audit committee members (β= 0.146509, p= 0.0006) had a statistically significant impact on the return on investment, since its probability value is less than 0.05. Equation 7 shows the estimated impact between corporate governance variables and return on investment.

$$ROI_i = -2.827497 + 0.206415\,BOD + 0.252444\,IM + 0.146509\,AC + \varepsilon_i \qquad (7)$$

The second research hypothesis argued that the variables of corporate governance have an impact on the return on equity in commercial banks in Jordan. Based on the previous discussion of the assumptions of the regression model, the random effect model was the most appropriate regression model to use in testing this hypothesis. Table 7 illustrates the impact coefficients to test the first hypothesis.

Table 7
The impact of corporate governance on ROE using random model

Dependent Variable: ROE
Method: Panel EGLS (Cross-section random effects)
Sample: 2005 2021
Periods included: 17
Cross-sections included: 12
Total panel (balanced) observations: 204
Swamy and Arora estimator of component variances

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-17.18411	2.747823	-6.253719	0.0000
AC	1.062951	0.320623	3.315267	0.0011
BOD	1.267555	0.314134	4.035075	0.0001
IM	1.708563	0.351520	4.860496	0.0000

Effects Specification				
			S.D.	Rho
Cross-section random			0.881853	0.0591
Idiosyncratic random			3.518690	0.9409
Weighted Statistics				
Root MSE	3.475971	R-squared		0.468657
Mean dependent var	6.669510	Adjusted R-squared		0.460687
S.D. dependent var	4.780305	S.E. of regression		3.510559
Sum squared resid	2464.804	F-statistic		58.80149
Durbin-Watson stat	1.787291	Prob(F-statistic)		0.000000
Unweighted Statistics				
R-squared	0.483334	Mean dependent var		9.590593
Sum squared resid	2593.955	Durbin-Watson stat		1.788590

The results presented in Table 7 confirmed support for the second research hypothesis (F= 26.47724, p= 0.000000). Hence, the corporate governance variables collectively had a statistically significant impact on the return on equity. Moreover, the determination coefficient of the regression model (R^2) used to measure the impact of corporate governance variables collectively on the return on equity was 0.468657. This result indicates that approximately 47% of the variance of return on equity was explained by the change in the corporate governance variables, while 53% of the variance of return on equity was explained by other factors that were not addressed in the current research. Moreover, the board of directors' size (β= 1.267555, p= 0.0001), the number of independent members of the board of directors (β= 1.708563, p= 0.0000), and the number of the audit committee members (β= 1.062951, p= 0.0011) had a statistically significant impact on the return on equity, since its probability value is less than 0.05. Eq. (8) explains the estimated impact between corporate governance variables and return on equity.

$$ROE_i = -17.18411 + 1.267555\,BOD + 1.708563\,IM + 1.062951\,AC + \varepsilon_i \qquad (8)$$

The third research hypothesis discussed that the variables of corporate governance have an impact on the earning per share in commercial banks in Jordan. Based on the previous discussion of the assumptions of the regression model, the random effect

model was the most appropriate regression model to use in testing this hypothesis. Table 8 demonstrates the impact coefficients to test the first hypothesis.

Table 8

The impact of corporate governance on EPS using random model

Dependent Variable: EPS
Method: Panel EGLS (Cross-section random effects)
Sample: 2005 2021
Periods included: 17
Cross-sections included: 12
Total panel (balanced) observations: 204
Swamy and Arora estimator of component variances

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.441047	0.109303	-4.035087	0.0001
AC	0.009955	0.011079	0.898625	0.3699
BOD	0.039044	0.011545	3.381902	0.0009
IM	0.041166	0.011856	3.472219	0.0006
Effects Specification				
			S.D.	Rho
Cross-section random			0.148615	0.6275
Idiosyncratic random			0.114493	0.3725
Weighted Statistics				
Root MSE	0.112618	R-squared		0.284262
Mean dependent var	0.044116	Adjusted R-squared		0.273526
S.D. dependent var	0.133444	S.E. of regression		0.113739
Sum squared resid	2.587302	F-statistic		26.47724
Durbin-Watson stat	1.911895	Prob(F-statistic)		0.000000
Unweighted Statistics				
R-squared	0.165743	Mean dependent var		0.240191
Sum squared resid	5.729652	Durbin-Watson stat		1.872294

The results presented in Table 8 confirmed support for the third research hypothesis (F= 26.47724, p= 0.000000). Hence, the corporate governance variables collectively had a statistically significant impact on earnings per share. Moreover, the determination coefficient of the regression model (R2) used to measure the impact of corporate governance variables collectively on the earning per share was 0.284262. This result indicates that approximately 28% of the variance of earning per share was explained by the change in the corporate governance variables, while 72% of the variance of earning per share was explained by other factors that were not addressed in the current research. The board of directors' size (β= 0.039044, p= 0.0009) and the number of independent members of the board of directors (β= 0.041166, p= 0.0006) had a statistically significant impact on the earnings per share, since the probability value was less than 0.05. However, the number of the audit committee members (β= 0.009955, p= 0.3699) had no impact on the earnings per share, since the probability value was greater than 0.05. Equation 9 illustrates the estimated impact between corporate governance variables and earnings per share.

$$EPS_i = -0.441047 + 0.039044\,BOD + 0.041166\,IM + \varepsilon_i \qquad (9)$$

5. Conclusion

This paper examined the impact of corporate governance variables on the financial performance of commercial banks in Jordan. The financial performance was measured through ROI, ROE, and EPS indicators. The quantitative panel data extracted from the financial statements of 12 commercial banks were used, along with the data published on the official website of the ASE during the period 2005-2022. The results of the analysis showed that the corporate governance variables used in the study, i.e., the board of directors' size, the number of independent members in the bank's board of directors, and the audit committee members, had a positive impact on ROI, where the greatest impact was for the number of independent members in the bank's board of directors. Accordingly, the repercussions of the procedures followed in corporate governance increase because of the executives' sense of continuous control over the efficiency of the decisions taken in investing the bank's financial assets to achieve the best results for stakeholders. This result is consistent with what Akinleye and Fajuyagbe (2019) showed, who confirmed corporate governance plays the main driver in enhancing the financial results of banks.

The results also determined that corporate governance had a positive impact on the financial performance of commercial banks in Jordan through its impact on ROE. The biggest impact was produced by the presence of independent members on the board of directors of banks, which is consistent with studies (Musah & Padi, 2022; Kyere & Ausloos, 2021). Therefore, banks are working to increase the percentage of independent members' representation in their board of directors to preserve the rights of owners/shareholders and increase confidence in using the deposited money in the best way to ensure the sustainability of the good performance of the bank and maximize the returns of the owners/shareholders. Although corporate governance has an impact on EPS in commercial banks in Jordan, the number of audit committee members had no impact on this indicator. This result confirms the confidence in the integrity and independence of the board of directors in the purpose

of the fair results of the financial statements that reflect the true reality of the share price measured by the market price. This result was situational and depends on the general context of the financial structure of developing countries such as Jordan and the central bank's good oversight of the activities of banks, especially after the successive financial crises.

6. Recommendations and Limitations

According to the results achieved from the paper, a set of recommendations were provided on both the literary and empirical levels. From a literary perspective, this paper highlights the concepts of governance in one of the essential sectors in the developing economy, which is the commercial banking sector in Jordan, by studying its impact on financial performance, especially that associated to EPS. Regarding empirical perspective, this study contributed to providing evidence that helps decision makers to develop the foundations of corporate governance to conform to international standards. Accordingly, the paper recommended the need to review the principles used in selecting members of the audit committee for commercial banks in Jordan, given their importance in developing long-term financial performance by increasing the accuracy of the financial statements published to users. Moreover, it called for the establishment of boards of directors for banks in line with the requirements of the Central Bank and the recommendations of the Basel Committee to achieve balance between corporate governance procedures and maintaining good financial performance to fulfill the desires of owners/shareholders.

Although the significant results of the paper on the literary and empirical levels, it included some determinants that should be noted. First of all, this study was conducted on one of the main sectors of the developing economies, i.e., the commercial banking sector in Jordan, although there were other sectors that contribute to the Jordanian GDP. Hence, the paper recommended future researchers to focus on studying the impact of corporate governance on the financial performance of the rest of the economic sectors, for example the industrial companies listed on the ASE. The current paper used time series data over the period 2005-2022. Thus, this time could be expanded to derive equations that could more accurately predict the financial performance of banks. Finally, the paper was limited to studying the impact of the internal elements of corporate governance. Therefore, future studies could examine the impact of external elements of corporate governance or the interaction between both internal and external elements of corporate governance.

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