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## The Relationship between Corporate Governance Mechanisms and Firm Performance: Evidence from Jordanian's Listed Firms

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### Abstract

The purpose of this study is to examine the relationship between corporate governance mechanisms and firm performance (measured in the form of return on assets (ROA), and return on equity (ROE) in the Jordanian context. Research is quantitative in nature, based on panel data of 58 firms listed in Amman Stock Exchange (ASE) for 8 years from 2012 to 2019, with 464 observations, and the panel corrected standard error (PCSE) regression has been used to assess the relationship among variables. The study found that board size, board independence and presence of female in board had no effect of firm performance whether ROA and ROE. Likewise, the study found no relationship between foreign ownership and ROE. In contrary, CEO duality, concentration ownership, foreign ownership had a positive effect on ROA. As well as, CEO duality and concentration ownership had a positive effect on ROE. However, the current study found that institutional ownership had a negative effect on firm performance whether ROA and ROE. The finding adds to the body of knowledge by demonstrating new and original evidence that some current corporate governance mechanisms are ineffective in reducing the agency problem in a developing country.

**Keywords:** Corporate Governance, Firm Performance, Amman Stock Exchange, Agency Theory, Stewardship Theory.

### Introduction

Performance of firms has been playing a crucial role in enhancing the wealth of stakeholders, GDP growth, and the development of the whole economy (Rashid, 2018). However, the confidence of investors has been shaken following the announcement of massive corporate financial scandals by large institutions all over the world (Enron, World Com, and Asian financial crisis) (Al-Matari & Al-Swidi, 2012). For example, Enron manipulated its financial statements by off-balance-sheet financing. Because the board lacked independence from senior executives, it was unable to reveal the distorted assertions (Vinten, 2002). Moreover, World Com overstated its earnings and eventually filed for bankruptcy. The investigations showed that the CEO of World Com was "allowed nearly imperial reign over the affairs of the firm, without the board of directors exercising any restraint on his actions" (Rettenberg, 2009). As well, Boubakri et al (2010) showed that the weakness of corporate governance was

one of the reasons for the Asian financial crisis. Moving to the Jordanian context, because of centralized, unilateral and ill-considered decisions, and the presence of a large number of bureaucratic managers, the CJC which is one of the most prominent firm in Jordanian clothes industry has filed for bankruptcy.

These collapses raised severe doubt about the efficiency of monitoring mechanisms that were designed to protect investors' interests. In response to creating a protected environment for investors in Jordan, the corporate governance regulations were issued in 2009, and these regulations were updated in 2017 (Abed et al., 2012; Abu Qa'dan & Suwaidan, 2019). Increasing attention has been placed in corporate governance in recent years (Al-matari, 2020), because it fosters investor confidence and provides accountability mechanisms for corporations and their executives (Li & Roberts, 2018). Pucheta-Martinez and Gallego-Alvarez (2019, p.1251) defined corporate governance as "the procedures and processes according to which organizations are directed and controlled by their CEO, board of directors and senior management". Precise corporate governance focuses on the firm's management mechanisms, transparency, and concepts of accountability, fairness, and responsibility (Tawfeeq & Alabdullah, 2016). Practically, corporate governance is considered an effective mechanism to reduce principal-agent conflicts which result from separation of ownership and management (Jensen & Meckling, 1976). Moreover, corporate governance could be an efficient mechanism to mitigate conflicts between large shareholders and minorities in concentrated ownership environments as in developing countries (Fama & Jensen, 1983).

However, little is known about the relationship between corporate governance and firm performance in developing, post-transition economies. Therefore, it could be a unique chance to highlight two important forms of corporate governance that could play a strategic role in improving firm performance. Among the widely used corporate governance mechanisms, board composition is considered a primary key underlying best corporate governance practices (Al Fadli et al., 2020), where the board acts as a monitoring platform to properly serve all shareholders (Nor et al., 2017). Moreover, the board has duties such as, assessing management and naming a chief executive officer (Shanikat & Abbadi, 2011). Another form of corporate governance is ownership structure which affects the way firms are being governed (Dong et al., 2020). The ownership structure of a corporation is a critical factor in deciding how shareholders' interests are protected from potential manipulation by agents (Ali et al., 2017). Furthermore, the policies and behavior of firms with highly concentrated ownership are followed by the personal benefits of large investors because they have the power to act as a pressure group on the senior management (Shahrier et al., 2020).

Many studies show that corporate governance plays a critical role in increasing earnings quality (Saksessia & Firmansyah, 2020), making better financing decisions (Zaid et al., 2020), reducing information asymmetry (Nor et al., 2017), promoting firm performance (Srivastava & Bhatia, 2020). Several studies have investigated the relationship between corporate governance and firm performance (Wahba, 2013; Andow, 2016; Hamdan & Al Mubarak, 2017; Agyemang-Mintah & Schadewitz, 2019). However, the results ranged from positive, negative, and no relationship for various reasons, such as highly concentrated ownership in Middle East countries may be the reason to differ the results from developed countries, where the ownership is widespread among investors in developed countries and investors' protection is considered high (Mishra & Kapil, 2016).

The motivation for the current study stems from the fact that the general features of the corporate sector in developing economies are different from those in developed economies. Although prior studies have made significant contributions in the area of corporate

governance, the vast majority of exiting literature has primarily focused on governance practises of the AngloAmerican model across developed economies (Modell & Yang 2018). Meanwhile, Jordan, have a a unique setting of the agency relationship, one that features concentrated ownership and institutional differences in corporate governance practices in Jordan. The country's economy is characterised by CEO duality, and high insider representation in boardrooms and family-controlled companies. Furthermore, the Jordanian market is still developing, so its financial market is trying to increase efficiency by activating the principles of equality and transparency (Abed et al., 2012).

Second, although corporate governance mechanisms are considered efficient tools for monitoring mechanisms, Jordan suffers from a lack of empirical evidence regarding corporate governance issues. Therefore, the current study will fill up the gap by examining the effect of ownership structure (managerial ownership, foreign ownership, concentration ownership, and institutional ownership), board composition (board size, board independence, board gender, CEO duality), on firms performance of Jordanian. The current study contributes the exsiting literature in corporate governance and firm performance in several ways. First, this study is the first to investigate the effect of board composition and ownership structure together on firm performance in Jordanian environment. where no previous study has tested eight mechanisms of corporate governance in such relationship. In that, from both developed and developing countries' perspective. Second, unlike most previous studies, the current study was used two measures of financial performance which makes the results more accurate.

The remainder of the paper is organized as follows. Section 2 presents an in-depth literature review and discusses the research hypotheses. Section 3 describes the data and methodology. The results and the associated discussions are presented in Section 4. Conclusions and implications are presented in Section 5.

## **Review of Related Literature**

### **Theoretical Framework**

Concerns about corporate governance stem from the theorization of issues resulting from typical agency structures in firms (Ujunwa, 2012). In this context, Fama and Jensen (1985) argue that pursuing self-interest will led to disastrous results, including the cost of monitoring and controlling the behavior of the agents, and the loss incurred as a result of agents making sub-optimal decisions. This study mobilises to two key theories, i.e., agency theory and resource dependency theory. Agency theory is most famous theory in governance literature (Jabari & Muhamad, 2020). According to agency theory, when the shares of firm is divided into a large number of owners, there could be a reason for conflict of interest between owners and managers (Jensen, 1986). Because the conflict happens when the owner's goals and manager's goals are differed.

Theorists of agency theory argue that the fundamental function of the board is monitoring management performance. Therefore, they consider corporate governance playing a vital role in monitoring management. On other hand, resource dependency theory has also been applied in governance literature (Shahrier et al., 2020). While agency theorists argue that monitoring management is an important task for the board, resource dependency theorists assert that the provision of resources is the main function of the board (links to other firms, legitimacy, and advice) (Davis & Cobb, 2010). Pfeffer & Salancik (1978) contend that the board is an essential linkage between firm and crucial resources desired to improve performance.

Therefore, boards with high relations to the external world are likely to support firm access to various resources (Nicholson & Kiel, 2007).

Accordingly, the current study seeks to highlight the effect of corporate governance mechanisms on firm performance. Several studies have examined the relationship between corporate governance mechanisms and firm performance (Bhatt & Bhatt, 2017; Oncioiu et al., 2020; Puni & Anlesinya, 2020; Harun et al., 2020). However, corporate governance includes a lot of mechanisms. Therefore, no consensus in the literature regarding mechanisms that may affect firm performance. Due to the severe lack of governance research and mixed results in Arab countries and Jordanian environment specifically. The present study will focus on various mechanisms of corporate governance including board composition and ownership structure and their effect on firm performance.

### **Board Size and Firm Performance**

Prior literature concluded that the board size is one of the important mechanisms of corporate governance (Buachoom, 2018; Bzeouich et al., 2019; Merendino & Melville, 2018; Ozbek & Boyd, 2020; Shahid et al., 2020). Agency theory agrees with resource dependency theory regarding the positive effect of board size on firm performance. In Jordanian environment, the Corporate governance Code which updated in 2017 specified the upper and lower number of board size member from 5 to 13 (Jordan Securities Commission, 2017). By moving to prior literature, it can be notice that the results are mixed among positive, negative, and no effect. Therefore, it could be of interesting to provide new evidence about the effect of board size on firm performance in developing country.

Merendino and Melville (2018) used a sample of Italian listed companies over the period 2003-2015 to investigate the effect of board size on firm performance. The study concluded that board size affects positively firm performance. Likewise, in another European country Nas and Kalaycioglu (2016) used a sample of Turkish industrial firms to examine the effect of board size on export performance and found a positive relationship between board size and firm performance. By using data of 34 countries that have been grouped into six geographic zones: Africa, Asia, Europe, Latin America, North America, and Oceania to investigate the effect of board size on firm performance, Pucheta-Martinez and Gallego-Alvarez (2019) show a positive effect of board size and firm performance. In term of developing country, by using panel data covering the period 2011-2017, Al-matari (2020) found a positive relationship between board size and Tobin's Q in Omani firms. Similarly, Mishra and Kapil (2018) employed ROA and TobinsQ as a measurement for firm performance and indicated a positive and significant relationship between TobinsQ, ROA, and board size in Indian firms. The results of previous studies are consistent with the argument of resource dependence theory in that larger board is desired to support firm access to various resources (Nicholson & Kiel, 2007).

However, other studies concluded to a negative relationship between board size and firm performance. Ujunwa (2012) examine the effect of board size on firm performance of 122 Nigerian firms and concluded that board size affects negatively firm performance. Equally, by using 32 industrial firm listed in Pakistani Stock Exchange for the period from 2014 to 2017 Shahid et al (2020) points out that board size has a negative and significant effect on firm performance. The results of prior studies are consistent with the argument that bigger-sized board may be countered by the costs incurred and the challenges in reaching a consensus, which stands to reason that smaller-sized boards may have lesser coordination issues and enhanced performance. In this regard, it is important for the board to contribute value to

making strategic decisions. On other hand, Nguyen et al (2015) concluded no relationship between board size and firm performance. Based on these premises, the current study argue that there is a positive relationship between board size and firm performance. So, our hypothesis is:

H1a: There is a positive relationship between board size and ROA.

H1b: There is a positive relationship between board size and ROE.

### **Board Independence**

Agency theory conjectures that managers' self-interests differ from those of stakeholders, and independent directors serve as an effective control mechanism to prevent managers from engaging in opportunistic behavior. As a result, with higher number of independent directors, the risk of expropriation of shareholder wealth by managers could be reduced (Jensen & Meckling, 1976; Fama & Jensen, 1985). Likewise, Wu and Li (2015) contend that the presence of independent directors contributes to reducing the opportunistic behavior of managers. A fixed-effect panel regression analysis has been used by Thenmozhi and Sasidharan (2020) to examine the effect of board independence on firm value. The study found that the conflict between controlling shareholders and minority shareholders could be reduced in the presence of independent directors. Likewise, by using 391 Indian firms, Mishra & Kapil (2018) found a positive relationship between board independence and firm performance. Buachoom (2018) denotes that board independent directors are able to oversight the behavior of managers.

However, another trend in the literature claims firm performance is affected negatively by board independence. Shan (2019) used Australian listed firms as a sample for the period 2005-2015 and found that firm performance is affected inversely by board independence. In the Arab context, Hamdan and Al Mubarak (2017); Farhan et al (2017) document that independent directors are less effective in monitoring the management of the firm where information asymmetry issue results in inefficiency of outside directors to make efficient decisions that improve company performance. On other hand, Wang et al (2020); Li and Roberts (2018); Rashid (2018) indicated no relationship between board independence and firm performance. Agency theorists emphasize the favorable influence of higher number of independent directors on firm performance based on the findings and arguments presented in the previous studies listed above and in accordance with the agency theory, the current study expect a positive relationship between board independence and firm performance. So, our hypothesis is:

H2a: There is a positive relationship between board independence and ROA.

H2b: There is a positive relationship between board independence and ROE.

### **Board Gender**

According to resource dependence theory, board gender diversity is one of the most important corporate governance mechanisms. Gender diversity enhances firm performance by allowing access to a larger talent pool and broadening the range of knowledge accessible (Pfeffer, 1973). A means of attracting individuals from diverse demographic backgrounds (Carter et al., 2010), creates a more transparent information environment (Upadhyay & Zeng, 2014). Jabari and Muhamad (2020) used pooled OLS estimation method to examine the effect of gender diversity and firm performance and found that women's presence and proportion positively affect Islamic banks' ROAA. Kilic and Kuzey (2016) used firms listed on Bursa Istanbul and indicated a positive relationship between gender diversity and firm performance.

In the same way, Mintah & Schadewitz (2019) also document a positive effect between gender diversity and firm performance.

Nonetheless, Lim et al (2019) shows that gender diversity increases the conflicts. Thus, decrease firm performance. Similarly, Jadyappa et al (2019) concluded that there is a positive relationship between female CEO and agency costs, it could be attributed in part to sub-optimal financial and investment decisions female CEO make. Other studies (Herrera-Cano & Gonzalez-Perez, 2019; Pletzer et al., 2015) mentioned that gender diversity does not affect firm performance. Based on these premises, the current study argue that there is a positive association between board gender and firm performance. So, our hypothesis is:

H3a: There is a positive relationship between board gender and ROA.

H3b: There is a positive relationship between board gender and ROE.

### **CEO Duality and Firm Performance**

There have been differing perspectives on the effects of CEO duality on firm performance in the strategic management literature. On the one hand, the fundamental concepts of agency theory states that chairman and CEO position should be assigned to various individuals to avoid CEO's dominance and his opportunistic behavior (Jensen & Meckling, 1976). Many papers agree with prior argument, Assenga et al (2018) found a negative relationship between CEO duality and firm performance. Likewise, Naseem et al (2019) investigated the relationship between CEO duality and firm performance and indicated a negative relationship between CEO duality and firm performance. As well as, the results of Wahba (2013) indicated that when chairman and CEO positions are separated, firm performance will be better.

However, according to stewardship theorists, if a company's CEO and chairman are the same person, executive managers are better familiar with day-to-day activities and hence have more detailed and dependable information (Joseph et al. 2014). Therefore, improved firm performance. Wijethilake et al (2015) used sample of 212 publicly listed companies in 20 industries in the Colombo Stock Exchange in Sri Lanka and found CEO duality affect positively firm performance. In the same way but different sample, Gupta and Mahakud (2019) shows a positive effect of CEO duality and firm performance. On other hand, Puni and Anlesinya (2020) used panel regression analysis of data from 38 listed firms in Ghana from 2006 to 2018 and found no relationship between CEO duality and firm performance. Likewise, Carty and Weiss (2012) documents no correlation between CEO duality and firm performance. Although the empirical evidence on the relationship between CEO duality and firm performance is still inconclusive, the stewardship theory argues that when one person holds all power at the top level, major conflicts would be avoided during the decision-making cycle (Ozbek & Boyd, 2020). Thus, the following hypothesis is then proposed:

H4a: There is a positive relationship between CEO duality and ROA.

H4b: There is a positive relationship between CEO duality and ROE.

### **Managerial Ownership and Firm Performance**

According to Jensen (1986) there is a positive linkage between the managers who own shares in a firm and optimal firm performance. This relationship is attributed to that managerial ownership can mitigate the conflict of interest between shareholders and managers (Basu, 2014). Benson et al (2020) point out that managerial ownership is more efficient in reducing information asymmetry, thus improving the firm value.

Allam (2018) used data sets of non-financial firms incorporated in the FTSE ALL-Share index over the period 2005-2011 and found a positive relationship between managerial ownership

and firm performance. By using 452 firms listed on the Thai Stock Exchange for the period 2000-2016, Al Farooque et al (2019) concluded that the greater the managerial ownership, the more optimal the performance of a firm will be. By reviewing the literature, it could be noted that the Jordanian environment suffers from a lack of studies that highlight ownership structure and managerial ownership particularly. One of the few studies conducted by Alabdullah (2018) and found a positive relationship between managerial ownership and firm performance.

However, Morck et al (1988) claim that managerial ownership may result in 'entrenchment', therefore, Controlling the behaviour of management would be challenging for external shareholders. Furthermore, Nor et al (2017) claim managers with high ownership may have incentives to pursue their own goals without concerns about discipline and other shareholders interests. In the same way, Adamu and Haruna (2020) found a negative and significant relationship between managerial ownership and firm performance. On another hand, Moudud-UI-Huq et al (2020) indicated no relationship between managerial ownership and firm performance. Based on these premises, the current study argue that there is a positive relationship between managerial ownership and firm performance. So, our hypothesis is:

H5a: There is a positive relationship between managerial ownership and ROA.

H5b: There is a positive relationship between managerial ownership and ROE.

### **Concentration Ownership**

In emerging countries, ownership is more concentrated, with large shareholdings held by a limited number of individuals, families, firms, or the government. Rather of dealing with conflicts between management and shareholders, governance mechanisms in this setting are focused on preventing asset tunneling, which occurs when dominating shareholders use their majority rights to create private gains and expropriate smaller shareholders (Fama & Jensen, 1983). However, (Morck et al., 1988) argue that high ownership concentration may enhance firm performance, by increasing monitoring. Moreover, for firms operating in an unstable legal and political climate, ownership concentration might be favorable (Waheed & Malik, 2019). Previous empirical evidence on the relation between ownership concentration and firm performance is inconclusive. On the one hand, Gaur et al (2015) argue that A lack of ownership concentration leads to agency issues resulting in poor performance.

Evidence from emerging markets generally shows that high ownership concentration has a favorable impact on firm performance. For example, Jaafar and El-Shawa (2009) found that ownership concentration has a positive and significant effect on performance of Jordanian firms. Similar results were obtained by (Rehan and Javaid, 2019). They found high concentrated ownership led to tight monitoring of managers behavior, then enhancing firm growth of Pakistani firms. Moreover, Desoky and Mousa (2013) find that the more highly concentrated the ownership, the higher ROE in the Egyptian firms. On the other hand, large shareholders may use their influence to expropriate minority shareholder wealth for personal benefit (P-EOR). Lepore et al (2017) found that firms experience performance decrease when ownership concentration levels are higher. Another evidence from European environment, Aluchna and Kaminski (2017) indicated negative correlation between ownership concentration and ROA. Moreover, in their analysis of data of 236 Indian manufacturing firms (Altaf & Shah, 2018) point out a negative relationship between high concentration and firm performance. While Yasser and Al Mamun (2015) and Matinez-Garcia et al. (2020) there is no significant association with ownership concentration and firm performance.



Although the outcomes of prior research on the effect of concentration ownership on the firm performance are mixed, to support the agency theory and the notion that shareholders with small shares in a firm are unable to effectively monitor management. The current study expect that high ownership concentration lead to better monitoring of management, and thus high firm performance. Following is a hypothesis based on the preceding argument:

H6a: There is a positive relationship between concentration ownership and ROA.

H6b: There is a positive relationship between concentration ownership and ROE.

### **Institutional Ownership**

The relationship between institutional ownership and firm performance is non-linear due to possible effects that influence the relationship between a firm's performance and institution ownership. On one hand, when there are agency issues, institutional owners tend to make more corporate manipulation observations (Hadani et al., 2011). As well, institutional ownership introduces monitoring mechanisms to oversee management's opportunistic behavior to protect their interests (Zhong et al., 2017). Consistent with these arguments, Mishra and Kapil (2016) concluded that institutional ownership affect positively TobinsQ. By using a sample of Taiwanese listed firms from 1997 to 2015 Kao et al (2018) points out a positive relationship between institutional ownership and firm performance. Similar results were obtained from China, which is the largest emerging economy Lin and Fu (2017) found that institutional ownership affect positively firm performance.

However, according to the 'passive monitoring' view, institutional investors are considered short-term traders who are interested in speculative short-term trading profits based on information advantages (Elyasiani & Jia, 2010). Evidence from emerging market, Ali et al (2017) found a negative relationship between institutional ownership and .firm performance. Using a panel data of 139 non-financial companies listed on the Indonesia Stock Exchange (Musallam et al., 2018) found a negative relationship between institutional ownership and firm performance. While, Al-Saidi & Al-Shammari (2015) found no relationship between institutional ownership and firm performance of Kuwaiti firms. Based on these premises, the current study argue that there is a positive association between concentration ownership and firm performance. So, our hypothesis is:

H7a: There is a positive relationship between concentration ownership and ROA.

H7b: There is a positive relationship between concentration ownership and ROE.

### **Foreign Ownership**

Foreign ownership is one of crucial corporate governance mechanisms, particularly those coming from shareholder-protected environment. One stream of studies argues that foreign investors are more efficient than local investors at monitoring managers and reducing information asymmetry (Chen et al., 2017). Furthermore, foreign investors are more successful in valuing firms' activities and monitoring managers due to their experience and technology advantage (Tran, 2020). Moreover, foreign investors have less ties to insiders than local investors, allowing them to keep a closer eye on insiders (Chen et al., 2009). Gu et al. (2019) employed ROA and Tobin's Q as proxies of performance, and they documented a positive relationship between foreign ownership and firm performance of USA firms. In his analysis of 527 annual reports of listed companies in Bangladesh for the years 2015-2017, Rashid (2020) found that foreign ownership affects positively firm performance. Moreover, Mardnly et al (2018) provided an empirical evidence from Syria and point out a positive relationship between foreign ownership and firm performance.

However, other studies argue that foreign investors are forcing firms to hold cash as a response to financial friction. Furthermore, since foreign investors have concerns with regards to information asymmetry, they push managers to hold more cash which may lead to passing investment with positive present value (Vo, 2018). Similarly, Tran (2020) found that foreign investors are risk-averse in response to a capital market of high uncertainty, and they pressure firm managers to only follow safe investment. Moreover, by using panel of all listed firms in the Dubai Financial Market (DFM) and the Abu Dhabi Securities exchange (ADX) from 2008 to 2012, Al-gamrh (2020) documents a negative relationship between foreign ownership and firm performance. Phung and Le (2013) found that foreign ownership affects negatively firm performance of Vietnam's firms. Based on these premises, the current study argues that there is a positive association between foreign ownership and firm performance. So, our hypothesis is:

H8a: There is a positive relationship between foreign ownership and ROA.

H8b: There is a positive relationship between foreign ownership and ROE.

## **Research Methodology**

### ***Sample***

The current study relies on secondary data, which was gathered via annual reports due to its high level of availability and credibility. The data set covers eight years (2012-2019) with 58 service and industrial firms listed in Amman Stock Exchange (ASE). The study targeted these sectors due to their importance in the Jordanian economy where they contribute around 77% of the GDP. The final number of observations was 464.

### ***Definition and measurement of variables***

#### ***Measuring Firm Performance***

By following previous study (Buallay et al., 2020; Abu Zraiq & Fadzil, 2018; Mohd Razali et al., 2018), the current study highlighted on accounting proxies, therefore return on assets (ROA), and return on equity (ROE) have been used to measure firm performance.

#### ***Measuring Corporate Governance***

The corporate governance variables are board size (BS), board independence (BI), CEO duality (CEO), gender (GEN), managerial ownership (MO), foreign ownership (FO), concentration ownership (CO), and institution ownership (IO). Board size is measured by taking the number of board members. Board independence is measured by taking the percentage of independent directors. CEO duality is a binary variable; a firm with duality was coded "1," while non-duality was coded "0". Gender is measured by taking the number of directors' female. Managerial ownership is measured by the percentage of share ownership by the directors. Foreign ownership is measured by the percentage of common stock owned by the foreigners. Concentration ownership is measured by the percentage of largest shareholder controlling more than 5% of total equity. Institution ownership is measured by the proportion of common stock owned by institutional investors. content analysis technique was used to measure CSR disclosure.

#### ***Measuring Control Variables***

The control variables of the current study included are firm size (FS), dividend per share (DIV), liquidity (LIQ), and audit quality (AUD). Firm size (FS) is measured by taking a natural logarithm of total assets. Dividend per share (DIV) is measured by the proportion of dividend payout.

Audit quality is measured by dummy variable, if the firm has been audited by one of the big four firms, this firm was coded "1," while firm has not been audited by one of the big four firms was coded "0".

### Research Model

To examine the proposed hypotheses, panel corrected standard errors (PCSE) has been applied. Because the diagnostic test indicated that the model of current study suffer from the contemporaneous correlation across the unit and unit level heteroscedasticity it is necessary to treat this problem to obtain efficient estimates; one first approach is the usage of FGLS (Parks, 1967); however, this method is not valid in situations when  $N > T$  because it needs a relative large  $T$  in relation to  $N$ . In this line, this method is limited to time-series cross-section (TSCS) research. Therefore, the present study uses panel corrected standard errors (PCSE), as it is an appropriate estimator when  $N > T$  (Singla, 2020; Mnif & Imen, 2020). In addition, all variables that have extreme values at the top and bottom 1 and 5% to mitigate the influence of outliers have been winsorized. The following models are estimated by panel corrected standard errors (PCSE).

$$ROA_{it} = \alpha_{it} + \alpha_1 BS_{it} + \alpha_2 BI_{it} + \alpha_3 CEO_{it} + \alpha_4 MO_{it} + \alpha_5 FO_{it} + \alpha_6 CO_{it} + \alpha_7 IO_{it} + \alpha_8 FS_{it} + \alpha_9 DIV_{it} + \alpha_{10} LIQ_{it} + \alpha_{11} AUQ_{it} + \varepsilon_{it}$$

$$ROE_{it} = \alpha_{it} +$$

$$\alpha_1 BS_{it} + \alpha_2 BI_{it} + \alpha_3 CEO_{it} + \alpha_4 MO_{it} + \alpha_5 FO_{it} + \alpha_6 CO_{it} + \alpha_7 IO_{it} + \alpha_8 FS_{it} + \alpha_9 DIV_{it} + \alpha_{10} LIQ_{it} + \alpha_{11} AUQ_{it} + \varepsilon_{it}$$

Where:

$ROA_{it}$  = Net income divided by total assets

$ROE_{it}$  = Net income divided by shareholder's equity

$BS$  = The number of board members

$BI_{it}$  = The percentage of independent directors.

$GEN_{it}$  = The number of directors' female

$MO_{it}$  = Percentage of total shares held by firm directors

$FO_{it}$  = The percentage of common stock owned by the foreigners

$CO_{it}$  = Percentage of the largest shareholder controlling more than 5% of total equity

$IO_{it}$  = The proportion of common stock owned by institutional investors

$FS_{it}$  = A natural logarithm of total assets

$DIV_{it}$  = the proportion of dividend payout

$LIQ_{it}$  = Total assets divided by total liabilities

$AUD_{it}$  = Dummy variable, if the firm has been audited by one of the big four firms, this firm was coded "1," while firm has not been audited by one of the big four firms was coded "0".

$\varepsilon_{it}$  = Error terms

### Empirical Results

This present study seeks to examine the effect of corporate governance on firm performance. This section begins with descriptive statistics, then diagnostic tests, and finally PCSE regression analysis results, which are displayed and analyzed to determine if the hypotheses are correct or not.

**Descriptive Statistics**

Table I presents summary statistics for test variables used in our regression (the mean value, the median, the standard error, and the maximum and minimum value). Table I shows the descriptive analysis; the minimum value of ROA is -0.087, and the maximum is 0.144. The mean ROA is 0.025, with standard deviation of 0.059.

Table I

*Descriptive Statistics*

Variable	Obs	Mean	Std. Dev.	Min	Max
ROA	464	0.025	0.059	-0.087	0.144
ROE	464	0.027	0.106	-0.204	0.217
BS	464	8.088	2.397	5	13
BI	464	0.371	0.214	0	0.77
CEO	464	0.121	0.326	0	1
GEN	464	0.274	0.687	0	4
MO	464	0.022	0.06	0	0.28
FOO	464	0.095	0.165	0	0.612
IO	464	0.446	0.297	0	0.96
CO	464	0.593	0.241	0.167	0.935
FS	464	17.276	1.463	13.06	21.31
AUD	464	0.338	0.474	0	1
DIV	464	0.083	0.166	0	0.75
LIQ	464	4.455	3.54	1.25	17.99

Table I also indicates that the mean of ROE for the sample is 0.027, with a standard deviation of 0.106. While the maximum value is 0.217 and the minimum value is -0.204. Regarding the board size Table I shows the mean of board size is 8.087 with a standard deviation of 2.397. The results demonstrated that the mean value of board independence disclosure is 0.371 with a standard deviation of 0.214. While the maximum value is 0.77 and the minimum value is 0.00. Table I presents that the mean value of female is 0.274, While the maximum value is 4 members of females. The average of CEO duality indicates that in 12 percent of the cases the CEO also serves as the chairman of the board. Moving to managerial ownership the results demonstrated that the mean of managerial ownership is 0.022, with standard deviation of 0.06. Table I show that the maximum value of foreign ownership is 0.612, while the mean is 0.095, with standard deviation of 0.165. Table I presents that the mean value of institutional ownership is 0.446, while the maximum value is 0.96. Finally, Table I show that the maximum value of concentration ownership is 0.935, while the mean value is 0.593.

Concerning the control variables, the average firm size is 17.27, with a standard deviation of 1.46, and the maximum and minimum are 21.31 and 13.06 respectively. Audit quality averaged 33.8 percent with standard deviation of 0.474. The mean of dividend payout in Jordanian firms is 0.083, whereas the mean of liquidity is 4.45.

**Diagnostic Tests**

Table II demonstrates that the Pearson correlation coefficients between all variables are less than the allowed limit, indicating that there is no significant issue of multicollinearity.

Table II  
*Matrix of Correlations*

Variables	1	2	3	4	5	6	7	8	9	10	11	12	VIF
1 BS	1												1.7
2 BI	0	1											1.36
3 CEO	-0.086	0.006	1										1.58
4 GEN	0.19	-0.077	0.431	1									1.4
5 AUD	0.291	-0.254	0.069	-0.04	1								1.49
6 MO	-0.09	-0.014	0.372	0.188	-0.211	1							1.47
7 FO	0.188	-0.029	0.071	0.007	0.078	-0.059	1						1.29
8 CO	-0.201	0.406	0.081	-0.06	0.19	0.002	0.256	1					2.09
9 IO	0.045	-0.401	0.113	-0.067	0.381	-0.309	0.319	0.608	1				2.31
10 FS	0.525	-0.087	0.274	0.072	0.438	-0.247	0.335	0.107	0.334	1			2.17
11 DIV	0.295	-0.012	0.095	0.119	0.204	-0.022	0.125	0.093	0.11	0.321	1		1.19
12 LIQ	-0.093	-0.091	0.222	0.071	-0.1	0.311	0.04	0.181	-0.021	-0.293	0.013	1	1.29

The study also performed a normality test to check for the normal distribution of residuals. Table VI note that this normality is confirmed by the Skewness and Kurtosis statistics which take 0.282 and 2.692 respectively. Hair et al. (2020) suppose that the normality problem exists when the Skewness values are not in the range of  $\pm 1.96$  and the Kurtosis values are not in the range of  $\pm 3.00$ . Therefore, according to Skewness and Kurtosis test for normality, residuals show normally distributed.

Table VI  
*Normality test*

Variables	Obs	Mean	Std. Dev.	Min	Max	p1	p99	Skew.	Kurt.
Model 1	464	0.00	0.05	-0.116	0.125	-0.106	0.095	-0.17	2.401
Model 2	464	0.00	0.087	-0.26	0.208	-0.203	0.153	-0.628	2.961

it is significant to consider if the variables are stationary or not before examining the relationship among corporate governance and firm performance. The Levin-Lin-Chu test is performed to test for stationarity. As shown Table V, all the variables used in the models were found to be stationary at their levels.

Table IV

*Unit root test (Levin-Lin-Chu)*

Variables	Statistics	p-value
ROA	-25.12	0.00
ROE	-12.38	0.00
BS	-2.27	0.01
BI	-14.47	0.00
GEN	-19.98	0.00
MO	-83.77	0.00
FO	-270	0.00
CO	-17.99	0.00
IO	-44.69	0.00
FS	-7.41	0.00
DIV	-32.77	0.00
LIQ	-13.99	0.00

To decide between fixed effects and random effects estimation, the Hausman specification test was applied. The basic assumption behind the random effect model is that firm-specific effects are not correlated with other explanatory variables (Mayur & Saravanan, 2017). Hausman test can evaluate whether this independence assumption is satisfied. Concerning the first and second models What stands out from Table IV is that since the probability value of H0 is more than 0.05 for the model, the preference of the random effect model is accepted, and the fixed effect model is rejected. To deal with the classical assumptions of regression, such as heteroscedasticity and autocorrelation, post-estimation tests were applied, which were specific to the panel data. Results for modified Wald test in Tables IV clearly show the presence of heteroscedasticity. The Woolridge test confirms the presence of autocorrelation. The Pesaran's test was performed to check cross section dependence among panels, and the results indicate to presence of cross section dependence in the first and second models. To control for heteroscedasticity, the autocorrelation problem, and cross section dependence problems, the Prais–Winsten regression with panel corrected standard errors (PCSE) is used in the study.

Table IV

*Econometric Tests*

Test models	Heteroscedasticity Modified Wald test	Cross-section dependence Peseran test	Serial correlation autocorrelation Wooldridge test	Specification test Hausman test
M1	40697 (0.00)	7.35 (0.00)	7.35 (0.00)	8.38 (0.75)
M2	49373 (0.00)	8.51 (0.00)	7.69 (0.00)	13.35 (0.34)

***The Result of Regression***

Before using the panel data regression, the current study had to check some necessary tests, such as residuals normality, heteroscedasticity, cross-section dependence, and

autocorrelation. The results indicated that heteroscedasticity, cross-section and autocorrelation are present.

Table V

\*\*\* significant at 1%, \*\* 5% and \* 10% level of significant.

**Prais-Winsten regression, correlated panels corrected standard errors (PCSE)**

<b>Explanatory Variables</b>	<b>(1) ROA</b>	<b>(2) ROE</b>
BS	-0.001 (0.36)	-0.003 (0.38)
BI	0.008 (0.45)	0.019 (0.368)
CEO	0.022*** (0.00)	0.035*** (0.00)
GEN	0.003 (0.43)	0.002 (0.79)
MO	-0.004 (0.90)	-0.007 (0.91)
FO	0.035*** (0.005)	0.035* (0.08)
CO	0.039** (0.03)	0.098*** (0.00)
IO	-0.025*** (0.00)	-0.064*** (0.00)
DIV	0.135*** (0.00)	0.014 (0.30)
LIQ	0.002*** (0.003)	0.241*** (0.00)
AUD	0.006 (0.39)	0.02*** (0.00)
FS	0.007 * (0.08)	0.003** (0.02)
Constant	-0.125* (0.05)	-0.384*** (0.00)
<b>Wald Chi</b>	<b>153.82 (0.00)</b>	<b>157.92 (0.00)</b>
<b>R<sup>2</sup></b>	<b>19.66%</b>	<b>21.00%</b>
<b>N</b>	<b>464</b>	<b>464</b>

To overcome these econometric issues, the current study apply panel corrected standard errors (PCSE), where it is an suitable estimate that corrects all of heteroscedasticity ,autocorrelation and cross-section dependence (Singla, 2020; Mnif & Imen, 2020; Carl et al., 2019). Table V presents the outcomes of empirical research of corporate governance on firm performance. Table V presents the outcomes of the PCSE regression. As shown in Table V the Wald chi2 with p\_value 0.000 points out acceptance of the statistical model for both models. Table V shows that the coefficient of board size (BS) is positive for both ROA and ROE, but the results are insignificant. Therefore, H1a and H1b are rejected. This result contradicts arguments of agency theory and resource dependence theory. However, this result is consistent with the empirical study by conducted by Nguyen et al (2015) who found no relationship between board size and firm performance.

Secondly, although the presence of independent directors affects positively ROA and ROE, but the results are insignificant. Thus, H2a and H2b are not supported. This result indicates that more independent directors, raise the firm performance consistent with the results of previous studies (Mishra & Kapil, 2018; Buachoom, 2018). The insignificant findings may be attributed to that several firms were not committed to the required number of independent directors, because the descriptive statistic of the independent directors variable indicated that the minimum value was zero. Third, CEO duality affect positively and significantly ROE and ROE. Therefore, H3a and H3b is supported. this result support the view of stewardship theory which argue that if a firm's CEO and chairman are the same person, executive managers are better familiar with day-to-day activities and hence have more detailed and dependable information (Gupta and Mahakud, 2019; Puni and Anlesinya, 2020; Wijethilake

et al., 2015). Fourth, Table V shows that there is no statistically positive significant effect between gender diversity, ROA and ROE. Therefore, H4a and H4b are rejected. This result contradicts the argument of resource dependence theory, but it is consistent with prior studies who found no relationship between gender diversity and firm performance (Herrera-Cano & Gonzalez-Perez, 2019; Pletzer et al., 2015).

In terms of ownership structure, Table V indicated that the coefficient of managerial ownership is negative for both ROA and ROE, but the results are insignificant. Thus, H5a and H5b are not supported. The result contradicts the agency theory which argues that an increase in managerial shareholding will mitigate the conflict of interest between shareholders and managers. The insignificant finding could be attributed to the lower percentage of managerial ownership in Jordanian firms. As can be shown in descriptive statistics, the mean of managerial ownership is 2.2%. Sixthly, Table V indicates that the coefficient of foreign ownership is positive for both ROA and ROE, and the results are significant. Based on this result, H6a and H6b are supported.

This result supports the view that foreign investors are more successful in valuing firms' activities and monitoring managers due to their experience and technology advantage (Chen et al., 2017; Tran, 2020; Gu et al., 2019). Seventhly, Table V also indicates that concentration ownership is positively and statistically related with ROA and ROE. Therefore, H7a and H7b are accepted. The result is consistent with the findings of Rehan and Javaid, 2019; Desoky and Mousa, 2013). Finally, Table V also indicates that institutional ownership affects statistically and negatively ROA and ROE. Thus, H8a and H8b are rejected. The result is consistent with the findings of (Ali et al., 2017; Musallam et al., 2018). The evidence contradicts the assumption that firms with increased institutional ownership are associated with less information asymmetry and agency problems, which can positively affect firm performance.

Concerning control variables, Table V indicates that dividend payout affects positively ROA and ROE, but the relationship between dividend payout and ROE is not significant. Table V indicates that firm size affects positively at 10% ROA while ROE at 5%. Likewise, Table V also indicates that liquidity affects statistically and positively ROA and ROE. While, Table V also indicates that audit quality does not affect ROA while it affects ROE.

## Conclusion

The empirical and theoretical literature lacks consistency on how corporate governance affects financial performance while corporate governance literature generally and especially in Jordan remains scanty and not comprehensive. Consequently, this study examined the effect of the corporate governance mechanisms (board size, board independence, CEO duality, gender, managerial ownership, foreign ownership, concentration ownership, institutional ownership) on financial performance indicators (return on asset, return on equity) using data from 58 Jordanian listed firms covering the periods 2012-2019. The study found that board size, board independence and presence of female in board had no effect on firm performance whether ROA and ROE. Likewise, the study found no relationship between foreign ownership and ROE. In contrast, CEO duality, concentration ownership, foreign ownership had a positive effect on ROA. As well as, CEO duality and concentration ownership had a positive effect on ROE. However, the current study found that institutional ownership had a negative effect on firm performance whether ROA and ROE.



The current study fills the gaps in the overall corporate governance literature about to lack of consensus on financial impacts of corporate governance mechanisms. Moreover, the current study used panel corrected standard errors (PCSE) models to address the heteroscedasticity, serial correlation and cross section dependence problems. As well as, the finding adds to the body of knowledge by demonstrating new and original evidence that some current corporate governance mechanisms are ineffective in reducing the agency problem in a developing country.

Our results have crucial implications for policymakers, regulators, shareholders, firms, and the government. First, our results showed that some firms do not commit to corporate governance regulations, for example, the regulations do not allow the CEO to be the chairman at the same time, but this case existed in Jordanian firms, and the relationship was positive between CEO duality and firm performance. Therefore, policymakers may think about allowing the CEO to be chairman at the same time. Second, although Jordanian governance regulations indicated that a third of directors should be independent, the percentage of independent directors in some firms is zero. Since there was evidence of better performance with higher independent directors, firms should take governance regulations seriously. Finally, the existence of females in the board director are still not common in Jordanian firms and corporations may also think about how to further promote board diversity in the future. The current study has some limitations, due to the fact that the data was collected manually, the sample was restricted to 58 services and industrial firms and covered eight years. Therefore, future studies can highlight the financial institutions. Secondary data has been used in the current study, future studies could enhance the findings by using in-depth interviews, or case studies.

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