
Ownership Structure and Firm Performance: Evidence from Jordan

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Abstract: Previous studies dealing with corporate governance mechanisms testified to the high significance that provided some new direction. The aim of the study was to participate in these directions by presenting empirical evidence relating to the relationship between the ownership structure and firm performance in developing countries like Jordan. To estimate data for the period 2009 to 2017 for a selection of 180 companies listed on the Amman Stock Exchange (ASE), we used management ownership, government ownership, family ownership, institutional ownership and block ownership to provide a comprehensive guide to the ownership structure of Jordanian companies, while we estimated the firm performance through Tobin's Q (TQ) model. Furthermore, we employed an econometrics procedure such as crosssectional dependency test, Panel unit root test (Levin-Lin-Chu (LL) test, Im-Pesaran, Madalla and Wu test and CIPS panel unit root test), Pedroni Cointegration test, System GMM and Pool Mean Group estimates. a balanced panel data method. The results of the four-panel unit root test show that the ownership structure mechanisms have stationary at the first difference, also the results of the Pedroni Cointegration test reveal that ownership structure mechanisms and firm performance have a long-run relationship. Likewise, Process GMM and PMG findings show that ownership structure processes have a significant effect on the performance of the firm estimated by (TQ). The results of this study indicate that empirical studies continue to find a perfect measurement of performance in order to achieve a real type of performance of the firm. The results of the current examination thus provide objective evidence to managers and stakeholders to assist them in their decision.

Keywords: Ownership Structure, Firm Performance, Pedroni Cointegration test, System GMM, Pool Mean Group

INTRODUCTION

Corporate governance (CG) is an instrument of governance that helps stakeholders match their priorities with organizational objectives (Blair & Stout, 2017). Due to fraud and the failure of public companies like Enron and WorldCom, the question of CG and ownership structure (which are one of the CG mechanisms) has become a widely debated subject in business and finance. CG has undergone many changes since those incidents (Agyei & Owusu, 2014). McCann & Vroom (2009) found out that the ownership structure is the proportional amount of property claims made by managers in addition to investors who have no direct relationship with the company's management. In addition, previous studies showed that the ownership structure is one of the most significant CG frameworks (Mai, Bilbard, & Som, 2009), and is one of the key steps of the CG (Loay, Jamal, & Mah'd, 2018). One of the problems facing existing companies is the incompatibility of interests between managers and shareholders or between majority and minority shareholders (Mang'anyi, 2011). This contradiction comes at a cost known as the cost of agency (Tahir & Sabir, 2014; Hsu & Wen, 2015; Abedalqader, Abdulmohsen, & Abdulrahman, 2016; Aguilera, Judge, & Terjesen, 2018). To alleviate this issue, traditional functions in agency theory (Jensen & Meckling, 1976), propose the use of equity assets of the company instead of compensation to align more closely the interests between shareholders and managers. Where the agency issue depends heavily on the ownership structure. The real key to deciding the essence of the agency theory work is the structure of ownership. Irrespective of the conceptual and functional importance of agency theory, it has been elusive to persuade empirical evidence and therefore there is a lack of agreement as to whether ownership structure is relevant for the performance of the firm (Ducassy & Guyot, 2017). Thus, investors perceived that a company with strong CG appears to be more performing and more trustworthy (Wijethilake, Ekanayake, & Perera, 2015). In Jordan, the government described the CG mechanism as a prerequisite for economic development and contemporary progress, affirming the first CG code in 2009 (Abed, Al-Attar, & Suwaidan, 2012; Makhlof, Binti Laili, & Basah, 2014), to improving the case of poor financial performance (Alabdullah, Yahya, & Ramayah,

2014), and other types of maladministration (Zawahreh & Cox, 2009). Moreover, the Jordanian capital market and its economic conditions stay weak, however, and the World Bank (2014) has shown that the industrial and service sector has undergone a decline in GDP in recent years due to regional uncertainty, increased unemployment, reliance on Gulf economies money transfers and grants, as well as growing pressure on natural resource extraction.

In addition, the economic climate in the Jordanian environment has not been beneficial to investors over the last few decades. Where scam, scandals and malpractice have resulted in a substantial decline in the output of Jordanian companies and an infringement of the confidence of Jordanian investors, particularly after the conversion of five public shareholders companies to compulsory liquidation in 2017, after it proved unable to handle their monetary and administrative matters, and the most important reasons for this is non-full compliance with governance mechanisms (Dakhlallah, Rashid, Wan Abdullah, & Al Shehab, 2020). Since developing countries, such as Jordan, have CG mechanisms regulations that are well known but not fully implemented (Mohammed, 2018). Consequently, the Amman Stock Exchange (ASE) made amendments to the CG code in 2017, using the "compliance or fines" approach rather than the "compliance or clarification" approach.

The current study helped contribute to the selection of all sectors comprising Jordanian companies (financial, industrial, and service sector) except the banking sector. Where the period 2009-2017 tested. The research, therefore, aimed at providing comprehensive evidence of the influence of ownership structure (managerial, government, family, block holders, and institutional ownership) on the performance of the firm in one of the emerging economies, such as Jordan. The importance of this analysis also derives from its effort to fill the void in earlier researches.

REVIEW OF LITERATURE AND HYPOTHESES DEVELOPMENT

Managerial Ownership and Firm Performance

Managerial ownership is an important CG mechanism because it also helps balance the interests of shareholders and managers (Brickley, Lease, & Smith, 1988). According to Jensen & Meckling (1976) "Convergence of preferences occurs between managers and shareholders as the ownership of the management rises, and higher management ownership will minimize an agency's costs and thus improve the company's efficiency".

Recent studies have shown that increasing the company's management ownership is a critical tool to mitigate the problem of the agency's and increase the company's performance (Kumar & Singh, 2013; Arora & Sharma, 2016). As well as Fauzi & Locke (2012); Kumar & Singh (2013) indicated that the presence of higher management ownership improves company performance. In the Jordan instance, Alabdullah (2018) further suggested that for 109 companies listed on the Amman Stock Exchange (ASE) there is a positive and highly significant relationship between managerial ownership and the company's performance.

At another hand, Khamis, Hamdan, & Elali (2015) noticed the managerial ownership to have a negative effect on the performance of the company measured in Bahrain through Tobin's Q. Similarly, Mohammed (2018) observed that the relationship between managerial ownership and the firm's performance has been negative and highly significant for 90 listed companies on the Amman Stock Exchange from 2013 to 2016. In addition, in a research carried out by 180 Jordanian firms for the period 2009-2017, Dakhlallah, Rashid, Abdullah, & Dakhlallah (2019b) presented empirical proof that a significant negative correlation exists between managerial ownership and company performance. Thus, the following hypothesis was established according to the theory of the agency and the discussion above:

H1. There is a significant effect of managerial ownership on firm performance.

Government Ownership and Firm Performance

The existence of government ownership on the capital markets gives shareholders trust as to whether the performance of the company is consistent with the investors' goal is to maximize the value. While government ownership in developing countries is required in order to revive both economic and financial development and ultimately boost growth (Lassoued, Sassi, & Attia, 2016).

Many research shows that government ownership influences the performance of the firm positively (Liao & Young, 2012). Similarly, Jiang, Laurenceson, & Tang (2008) noticed out that a positive association between the ownership of the government and the performance of the firm, because the government may play an important role in monitoring and regulating the management of the firm. In addition, Dakhlallah et al. (2019b) noted that there is a positive and important correlation between government ownership and firm performance in the Jordanian environment.

Furthermore, Zeitun (2009) stated that government ownership in Jordanian companies has shown a negative significant association with performance. The negative results suggest that the government's motivation to own shares in the company could have to do with achieving political objectives rather than economic goals (La Porta, Lopez-de-Silanes, Shleifer, & Vishny, 1999). In addition, Ting, Kweh, Lean, & Ng (2016) reported that government ownership is significantly and negatively linked to the company's performance determined by Tobin's Q. Hence, the research established the following hypothesis according to the agency theory and the above interpretation:

H2. There is a significant effect of government ownership on firm performance.

Family Ownership and Firm Performance

One of the key factors that threaten the higher degree of conformity as it occurs in developing countries has been the family ownership (Al-Najjar, 2014). Family ownership is also worldwide around the world and is one of the most common forms of ownership structures in the world (Khamis et al., 2015). In addition, family businesses with a strong propensity to oversee management may attain chairmanship or be a board member and fill senior management control positions (OECD, 2004).

The ownership of the family has the decisions of an occasion and clear management to ensure the operation of the business for the investors' benefit. Wang & Shailer (2017) showed the impact of family ownership on firm performance has been positive. Zraiq & Fadzil (2018) presented proof of 228 companies in 2015 and 2016 that the effect of family ownership and the Jordanian' firm performance positively.

Whereas, Fattoum-Guedri, Guedri, & Delmar (2018) and Shen, Au, & Yi (2018) stated that family ownership and the firm's performance had a negative impact. Furthermore, Dakhllalh et al. (2019b) indicated that the Jordanian' firms performance of 180 companies from 2009 to 2017 a negatively impacted by family ownership. Consequently, the following hypothesis was established according to the explanation above and agency theory:

H3. There is a significant effect of family ownership on firm performance.

Institutional Ownership and Firm Performance

Institutional investors tend to spend their capital in search of good returns for their assets. In addition, they play an important role in CG by implementing higher oversight of principals' performance or by taking charge of companies' affairs. Large investors with a greater stake in the company are therefore more involved in supervising management by representation on the board (Desender, 2009). Whereas, Shleifer & Vishny (1997) suggested that institutional ownership plays an influential role in restricting opportunism and reducing the costs of the agency.

Institutional investors play a powerful and important role as a mechanism for CG. Therefore, Soufeljil et al. (2016) and Lin & Fu (2017) presented empirical proof that institutional ownership influences the firm's performance in a positive and significant way. In addition, Dakhllalh, Rashid, Abdullah, & Dakhllalh (2019a) demonstrated the impact of institutional ownership on Jordanian firm performance a positive and significant.

Meanwhile, Khamis et al. (2015) indicated the result of the influence of institutional ownership and firm performance through Tobin's Q a negative and significant. In addition to Arora & Sharma (2016), the association between institutional ownership and the company's performance is significantly negative. Therefore, the following hypothesis was established based on the above claim and the theory of agency:

H4. There is a significant effect of institutional ownership on firm performance.

Block holders Ownership and Firm Performance

The block holder's ownership is known as one of the governance mechanisms that prevent managers from deviating from shareholder interests (Levine, 2004). In addition, a limited number of shareholders own a large portion of the organization's share release Sheikh, Wang, & Khan (2013). Gillan & Starks (2003) indicate to when ownership concentrated, the agency wrestle between shareholders and managers is reduced.

Block holders perform a significant role in CG so that they have appropriate expertise, resources and time for the company's performance. Prior empirical studies have found that concentration of ownership can limit management distractions from shareholder concerns and increase shareholders' power against managerial control and hence the value of the company and its profitability (Khamis et al., 2015; Saleh, Halili, Zeitun, & Salim, 2017). In addition to present a substantially positive role by outside block holders on the firm's performance (Ullah, Ali, & Mehmood, 2017). In the Jordanian environment, it was stated that Jordanian corporate ownership is defined by a high concentration level, which is inevitable to perform a major role in regulating company activities, reflecting the better corporate performance (Al- Haddad, Alzurqan, & Sufy, 2011).

Previous researches, however, showed that distributed ownership is most popular in developed countries, and concentrated ownership is most popular in developing countries. Conversely, Mohammed (2018) pointed out that block holders are linked negatively and significantly to the performance of Jordanian companies. Likewise, Dakhllalh et al. (2019a) found comprehensive evidence that the block holders had a negative impact on the performance of the 180 companies listed in Jordan between 2009 and 2017. Eventually, the following hypothesis was established according to the explanation above and agency theory:

H5. There is a significant effect of block holder's ownership on firm performance.

RESEARCH METHODOLOGY

Data and Measurement of Variables

The data from the current study consists of the companies of public shareholders listed on the Amman Stock Exchange (ASE), exclude the banks' sector. The banks' sector was excluded from the sample of the study because it has different regulations and practices issued by the Central Bank of Jordan from other sectors' regulations. Besides, the financial reports of the banks' sector are the most conservative. Another reason for the exclusion of the banks' sector from the study is due to the banks' sector follows different code of corporate governance issued

in 2007. Also, the sample selected follows the Jordanian Corporate Governance Guide issued (September 2009). So, studied the consecutive reports for years of the Jordanian companies from 2009 to 2017.

The data set for this current study provides financial and non-financial details for the companies listed on ASE over the 2009-2017 period. Also, the data obtained from the available annual reports reported on the ASE and DataStream websites. Where, in the current analysis, used the quantitative approach, and used secondary data to gather data. So, the research sample consisted of 180 firms which are: 49 industrial firms, 86 financial firms, and 46 service firms.

The purpose of this study was to examine the effect of ownership structure on the company's performance through used Tobin's Q as its measure. TQ (Tobin, 1969) is a blend of various accounting and market factors by consideration of a firm's market value. As a result, Tobin's Q is a valuable tool to use as it analyses performance from a market perspective, a long-term market-driven calculation that measures the present value of potential cash flows based on existing and projected knowledge (Wahla, Shah, & Hussain, 2012). Table 1 provides a list of measuring variables.

Table 1: Description of Measurements of the Variables and Literature

Variables	Sym bol	Measurement	Source of Information
<u>Dependent Variable:</u> Firm performance (Tobin's Q)	TQ	(The market value of the total equity + The book value of the debt) / The book value of total assets.	Thompson Data Stream
<u>Independent variable:</u> Managerial ownership	MO	The percentage of shares owned by members of the board of directors to the total number of shares issued.	Annual Report
Government ownership	GO	The percentage of shares owned by the government to the total number of shares issued.	Annual Report
Family Ownership	FO	The percentage of shares owned by the family to the total number of shares issued.	Annual Report
Institutional Ownership	IO	The percentage of shares owned by Institutions and other companies to the total number of shares issued.	Annual Report
Block holders Ownership	BHO	The percentage of block holders' shares is 5% or higher than the total number of issued shares.	Annual Report

Econometrics Procedure

Cross-Section Dependence Test

Pesaran (2004) had developed a cross-section dependency test. This is the first step before determining the order of integration of the series; the most critical consideration is to phase for the cross-sectional dependence of the series. The suggested panel regression tests of the ordinary least squares (OLS) residual are as follows:

$$Z_{it} = \varphi_i + \omega_i y_{it} + \theta_{it} \quad (1)$$

For each i , $\theta_{it} \sim iid(0, \sigma_{\theta}^2)$ and for all i , while they could be cross-sectional interrelated. The reliance of θ_{it} across i could emerge in different ways. This may be attributable to unobserved specific components of θ_{it} and θ_{ij} for $i \neq j$. The regressors may have Z_{it} , lagged, either stationary or non-stationary values. The CD test is as follows:

$$CD = \sqrt{\frac{2Q}{N(N-1)} \sum_{i=1}^{N-1} \sum_{j=i+1}^N \tilde{R}_{ij}} \quad (2)$$

Where \tilde{R}_{ij} , is the clear estimate of the residuals Pair-wise association.

$$\tilde{R}_{ij} = \tilde{R}_{ij} = \frac{\sum_{q=1}^Q \pi_{ij} \pi_{ij}}{(\sum_{q=1}^Q \pi_{iq}^2)^{1/2} (\sum_{q=1}^Q \pi_{jq}^2)^{1/2}} \quad (3)$$

And π_{ij} in equation (3) above, is the ordinary least square of θ_{it} , it is specified as

$$\pi_{it} = Z_{it} - \tilde{\varphi}_i - \tilde{\omega}_i y_{it} \quad (4)$$

Panel Unit Root Test

In the second step, the panel unit root test will be conducted to know the attribute of the variable's attestations. Two root panel unit test groupings are provided. The first group includes first-generation root unit tests that ignore cross-sectional dependence, while the second group includes second descent root unit tests that enable cross-sectional dependence (Moon & Perron, 2004; Pesaran, 2007). Different methods exist for panel unit root testing. The current research selects root unit measures from four panels including the Levin-Lin-Chu (LL) test, the

Madalla and Wu test, and the Im-Pesaran-Shin (IPS) test. Levin-Lin-Chu Panel System Root Test is feasible for relatively moderately-sized panel data. LLC limits individual correlation, and the cross-sectional averages can't erase correlation.

$$Z_{it} = \tau_i x_{i,t-1} + v'_{it} x + \theta_{it} \quad (5)$$

Where v'_{it} are the relativist factors, θ_{it} is $iid(0, \sigma_{\theta}^2)$ and $\tau_i = \tau$.

IPS is Im-Pesaran Panel Root Test Module. The IPS Unit root test is used to check the variables' stationary properties. By allowing variation on the lagged dependent variable coefficient, IPS has criticized and extended Levin and Lin and recommends accurate t-bar test statistics based on the average Dickey-Fuller statistics across classes. The Null Hypothesis of the IPS test is evaluated using the following equation.

$$Z_{it} = \delta_{1i} + \delta_{2i} Z_{it-1} + \varepsilon_{it} \quad (6)$$

$$U_{IPS} = \frac{\sqrt{N}(\hat{t} - [E \hat{t}_i / \rho_i = 0])}{\sqrt{var[\hat{t}_i / \rho_i = 0]}} \rightarrow N(0, 1) \quad (7)$$

Where $\hat{t} = N^{-1} \sum_{i=1}^N t_i$ the times of $E[t_i / \rho_i = 0]$ $var[t_i / \rho_i = 0]$ Mante Carlo Simulation can also be found and analysed in IPS.

Likewise, the Madalla and Wu measures are according to the degree of meaning combined from the unit root of the individual. If the test results are continuous, the relevance level of the variables $\delta_i (= 1,2,3 \dots \dots N)$ is independent and standardized (0,1). This examination uses p-values, that could be expressed as:

$$T_{MW} = -2 \sum_{i=1}^N \log \delta_i \quad (8)$$

Where $-2 \sum_{i=1}^N \log \delta_i$ has a X^2 distribution to $2N$ levels of liberty. The following standardized statistics were also proposed by Choi (2006):

$$Z_{MW} = \frac{\sqrt{N\{N^{-1} T_{MW} \varepsilon[-2 \log \delta_i]\}}}{\sqrt{Var[-2 \log \delta_i]}} \quad (9)$$

This result converges to a regular normal allocation in the cross-sectional hypothesis of independence (Shahbaz, Khan, & Tahir, 2013).

Furthermore, Cross-sectional Im-Pesaran (CIPS) This test is different from Levin and Lin and IPS tests as it allows for cross-sectional dependence and has unit root in the null hypothesis. Pesaran includes cross-sectional averages of the lagged levels as the common factor. The average of the cross-sectionally ADF t-statistics brings out the CIPS t-statistic:

$$CIPS = N^{-1} \sum_{i=1}^N t_i(N, T) \dots \dots \dots (10)$$

Where $t_i(N, T)$, is the t-statistic of the slope.

Panel Cointegration Test

If the sequence is shown to be incorporated in the same sequence, the second stage of the estimation process estimates a long-run cointegrating relationship between them. Pedroni's (1999; 2004) production of panel cointegration tests was used; where seven proposed tests,, four are focused on pooling the residuals for the in-group estimation (including panel ρ -statistic, panel v- statistic, panel ADF-statistic, and panel PP-statistic), whereas the other three are focused on combining the residuals for the intergroup approximation (including group ADF- statistics group ρ -statistic, and group PP-statistics). The heterogeneous group and heterogeneous panel mean panel cointegration statistics are determined as follows by according to (Pedroni, 1999; 2004):

Panel v-statistic:

$$Z_v = \left(\sum_{i=1}^N \sum_{t=1}^T \hat{L}_{11i}^{-2} \hat{\varepsilon}_{it-1}^2 \right)^{-1} \quad (11)$$

Panel ρ -statistic:

$$Z_\rho = \left(\sum_{i=1}^N \sum_{t=1}^T \hat{L}_{11i}^{-2} \hat{\varepsilon}_{it-1}^2 \right)^{-1} \sum_{i=1}^N \sum_{t=1}^T \hat{L}_{11i}^{-2} (\hat{\varepsilon}_{it-1} \Delta \hat{\varepsilon}_{it} - \hat{\gamma}_i) \quad (12)$$

Panel PP-statistic:

$$Z_\rho = \left(\hat{\sigma}^2 \sum_{i=1}^N \sum_{t=1}^T \hat{L}_{11i}^{-2} \hat{\varepsilon}_{it-1}^2 \right)^{-1/2} \sum_{i=1}^N \sum_{t=1}^T \hat{L}_{11i}^{-2} (\hat{\varepsilon}_{it-1} \Delta \hat{\varepsilon}_{it} - \hat{\gamma}_i) \quad (13)$$

Panel ADF-statistic:

$$Z_{\rho}^* = \left(\hat{S}^{*2} \sum_{i=1}^N \sum_{t=1}^T \hat{L}_{11i}^{-2} \hat{e}_{it-1}^{*2} \right)^{-1/2} \sum_{i=1}^N \sum_{t=1}^T \hat{L}_{11i}^{-2} \hat{e}_{it-1}^{*2} \Delta \hat{e}_{it}^{*2} \quad (14)$$

Group ρ –statistic:

$$\tilde{Z}_{\rho} = \sum_{i=1}^N \left(\sum_{t=1}^T \hat{e}_{it-1}^2 \right)^{-1} \sum_{t=1}^T (\hat{e}_{it-1} \Delta \hat{e}_{it} - \hat{\gamma}_i) \quad (15)$$

Group PP-statistic:

$$\tilde{Z}_{\rho} = \sum_{i=1}^N \left(\hat{\sigma}^2 \sum_{t=1}^T \hat{e}_{it-1}^2 \right)^{-1/2} \sum_{t=1}^T (\hat{e}_{it-1} \Delta \hat{e}_{it} - \hat{\gamma}_i) \quad (16)$$

Group ADF-statistic:

$$\tilde{Z}_t^* = \sum_{i=1}^N \left(\hat{\sigma}^2 \sum_{t=1}^T \tilde{S}_t^2 \hat{e}_{it-1}^{*2} \right)^{-1/2} \sum_{t=1}^T (\hat{e}_{it-1}^* - \hat{e}_{it}^{*2}) \quad (17)$$

Here, \hat{e}_{it} is the approximate equation residual (3.4) and \hat{L}_{11i} is the approximate long-run covariance matrix for $\Delta \hat{e}_{it}$. The panel v-statistic not supports the null hypothesis of no cointegration with significant positive values of the seven tests suggested by Pedroni (1999; 2004), while the remaining test statistics not support the null hypothesis of no cointegration with great negative values. The critical values are given in Pedroni (1999) and some econometric software packages as well.

System-GMM approach

The estimator approach of the GMM data panel (Arellano & Bover, 1995) is suitable for statistical models where the predictor variables are correlated with past or current error term realizations (Roodman, 2006). Compared to the number (N) of cross-sections for panel data with a fairly small-time dimension (T) this estimator is particularly helpful (Roodman, 2006). In comparison, unless the gradient parameters are similar across cross-sections (Pesaran, Shin, & Smith, 1999), as T becomes greater, the GMM estimator may generate inaccurate and deceptive coefficient estimations. We'll address the fairly broad time dimension problem (T = 6, N = 180). In brief, the device GMM estimator employs the first differences as additional instrumented variable instruments. As argued by Arellano & Bover (1995), the allocation of more GMM estimator instruments in this framework will significantly boost the efficiency of the estimates obtained. The GMM estimator has one and two-step versions, either the method or the first differential version. The two-step estimator is considered more efficient (Arellano & Bond, 1991). According to Windmeijer (2005), this problem is mitigated in the GMM version of the method because it integrates the finite sample correction into the derived two-step covariance matrix. For this purpose, we chose to use the two-step GMM estimator method to run regressions. Two diagnostic tests are stated by system estimator GMM. The first is the Hansen J test that verifies the reliability of harmonic variables. We follow a moderate solution through the use of two lags of dependent and endogenous variables as instruments in the GMM regression process. As we will see next, this method is verified by the Hansen J test result, as in most cases the initial assumptions that the instrumental variables are uncorrelated to the residuals are not acknowledged. GMM regressions of the process are made according to:

$$\Delta(Tq_{it}) = \sigma + \rho \Delta(MO_{it}) + \tau \Delta(FO_{it}) + \varphi \Delta(GO_{it}) + \delta \Delta(IO_{it}) + \gamma \Delta(BH_{it}) + \varepsilon_{it} \quad (18)$$

Short-run and Long-run Effect-Panel ECM Estimates

Pooled mean group (PMG) techniques introduced by Pesaran, Shin, & Smith (1999), are determined by the short-run and long-run coefficients, thus classified as examples number of variables that can be defined as homogeneity in the long-run relationship covered by both groups; condition of arbitration and institutional growth. The PMG estimator assumed homogeneous long-run coefficients which provided a useful intermediate option between testing different regressions. The PMG methodology, therefore, included the long-term relationship between variables as follows:

$$\begin{aligned} \Delta TQ_{it} = & \beta_1 + \sum_{j=1}^{p-1} \partial_{ij} \Delta TQ_{it-j} + \sum_{1=0}^{q-1} \gamma_{ij} \Delta MO_{ij-1} + \sum_{1=0}^{r-1} \delta_{ij} \Delta FO_{ij-1} + \sum_{1=0}^{s-1} \varphi_{ij} \Delta GO_{ij-1} + \sum_{1=0}^{z-1} \varphi_{ij} \Delta IO_{ij-1} \\ & + \sum_{1=0}^{w-1} \varphi_{ij} \Delta BH_{ij-1} + \pi_1 TQ_{ij-1} + \pi_2 MO_{ij-1} + \pi_3 FO_{ij-1} + \pi_4 GO_{ij-1} + \pi_5 IO_{ij-1} + \pi_6 BH_{ij-1} \\ & + \mu_{1it} + \varepsilon_{1it} \quad (19) \end{aligned}$$

4. Empirical Results

This section presenting the empirical results of the analysis. Table 2 includes descriptive statistics for selected variables to be used in the current study. The t-statistics mentioned suggest that the mean is the data average and as a standard measure of the data distribution center. Hence, the variables are distributed uniformly around the

data sample size. The standard deviation also calculated whether the distribution of the data is from the mean. A bigger data spread indicated come of a higher standard deviation value.

Table 2: Summary of Descriptive Statistics

	TQ	FO	GO	IO	MO	BH
Mean	0.999038	0.015148	0.014886	0.297969	0.157032	0.586130
Std. Dev.	0.001125	0.048947	0.093233	0.275949	0.191740	0.219489
Skewness	-7.492189	8.031164	8.147627	0.706883	1.789974	-0.397184
Kurtosis	106.3998	89.70166	77.20470	2.411179	6.481733	2.612270

Table 3 below, includes to correlation analysis of all variables selected during empirical analysis to ensure that there are no significant issues with multicollinearity test.

Table 3: Correlation Analysis

Probability	TQ	FO	GO	IO	MO	BH
TQ	1.000					
FO	-0.054	1.000				
	0.029					
GO	0.011	-0.048	1.000			
	0.635	0.049				
IO	0.085	-0.168	-0.012	1.000		
	0.000	0.000	0.618			
MO	-0.135	0.217	-0.127	-0.457	1.000	
	0.000	0.000	0.000	0.000		
BH	-0.120	-0.010	0.164	0.510	0.090	1.000
	0.000	0.659	0.000	0.000	0.000	

Moreover, as cross-section dependence has been established, this condition should be assessed when selecting the unit root and co-integration testing technique. Nevertheless, panel unit root checks and study of co-integration were also used taking into account the cross-sectional dependence. Findings in Table 4 demonstrate that the sequence at levels is non-stationary, although at first differences get to be stationary; they are shown to be first-order integrated, I (1). In this scenario, it was established that the co-integration association between these patterns could be checked as the sets under consideration are incorporated in the same order.

Table 4: Panel Unit Root Test

Variables	Im et al.			Breitung		CIPS		LLC	
	CD Test	At level	1 st Diff	At level	1 st Diff	At level	1 st Diff	At level	1 st Diff
TQ_{it}	41.50*	0.540 (0.678)	-44.61* (0.000)	1.440 (0.988)	16.94* (0.000)	0.59	2.77*	-1.36 (0.086)	-6.40* (0.000)
MO_{it}	15.86*	1.952 (0.334)	-77.16* (0.000)	2.321 (0.887)	19.78* (0.000)	-1.56	-2.89*	0.336 (0.897)	-15.14* (0.000)
FO_{it}	23.41*	0.897 (0.432)	-88.36* (0.000)	1.790 (0.332)	14.88* (0.000)	-0.58	-3.13*	-1.774 (0.065)	-11.19* (0.000)
GO_{it}	18.65*	1.179 (0.881)	-7.141* (0.000)	3.517 (0.967)	101.772* (0.000)	1.53	2.91*	0.647 (0.741)	-5.99* (0.000)
IO_{it}	19.88*	0.567 (0.231)	-10.43* (0.000)	1.885 (0.123)	156.98* (0.000)	-1.76	-2.94*	-1.678 (0.059)	-8.83* (0.000)
BH_{it}	29.14*	-1.220 (0.111)	-8.396* (0.000)	0.705* (0.214)	122.858* (0.000)	-2.15	2.89*	-0.770 (0.221)	-14.84* (0.000)

Notes: *, ** and *** Indicates the dismissal of the null hypothesis at the rates of 1% and 5%, and 10% level. Table 5 summarizes the findings of Pedroni's (1999; 2004) proposed panel cointegration experiments. Four of the seven tests proposed by Pedroni (2001) are panel cointegration tests, while the others are group mean panel cointegration tests that are more common in qualifying for heterogeneous coefficients.

Table 5: Pedroni Cointegration Test

	Statistic	Prob.
Panel Cointegration Test		
Panel v-Statistic ^b	-1.827	0.9662
Panel rho-Statistic	6.103*	0.0000

Panel PP-Statistic	-9.603*	0.0000
Panel ADF-Statistic	-4.353*	0.0000
Group Cointegration Test		
	Statistic	Prob.
Group rho-Statistic	7.055*	0.0000
Group PP-Statistic	-8.702*	0.0000
Group ADF-Statistic	-1.690**	0.0454

Null hypothesis: no cointegration

Number of lags is automatically selected to enhance the Schwartz information criterion.

The null hypothesis is that there is no cointegration, so if this hypothesis is denied, then the calculation of a long-run relationship between the dependent and the explanatory variables can be continued. The findings show that the majority of the specific tests reject the nullity of no cointegration.

The results of the Hansen J test and test of the second-order serial correlation are listed in Table 6. For most cases, the Hansen J test fails to refute the null hypothesis mean the validity of the instruments used in the regressions. In addition, the test that investigates second-order serial correlation does not reject its null hypothesis, suggesting that the error term does not demonstrate the serial second-order correlation.

Table 6: System GMM Estimates

Dependent variable: TQ_{it}		
Variables	Coefficients	<i>p</i> -value
MO_{it}	0.00027* [2.91]	0.004
FO_{it}	0.0012* [10.04]	0.000
GO_{it}	0.00014* [2.13]	0.033
IO_{it}	0.00088 [10.39]	0.000
BH_{it}	0.0074* [5.60]	0.000
Obs	1440	
Companies	180	
Lags	1	
Wald Test	13497.55	0.000
Hansen	166.51	0.857
Serial correlation test of order 2	-1.14	0.254

Furthermore, the findings showed that ownership structure mechanisms (managerial, family, government, institutional, and block holders) have a significant positive competitive impact on the performance of Jordanian firms. The PMG model is, therefore, selected based on the findings stated by the Hausman test. The Hausman test shows that there is no rejection of equality between the estimates of MG and PMG, and shows that the data agree with typical long-run elasticity. The estimated results would, therefore, be based on the PMG estimator, which is determined by maximum likelihood, while the correct lag duration is chosen using the Schwartz Bayesian Criterion.

Table 7: Pooled Mean Group Estimates

Dependent variable: TQ_{it}					
<i>Long-run estimates</i>			<i>Short-run estimates</i>		
Variables	Coefficients	<i>p</i> -value	Variables	Coefficients	<i>p</i> -value
MO_{it}	0.245* [10.321]	0.000	ΔMO_{it}	0.118 [0.343]	0.654
FO_{it}	0.342* [5.761]	0.000	ΔFO_{it}	0.174* [8.716]	0.000
GO_{it}	0.458 [6.697]	0.000	ΔGO_{it}	0.369** [2.119]	0.035
IO_{it}	0.654 [5.697]	0.000	ΔIO_{it}	0.041 [0.139]	0.982

BH_{it}	0.115* [4.558]	0.000	ΔBH_{it}	0.322** [6.339]	0.000
ect_{t-1}	-0.138* [-9.432]	0.000			
Optimal lag length		(1,1,1,1,1)			

Table 7 represents the Short-run and Long-run findings. In the long-run coefficient for MO_{it} , FO_{it} , GO_{it} , IO_{it} , and BH_{it} have a significant and positive effect at 1%, whereas, the short-run coefficients for FO_{it} , GO_{it} , and BH_{it} are statistically significant and positive effect, while MO_{it} , and IO_{it} , are positive and statistically insignificant. The signals of all the variables are long-term compatible with the theoretical predictions. Furthermore, in theory, the ect_{t-1} must have a negative value and significant which is exactly the case in this study. The higher the coefficient, the more stable the short-run relationship. Moreover, Banerjee, Dolado, & Mestre (1998) reported that “a highly significant error correction term is further proof of the existence of the stable long-run relationship”. The estimated coefficients of the ect_{t-1} are -0.138 (at a significant level of 1%) means that the model's deviation from the long-run direction is corrected by 14% per annum, which is very high, in the absence of changes in the independent variables. Which mean if the variables are shocked, it will take a little time to return fully to the long-run equilibrium.

DISCUSSION AND CONCLUSION

In this paper, we examine the effect of ownership structure mechanisms on firm performance in Jordan from 2009 to 2017. We also employ more advanced econometrics techniques. The result reveals the positive and significant effect of managerial ownership on firm performance. This result is not consistent with the work of (Mohammed, 2018; Dakhllalh et al., 2019b). Moreover, the result is consistent with (Arora & Sharma, 2016; Alabdullah, 2018), who found a significant and positive relationship. This suggests that the performance of the firm may be a determining factor of managerial ownership, as managers or investors would hold a greater company share if it is recognized that the company is acting well in terms of its opportunities of the productivity and investment. Contrary to much of the empirical literature, the result is compatible with the theory that low levels of managerial ownership may hinder firm performance due to managers' costs and high levels of managerial ownership. At intermediate levels, however, managerial ownership is positive and highly significant. This finding further supports the Agency hypothesis, which suggests that stockholders assign financial and other decision-making to corporate managers because common stockholders are scattered and hold well-diversified portfolios.

In addition, the results of this study reveal that family ownership positively affects firm performance. This finding consistent with (Wang & Shailer, 2017; Zraiq & Fadzil, 2018). However, the result is inconsistent with (Shen et al., 2018; Dakhllalh et al., 2019b). The concentration of ownership of the family in Jordan suggested that a family's wealth is closely linked to firm performance, where a greater motivation for the family to optimize firm output. Family members have more internal knowledge compared to other shareholders, and can more accurately foresee the prospects of a given business. This benefit helps family members to make sound decisions about whether to minimize or extend their investments. Such findings can have both, practical relevance in guiding corporate financing and investment decisions and theoretical relevance in providing new evidence on the application of existing agency theory. Family ownership serves as a robust monitoring tool over the strategic decision of the firm, which eventually results in the minimization of agency costs.

This study also finds that government ownership has a positive impact on firm performance. The result is consistent with the study of (Liao & Young, 2012; Dakhllalh et al., 2019b). Nevertheless, the result is inconsistent with the (Zeitun, 2009; Ting et al., 2016), who found a negative significant relationship between government ownership and firm performance. The findings indicate that the government's "helping hand" outweighs the "grabbing hand" and that the state's action increases the performance of the firm. The findings also show that, rather than shareholding as such, it is the power that counts. More specifically, the current study offers more evidence and reveals that a higher level of government ownership plays a positive role in improving the performance of the firm. In the Jordanian context, investor protection is low and law enforcement is relatively weak, so government, as a major shareholder, may provide support in terms of resources and financing, furthermore, playing a constructive role in alleviating the problem of agency in Jordanian listed companies and multi-principal issues through its higher ownership.

The findings of the current study provide realistic recommendations for optimal ownership structures to boost the performance of Jordanian companies. The policy implication is that along with company privatization, institution-building and sound reforms are also critical to the growth of Jordan's stock market. Furthermore, the findings suggest that if firm performance and institutional ownership as the independent variable, there is clear evidence of a positive significant relationship between institutional ownership and firm performing. Such findings comply with the (Lin & Fu, 2017; Dakhllalh et al., 2019a) and inconsistent with (Khamis et al., 2015; Arora & Sharma, 2016). That implies that in the Jordanian context, institutional ownership and firm performance are interrelated.

Finally, the results show that block holders ownership has a consistently positive and significant impact on firm performance as empirically shown in the various previous studies (Saleh et al., 2017; Ullah et al., 2017). The result is inconsistent with (Mohammed, 2018; Dakhllalh et al., 2019a) who is a significant negative effect. These results indicated companies with block owners are compensated by the market. According to the theory of agency, the market fears that, at the expense of other shareholders, large shareholders would impose their wills to strengthen their positions, thereby preferring a dispersed ownership structure. Such a situation is said to be more pervasive in emerging Asian economies where the implementation of protection for shareholders has a relatively low priority. This finding of a positive impact of block holder's ownership on the performance of the firm is thus in line with the hypothesis stated. The results indicate that increased block holdings on Jordanian companies are related to lower market-to-book ratios, indicating that the involvement of large block holders is in line with other shareholders' best interests.

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