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**Article**

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## ACCOUNTING, CORPORATE GOVERNANCE & BUSINESS ETHICS | RESEARCH ARTICLE

# Dynamic relationship between ownership structure and financial performance: a Saudi experience

Ayman Hassan Bazhair<sup>1\*</sup> and Mohammed Naif Alshareef<sup>2</sup>

**Abstract:** This research examines the dynamic association between ownership structure and financial performance of Saudi non-financial listed firms covering 2010 to 2019. The paper employed the GMM framework and analysed the balanced panel data of 100 companies operating in the Saudi non-financial sector. The dynamic model specification signifies that Saudi firms gradually adjust to their optimum performance level due to changes in their ownership structure. Further, the analysis from the present investigation strongly suggests that managerial shareholding is negatively related to financial performance. However, family and government ownership positively impact the firms' financial performance. Our findings appear robust using different measures of financial performance such as ROA, ROE, ROCE, and ROS. The findings lend credence to the arguments of agency theory, stewardship, and stakeholder perspectives that ownership structure is an important governance mechanism capable of influencing organisational outcomes. Consequently, Saudi regulatory authorities should formulate policies that may incentivise firms to embrace more family and government shareholdings to strengthen corporate governance practices for better financial performance.

**Subjects:** Economics; Political Economy; Finance; Business, Management and Accounting

**Keywords:** ownership structure; financial performance; Saudi listed firms; dynamic model; determinants of financial performance

### 1. Introduction

Managers are responsible for managing firm resources on behalf of the shareholders (Assenga et al., 2017; Manrique & Martí-Ballester, 2017). They are expected to design and implement policies that can maximise firm performance for the benefit of diverse stakeholders (Alregab, 2021; Fama & Jensen, 1983a). However, corporate governance theories raised contrary predictions on how managers behave in discharging their fiduciary roles. The agency theory argues that managers may likely embark on shirking and empire-building at the detriment of the shareholders' wealth (Jensen & Meckling, 1976). On the other hand, the stewardship theory contends that managers are good stewards of firm resources, and thus they attach more importance to firm performance maximisation to protect their reputations (Donaldson, 1990; Donaldson & Davis, 1991). This framework believes that firm managers have the incentives and confidence to manage firm resources diligently. In particular, a substantial body of empirical works reveals that firm ownership structure is an important determinant of firm financial performance (Ma, 2019; Trong & Thuy, 2021; Wang & Shailer, 2018). It is reported that managerial ownership may encourage managers

to diligently work for better corporate performance (Faccio & Lang, 2002; Shleifer & Vishny, 1986). Likewise, some studies show that family and government shareholding provides firms with access to the required strategic resources and political support, thereby aligning managers' and shareholders' interests (Al-Bassam et al., 2018; Ang & Ding, 2006; Habbash, 2016). Further, many empirical works argue that institutional investors' financial expertise significantly improves firms' governance (Alvarez et al., 2018; Gillan & Starks, 2000; Jensen, 1993; Omran & Tahat, 2020). In sum, prior studies unveiled the monitoring techniques associated with the diverse corporate ownership in influencing financial performance.

Furthermore, most prior studies on the linkage between ownership structure and firm performance exploit static estimation methods (for instance, Al-Matari, 2019; Kyere & Ausloos, 2020; Nguyen et al., 2021). However, it is established that ownership and financial performance are endogenous variables (Sani, 2020; Shao, 2019; Wintoki et al., 2012). In this sense, applying the static estimation approach may induce endogeneity and causality effects, leading to inconsistent empirical results (Arellano & Bond, 1991; Fitzgerald & Ryan, 2019). To mitigate this possible bias, we employed a generalised method of moments estimator, which uses an instrumental variable approach to produce more efficient parameter estimates (Ozkan, 2001; Schultz et al., 2010; Wintoki et al., 2012). The method enables us to effectively control the possible endogeneity and reverse causality effects rooted in this relationship. Therefore, this research evaluates the effect of ownership structure on firm performance in Saudi using the dynamic framework. Thus, considering the possible association between ownership attributes and past values of financial performance measures.

This empirical analysis is based on the sample of Saudi non-financial listed companies covering 2010–2019. The country emphasises sound corporate governance practices to actualise its vision 2030. One of the vision's central themes is to increase the country's GDP (Alregab, 2021). Also, the Saudi authorities recognise the need to empower the country's capital market, thereby diversifying the Saudi economy from its dependence on oil revenue. Besides that, family ownership dominates most of the country's listed companies, and there is a low level of institutional shareholder activism (Al-Bassam et al., 2018; Habbash, 2016). These unique attributes of the Saudi corporate environment make it an exciting avenue to re-examine how ownership structure influences the financial performance of listed firms in the country.

Consequently, results from this investigation signify that lagged performance level is an important predictor of ownership structure (Sani, 2020; Shao, 2019; Wintoki et al., 2012). This outcome implies that Saudi listed firms' past performance significantly impacts their current ownership structure. In other words, the dynamic model specification signifies that Saudi firms gradually adjust to their optimum performance level due to changes in their ownership structure. This investigation adds to the few empirical studies that examine ownership structure–financial performance nexus in a dynamic framework. The empirical evidence contributes to the ongoing debates on the dynamism of firm performance, accounting for possible endogeneity and reverse causality and generating more consistent empirical evidence. Further, the analysis from the present paper strongly suggests that managerial shareholding is negatively related to financial performance. However, family and government ownership positively impact the firms' financial performance. The findings lend credence to the arguments of the agency theory, stewardship, and stakeholder perspectives. These theories recognise corporate ownership as an important internal governance mechanism influencing organisational outcomes. Hence, the findings imply that applying the prepositions of these frameworks may be quite relevant to the Saudi corporate environment. Also, the research findings would benefit firms in other emerging economies in designing their corporate ownership structure to maximise their performance level.

The other parts of this research proceed as follows: section two reviews the related literature, whereas section three explains the research method adopted. Additionally, parts four and five discuss empirical results and conclusions.

## 2. Literature review

### 2.1. Theoretical framework

Several theories shed light on the relevance of ownership structure in maximising firm performance. The agency theory argued that firms are associated with information disparity because of the separation between control and ownership (Jensen & Meckling, 1976). This separation between management and firm ownership creates agency conflicts. Thus, paving the way for managers to design policies that may promote their goals rather than promoting shareholder value (Fama & Jensen, 1983b; Gillan, 2006). This theory recognises shareholders as one of the important internal governance mechanisms in firms (Faccio & Lang, 2002; Shleifer & Vishny, 1986). According to the agency literature, ownership structure has the incentives to monitor managers by ensuring that management invests in projects with positive net present value (Jensen, 1993; Jensen & Meckling, 1976). Within the agency perspective, it is contended that robust corporate ownership monitoring helps mitigate agency costs and information asymmetry (Chung et al., 2018). Similarly, studies reported that shareholders can directly monitor management and often influence various decisions to protect their interests through dialogue or voting power (Mallin, 2012; Wang & Shailer, 2018).

Secondly, The stewardship theory suggests that managers are good stewards of firm resources, and thus they attach more importance to firm value maximisation to protect their reputations (Donaldson, 1990; Donaldson & Davis, 1991). This framework believes that firm managers have the incentives and confidence to manage firm resources diligently. Managers can willingly exercise due diligence in designing and implementing strategic decisions for shareholders' benefit (Donaldson & Davis, 1991). The theory emphasises the need for corporate ownership to extend support and encouragement to managers for better corporate performance (Abor & Biekpe, 2007; Singh et al., 2018). On the other hand, the stakeholder theory observed that shareholders are important internal stakeholders in firm governance (Hill & Jones, 1992; Hillman & Keim, 2001). This framework stated that managers should prioritise firm performance maximisation to cater for the diverse stakeholders' needs (Freeman, 1994; Freeman et al., 2004). According to this view, shareholders provide firms with capital, and in return, they expect these firms to pursue policies that can maximise their investment value (Hillman & Keim, 2001; Ofori-Sasu et al., 2019). Overall, this theory's main concern is that performance maximisation enables firms to discharge their responsibilities to various stakeholders. In sum, prior studies discuss the different forms of corporate ownership and their peculiar control mechanisms, as presented below:

### 2.2. Empirical review

#### 2.2.1. Managerial ownership

Managerial ownership is regarded as one of the corporate governance monitoring strategies. Specifically, the Saudi corporate governance code contains recommendations regarding managerial ownership to motivate managers to ensure fairness and accountability in company dealings. Managers' stake in firm equity may encourage them to diligently work for better corporate performance (Faccio & Lang, 2002; Shleifer & Vishny, 1986). Also, it is stated that managerial shareholding constrains managers from embarking on an inefficient investment policy that may erode firm value (Jensen & Meckling, 1976). Consequently, managerial shareholding may help align the interests of managers and shareholders, thus reducing agency conflicts in firms (Nguyen et al., 2021). Prior studies documented contradictory views regarding the impact of managerial shareholding on firm performance. A stream of the literature reported that managerial ownership incentivises managers to design better policies, so as their ownership rises, firm performance may improve significantly (Alabdullah, 2018; Shittu et al., 2016; Short & Keasey, 1999). However, another school of thought contended that high managerial ownership could make managers entrenched, consequently paving the way for them to pursue decisions that may promote their interests (Berger et al., 1997; Sani, 2020; Shan, 2019). Given this presentation, our study formulated the following hypothesis:

**H1:** As managerial ownership rises, Saudi listed firms' financial performance increases.

#### 2.2.2. *Family ownership*

Family ownership is another corporate control common in both emerging and developed countries. Their primary goal is to promote shareholder value and safeguard family affiliation and prestige (Al-Bassam et al., 2018; Kao et al., 2019). Also, this ownership structure attached more concern about retaining control and, thus, favouring family interest and loyalty (Al-Janadi et al., 2016). However, the impact of family ownership on corporate performance documented contradictory views. In particular, a segment of the literature stated that family-controlled companies are characterised by a high tendency for wealth expropriation (Setiawan et al., 2016). Also, in family-owned firms, a different form of agency conflict may emerge between controlling and minority shareholders, thereby generating higher agency costs (Omri et al., 2014; Rajverma et al., 2019). This tendency may weaken sound corporate governance practices, thereby eroding firm performance. Conversely, it is reported that family ownership is an essential internal governance mechanism capable of mitigating conflict of interest between management and shareholders (Baek et al., 2016). Moreover, they usually ensure that family members are appointed to the top management to protect their investments and family prestige (Al-Bassam et al., 2018). So, family companies may effectively control managers' under-investment motives, thereby recording higher performance to maximise firm value (Abor & Biekpe, 2007; Kao et al., 2019). Thus, this article designed the following hypotheses:

**H2:** Family shareholding impacts positively on Saudi listed firms' financial performance.

#### 2.2.3. *Government ownership*

Government investment plays a crucial role in shaping corporate decisions and mitigating internal control failure in firms (Shao, 2019). This ownership structure provides firms with access to strategic resources and the political support required to enhance their value (Habbash, 2016). Thus, government monitoring and resource provision characteristics may help align the divergent views between management and owners. Furthermore, it is suggested that firms with concentrated government ownership signal their governance quality to the external environment by pursuing policies that maximise performance (Badawi et al., 2019; Omri et al., 2014; Shao, 2019; Trong & Thuy, 2021). Also, some studies explained that firms with substantial government investment strictly adhere to the corporate governance code and disclose more information to their stakeholders (Al-Bassam et al., 2018; Ang & Ding, 2006). On the other hand, it is pointed out that firms with substantial government investment are associated with less efficiency in asset utilisation (Munisi et al., 2014). In addition, the government is usually detached from firms' management, weakening sound corporate governance practices (Al-Janadi et al., 2016). These instances may give birth to high agency conflicts and thus affect firm performance negatively (Gugler, 2003; Habbash, 2016). Further, the government usually forces firms to implement their objectives at the expense of maximising shareholder value (Kao et al., 2019; Munisi et al., 2014). Therefore, based on the preceding explanations, this research predicted that:

**H3:** Government ownership and Saudi listed firms' financial performance are positively related.

#### 2.2.4. *Institutional ownership*

A large body of empirical works argued that institutional investors' shareholding significantly improves firms' governance (Alvarez et al., 2018; Gillan & Starks, 2000). Examples of institutional investors include banks, mutual funds, pension funds and insurance companies. The institutional investors' role in promoting sound corporate governance is grounded in the agency theory (Jensen, 1989, 1993). This perspective suggested that institutional shareholding shapes firms' internal management and mitigates internal control failure (Jensen, 1993). In addition, these shareholders

monitor managers diligently due to their sophisticated management skills and financial knowledge (Gillan & Starks, 2000; Omran & Tahat, 2020). Their monitoring strategy controls managerial entrenchment in companies. Furthermore, studies reported that institutional investors mitigate earnings manipulations and reduce agency costs and information disparity between shareholders and management (Alvarez et al., 2018; Bataineh, 2021). Given the financial expertise of these investors, they can regularly monitor the earnings growth of their investee companies (Ma, 2019; Wang & Shailer, 2018). Thus, they monitor management policies to ensure that financial performance is maximised. Therefore, deducting from the preceding explanations, the following hypothesis is predicted:

**H4:** Institutional shareholding is positively associated with Saudi listed firms' financial performance.

### 3. Methodology

#### 3.1. Sample and data source

This paper analyses the balanced panel data of 100 companies from 138 firms operating in the Saudi non-financial sector. It is a balanced panel data because all the sampled companies have time-series observations from 2010 to 2019. According to Rajan and Zingales (1995), financial firms are highly regulated and have different financial reporting systems. Therefore, the analysis in this paper excludes Saudi financial companies due to their peculiar regulation and financial reporting framework. Accordingly, the research generated the corporate governance-related data from the sampled firms' annual reports downloaded from the Saudi stock exchange market. Likewise, the firm-level data were obtained from the Thomas Reuters website. In addition, the article does not consider companies with substantial missing data in its analysis. Overall, the final sample size covers 100 firms operating in the 17 industries in Saudi

#### 3.2. Study variables

We categorised our variables into dependent, independent and control variables. In particular, financial performance stands for the dependent variable, and we measured it using return on assets (ROA), return on equity (ROE), return on capital employed (ROCE) and return on sales (ROS). We determined ROA as the net profit before interest and taxes divided by total assets (Darmadi, 2013). ROE is the net profit divided by equity (Buertey & Pae, 2020; Short & Keasey, 1999). ROCE is the net profit divided by capital employed (Rashid, 2016). Finally, ROS is the net profit divided by total sales (Duru et al., 2016). These performance measures were selected because they generally signify managers' efficiency in enhancing firms' value (Kilic & Kuzey, 2016; Ujunwa, 2012). Moreover, our primary explanatory variable is ownership structure, categorised into four proxies. Firstly, managerial ownership (MO) is the percentage of common stock owned by managers (Shan, 2019). Second is family ownership (FO), representing the number of family shares over total common stock (Al-Najjar & Kilincarslan, 2016; Ngo et al., 2020). Third, government ownership (GO), calculated as the percentage of equity shares owned by the government (Habbash, 2016; Shao, 2019). Finally, institutional ownership (IO) is determined as the number of equity shares held by institutions over the total number of equity shares (Buertey & Pae, 2020; Rashid, 2016). Accordingly, the corporate governance literature indicated that firms' ownership structure is an essential control mechanism that can assist in aligning managers' interests with shareholders' interests (Gillan & Starks, 2000; Jensen & Meckling, 1976; Sani, 2020). Overall, we anticipate a positive relationship between ownership attributes and financial performance measures employed.

Additionally, prior studies reported that firm-level attributes and board structure variables have an important bearing on firms' financial performance (Al-Najjar & Kilincarslan, 2016; Muniandy & Hillier, 2015; Rashid, 2016). Therefore, to minimise specification bias, this research controls for the effect of some of these variables. We included firm size (FSIZE), determined as the logarithms of the sampled firms' total assets (Sani, 2021; Shan, 2019). It is suggested that firm size is vital in

enhancing performance because larger companies may derive economies of scale and lower production costs (Altaf & Shah, 2018; Muniandy & Hillier, 2015). Thus, this paper expects a positive link between firm size and performance measures.

Also, we control for leverage (LEV), computed as the ratio of total debt over total assets. A segment of the literature revealed that profitable companies have less preference for debt financing because of the costs attached to the external borrowings (Sheikh & Wang, 2013; Shyam-Sunder & Myers, 1999). So, we predict a negative association between leverage and performance attributes. Our article equally considers CEO tenure (CEOT). We quantified this variable as the number of years a CEO stays in office (Berger et al., 1997; Tarus & Ayabei, 2016). According to Berger et al. (1997), longer tenure may lead to managerial entrenchment. Thus, CEO tenure may affect firms' performance negatively. Board size (BS) was also employed and quantified as the total number of board members (Abor, 2007; Ezeani et al., 2021). The agency literature argued that a smaller board is more efficient due to its robust monitoring ability (Yermack, 1996). Therefore, companies with larger board members may be associated with high agency costs, thereby eroding their performance (Pillai & Al-Malkawi, 2018; Sani, 2020; Yermack, 1996). Therefore, we expect a negative link between board size and financial performance. Lastly, the model specification controls for board independence (BI), determined as the number of independent directors over board size (Frye & Pham, 2018). It is reported board independence may enhance the board of directors' monitoring ability and resource provisions to firms because of outside directors' expertise and network influence (Fama & Jensen, 1983b; He & Kyaw, 2018). In this way, we expect BI to positively impact the performance measures specified.

### 3.3. Econometric model

This paper emphasises that the generalised method of moments (GMM) is more efficient in estimating a dynamic relationship (Arellano & Bond, 1991; Fitzgerald & Ryan, 2019). However, in an autoregressive framework, within-group estimator and OLS tend to be inconsistent and less efficient due to the insertion of lagged dependent variable (Arellano & Bond, 1991). Also, the OLS estimator ignores firm-specific effects. Furthermore, the within-group transformation may be inconsistent because of the possible correlation between the transformed lagged dependent variable and the disturbance term (Bond, 2002). These instances may induce an endogeneity and reverse causality bias, leading to a biased parameter estimate. The GMM procedure mitigates endogeneity and reverse causality problems using an instrumental variable approach (Ozkan, 2001). The GMM is of two categories: The Difference GMM and system GMM. The difference GMM estimator applies the first difference transformation to deal with the endogeneity (Arellano & Bond, 1991). However, the first differencing technique may perform poorly, produces weak instruments, and result in data loss when applied in an unbalanced panel with a short time (Bun & Windmeijer, 2010; Roodman, 2009). Given the shortcomings of difference GMM, Arellano and Bover (1995) and R. Blundell and Bond (1998) developed the system GMM. This estimator employed additional instruments and addressed finite sample bias, dramatically enhancing econometric estimates' efficiency (Arellano & Bover, 1995; R. Blundell & Bond, 1998).

This research applied the two-step system GMM because it utilises the first-step errors to control heteroscedasticity and serial correlation effects (Roodman, 2009). More importantly, the econometric literature revealed some basic tests to ascertain a GMM estimate's reliability and validity. The first is the Hansen test, which determines whether the GMM instruments are robust (Arellano & Bond, 1991). Secondly, the second-order serial correlation test checks for correlation in the first differenced error term (Richard Blundell & Bond, 2000). Thus, if the p-value of these tests is >5%, it indicates that the model is correctly specified.

Specifically, following Ozkan (2001) and Shao (2019), this research used a dynamic panel model to capture the relationship between ownership structure and firm performance, as shown in Eqn. (1).



$$Y_{it} = (1 - \delta)y_{it-1} + \beta X_{it} + \theta_{it} + \mu_i + \mu_t + \varepsilon_{it} \quad (1)$$

Where  $Y_{it}$  represents the dependent variable in the model for firm  $i$  in  $t$  time,  $y_{it-1}$  is the lagged dependent variable,  $\delta$  is the adjustment parameter, which is a coefficient value that lies between 0 and 1,  $(1 - \delta)$  is the convergence rate.  $X_{it}$  is the vector of the explanatory and control variables in the model,  $\theta_{it}$  represents sector effects,  $\mu_i$  is the unobserved firm effects,  $\mu_t$  is the time effects, and the error term is denoted as  $\varepsilon_{it}$ .

#### 4. Results and discussion

This part presents the empirical results generated to accomplish the research aim. It starts with the descriptive analysis in [Table 1](#), followed by the correlation results contained in [Table 2](#). Lastly, [Table 3](#) displays the two-step system GMM regression estimates.

[Table 1](#) presents the summary statistics of the study variables. The variable (ROA) represents operating profit over total assets, and its average value is 5.3%. The ROE, ROCE, and ROS document a mean ratio of 7.2%, 5.6% and 4.2%, respectively. Managerial ownership (MO) is 2.9% on average, while family ownership (FO) represents an average of 12.3% of the sampled firms' equity shareholding. Also, within the period under review, government ownership (GO) registers a mean ratio of 8.1%, and institutional shareholding (IO) has an average percentage of 9.1%. According to the statistics, the variable firm size (FSIZE) measured as the logarithms of the sampled firms' total assets reveal a minimum and maximum ratio of 5.670 and 14.040, respectively. The leverage ratio (LEV) shows a mean percentage of 0.223, and this estimate suggests that 22.3% of the firms' capital employed represents borrowings. This outcome implies that most Saudi firms fund their assets using equity capital. CEO tenure (CEOT) registers a mean of about four (4) years, with a maximum period of ten (10) years. The firms' board size (BS) indicates an average of eight (8) members approximately, with a minimum and maximum of three (3) and thirteen (13) members, respectively. Also, board independence (BI) shows that 44.3% of the board members are independent directors.

**Table 1. Descriptive statistics**

Variable	Mean	Std. Div.	Min.	Max.	Observations
ROA	0.053	0.093	-0.640	0.424	1,000
ROE	0.072	0.177	-0.625	0.763	1,000
ROCE	0.056	0.125	-0.385	0.545	1,000
ROS	0.042	0.489	-2.499	1.258	1,000
MO	0.029	0.099	0.000	0.660	1,000
FO	0.123	0.185	0.000	0.950	1,000
GO	0.081	0.181	0.000	0.840	1,000
IO	0.091	0.156	0.000	0.700	1,000
FSIZE	9.340	0.786	5.670	14.040	1,000
LEV	0.223	0.201	0.000	0.960	1,000
CEOT	3.785	2.549	1.000	10.000	1,000
BS	8.413	1.513	3.000	13.000	1,000
BI	0.443	0.204	0.000	0.900	1,000

Note: ROA is the net profit before interest and taxes divided by total assets. ROE is the net profit divided by equity. ROCE is the net profit divided by capital employed. ROS is the net profit divided by total sales. MO stands for the percentage of common stock owned by managers. FO represents the number of shares a family holds over total common stock. GO is calculated as the percentage of equity shares owned by the government. IO is the number of equity shares held by institutions over the total number of equity shares. FSIZE is the logarithms of the total assets. LEV is the book value of total debt divided by the book value of total assets. CEOT is calculated as the number of years a CEO has occupied his position. BS is the total number of board members, while BI is the number of independent directors over the total number of board members.

**Table 2. Correlation results**

Variable	ROA	ROE	ROCE	ROS	MO	FO	GO	IO	FSIZE	LEV	CEOT	BS	BI	VIF
ROA	1.000													
ROE	0.726 <sup>a</sup>	1.000												
ROCE	0.591 <sup>a</sup>	0.847 <sup>a</sup>	1.000											
ROS	0.485 <sup>a</sup>	0.457 <sup>a</sup>	0.351 <sup>a</sup>	1.000										
MO	0.032	0.009	0.075 <sup>b</sup>	-0.015	1.000									1.15
FO	0.139 <sup>a</sup>	0.339 <sup>a</sup>	0.145 <sup>a</sup>	0.121 <sup>a</sup>	-0.066 <sup>c</sup>	1.000								1.06
GO	0.153 <sup>a</sup>	0.017	0.004	0.340 <sup>a</sup>	-0.017	-0.038	1.000							1.80
IO	0.022	-0.013	0.050	0.078 <sup>b</sup>	-0.126 <sup>c</sup>	-0.080 <sup>b</sup>	-0.089 <sup>a</sup>	1.000						1.14
FSIZE	0.043	0.062 <sup>c</sup>	0.017	0.061 <sup>c</sup>	-0.001	-0.026	0.57 <sup>a</sup>	0.135 <sup>a</sup>	1.000					2.11
LEV	-0.157 <sup>a</sup>	-0.182 <sup>a</sup>	0.200 <sup>a</sup>	-0.055	0.035	0.059 <sup>c</sup>	0.111 <sup>a</sup>	0.124 <sup>a</sup>	0.385 <sup>a</sup>	1.000				1.24
CEOT	0.007	0.008	-0.011	-0.013	0.100 <sup>a</sup>	0.102 <sup>b</sup>	-0.079 <sup>b</sup>	-0.051	0.314 <sup>a</sup>	0.021	1.000			1.04
BS	0.063 <sup>c</sup>	0.028	-0.076 <sup>b</sup>	0.020	-0.002	0.034	0.122 <sup>a</sup>	0.073 <sup>b</sup>	0.056 <sup>c</sup>	0.091 <sup>b</sup>	0.002	1.000		1.13
BI	0.071	0.046	0.025	0.021	-0.053 <sup>c</sup>	-0.022	-0.163 <sup>a</sup>	-0.092 <sup>a</sup>	-0.115 <sup>a</sup>	0.032	0.089 <sup>a</sup>	0.001	1.000	1.10

a, b & c indicate significance at 1%,5% and 10% respectively.

Note: ROA is the net profit before interest and taxes divided by total assets. ROE is the net profit divided by equity. ROCE is the net profit divided by capital employed. ROS is the net profit divided by total sales. MO stands for the percentage of common stock owned by managers. FO represents the number of shares a family holds over total common stock. GO is calculated as the percentage of equity shares owned by the government. IO is the number of equity shares owned by institutions over the total number of equity shares. FSIZE is the logarithms of the total assets. LEV is the book value of total debt divided by the book value of total assets. CEOT is calculated as the number of years a CEO has occupied his position. BS is the total number of board members, while BI is the number of independent directors over the total number of board members.

**Table 3. Two-step system GMM Regression estimates**

Explanatory/ control variables	Financial performance measures			
	ROA	ROE	ROCE	ROS
ROA <sub>i, t-1</sub>	0.3202***(0.0132)	–	–	–
ROE <sub>i, t-1</sub>	–	0.3651***(0.0146)	–	–
ROCE <sub>i, t-1</sub>	–	–	0.4695***(0.0143)	–
ROS <sub>i, t-1</sub>	–	–	–	0.4741***(0.0041)
Managerial ownership (MO)	–0.1602***(0.0199)	–0.1137***(0.0464)	–0.0141***(0.0093)	–0.3296***(0.0562)
Family ownership (FO)	0.2708***(0.0855)	0.5154***(0.1547)	0.3847***(0.1068)	0.4014***(0.1435)
Government ownership (GO)	0.1281***(0.0052)	0.1429***(0.0093)	0.0499*(0.0290)	0.4357***(0.0839)
Institutional ownership (IO)	0.0057(0.0174)	0.0399(0.0298)	0.0126(0.0209)	0.0924(0.0017)
Firm size (FSIZE)	0.0033***(0.0016)	0.0265***(0.0110)	0.0038***(0.0076)	0.0464***(0.0092)
Leverage (TD)	–0.0515***(0.0129)	–0.0351***(0.1392)	–0.0316***(0.0087)	0.0535*(0.0268)
CEO tenure (CEOT)	–0.0149(0.1148)	–0.0839(0.1456)	–0.0372(0.0322)	–0.0391(0.101)
Board size (BS)	–0.0048***(0.0014)	–0.0032*(0.0027)	–0.0004***(0.0005)	–0.0254***(0.0046)
Board independence (BI)	0.0891***(0.0091)	0.0309***(0.0094)	0.0030***(0.0010)	0.0595***(0.0081)
Year dummies	Yes	Yes	Yes	Yes
Industry dummies	Yes	Yes	Yes	Yes
AR1	0.0014	0.0089	0.0001	0.0016
AR2	0.1314	0.3792	0.4067	0.1333
Hansen	0.1104	0.2346	0.1915	0.1951
Instruments	54	54	54	54

\*\*\*, \*\* & \* indicate significance at 1%, 5% and 10% respectively.

Numbers in parentheses are standard errors robust to heteroscedasticity

*Note: ROA is the net profit before interest and taxes divided by total assets. ROE is the net profit divided by equity. ROCE is the net profit divided by capital employed. ROS is the net profit divided by total sales. MO stands for the percentage of common stock owned by managers. FO represents the number of shares a family holds over total common stock. GO is calculated as the percentage of equity shares owned by the government. IO is the number of equity shares owned by institutions over the total number of equity shares. FSIZE is the logarithms of the total assets. LEV is the book value of total debt divided by the book value of total assets. CEOT is calculated as the number of years a CEO has occupied his position. BS is the total number of board members, while BI is the number of independent directors over the total number of board members.*

On the other hand, Table 2 contains the correlation results among the study variables. The essence of the correlation analysis is to detect whether our model specification suffers from multicollinearity. According to Gujarati and Porter (2010), multicollinearity arises when the correlation between explanatory variables is above 80%. Evidence from Table 2 shows no strong relationship between the independent variables. Accordingly, our results show that the highest correlation among the explanatory variables is 38.5% between leverage (LEV) and firm size (FSIZE). Therefore, the outcome reveals that the research model specification is free of the multicollinearity problem.

Table 3 displays the two-step system GMM regression estimates regarding the dynamic association between ownership structure and financial performance measures. The estimation at hand appears consistent with the underlying premises of GMM specification. The results show that the P-values of Hansen statistics and AR2 look insignificant in all our model specifications. This evidence signifies that the GMM instruments are robust, and our specification does not suffer

from second-order serial correlation. Thus, GMM estimations at hand appear valid and reliable. Further, in all our models, the lagged dependent variables indicate significant coefficients at a 1% significance level. This outcome implies that Saudi listed firms' past performance significantly impacts their current financial performance. Hence, the evidence is consistent with the argument that lagged performance level is an important predictor of ownership structure (Sani, 2020; Shao, 2019; Wintoki et al., 2012).

Turning now to the main regression estimates. The managerial ownership coefficients in all the models indicate a significant negative relation with financial performance measures. Thus, the results do not support our **H1**. This estimated negative finding implies that as managerial shareholding rises, the Saudi listed firms' financial performance decreases. This finding supports the argument that managerial ownership triggers agency conflicts, which in turn deteriorate firm performance (Berger et al., 1997; Sani, 2020; Shan, 2019). However, family ownership positively affects ROA, ROE, ROCE, and ROS. The evidence indicates that family ownership enhances Saudi companies' performance and supports **H2**. This finding aligns with the conclusion that family-owned companies are associated with robust monitoring and lower agency costs, thereby improving their performance level (Abor & Biekpe, 2007; Kao et al., 2019). Likewise, government ownership exhibits positive results in all the specified models consistent with **H3**. The finding lends credence to the conjecture that government ownership motivates firms to pursue policies that maximise performance due to government support (Badawi et al., 2019; Omri et al., 2014; Shao, 2019; Trong & Thuy, 2021). Contrary to expectation, the institutional ownership coefficient looks insignificant and inconsistent with our predictions regarding **H4**.

Furthermore, the control variables appear consistent with the extant literature. The evidence shows that Saudi companies with larger sizes are more likely to have higher financial performance. This finding agrees with the conjecture that bigger companies are relatively more diversified, and thus they may benefit from lower production costs, leading to superior performance (Altaf & Shah, 2018; Muniandy & Hillier, 2015). The coefficient of leverage looks negative and significant. This result stresses that debt financing may lower firm performance due to high borrowing costs, particularly for firms operating in countries with less developed stock markets (Sheikh & Wang, 2013; Shyam-Sunder & Myers, 1999). Surprisingly, the estimates display little support for the perspective that CEOT has a strong positive association with financial performance. Also, the empirical results reveal that Saudi firms with larger board members may be associated with high agency costs, thereby eroding their performance (Pillai & Al-Malkawi, 2018; Sani, 2020; Yermack, 1996). Lastly, the board independence coefficient in all our models supports the arguments that the board of directors' monitoring ability and resource provisions to firms are enhanced with a higher ratio of outside directors (Fama & Jensen, 1983b; He & Kyaw, 2018). Hence, their presence may lead to higher financial performance because of their expertise and networks.

## 5. Conclusion

This research examined the impact of ownership structure on the financial performance of Saudi non-financial listed firms covering 2010 to 2019. The paper employed the GMM framework that efficiently and effectively controls endogeneity and reverse causality effects rooted in the relationship between variables. Consequently, results from this investigation signify that lagged performance level is an important predictor of ownership structure. Furthermore, this outcome implies that Saudi listed firms' past performance significantly impacts their current ownership structure. This investigation adds to the few empirical studies that examine ownership structure-financial performance nexus in a dynamic framework (Sani, 2020; Shao, 2019; Wintoki et al., 2012). Therefore, firms may adjust gradually to attain their desired performance level to maximise shareholders' value.

Further, the analysis from the present paper strongly suggests that managerial shareholding may reduce financial performance. Thus, the result appears consistent with Shan (2019) and Sani

(2020), who argued that managerial ownership negatively influences financial performance. However, family and government ownership positively impact the firms' financial performance and support findings by Kao et al. (2019) and Bataineh (2021). These studies reported that family and government shareholdings might enable firms to control agency conflicts effectively to achieve greater firm value. In addition, the control variables employed indicated signs consistent with the existing studies. The research findings suggest that firm size and board independence have positive coefficients, while leverage, board size and CEO Tenure documented negative results. More importantly, the conclusions of this investigation have some bearing on the financial performance of Saudi firms. Firstly, the firms should encourage family and government shareholdings to raise their performance.

The findings lend credence to the arguments of the agency theory, stewardship, and stakeholder perspectives. These theories recognise corporate ownership as an important internal governance mechanism capable of influencing organisational outcomes. Hence, the findings imply that applying the prepositions of these frameworks may be quite relevant to the Saudi corporate environment. In addition, regulatory authorities should formulate policies that may incentivise firms to embrace more family and government shareholdings to strengthen corporate governance practices. Although this research provides further insights on financial performance determinants, further studies can be undertaken to confirm the predictions of this research. Also, since this article considers accounting-based performance measures, future studies should employ other dimensions of measuring firm performance to provide further empirical evidence using a dynamic framework.

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