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## Article

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

# The moderating effect of an audit committee on the relationship between ownership structure and firm performance: Evidence from emerging markets

Waleed M. Al-Ahdal<sup>1</sup>, Hafiza Aishah Hashim<sup>2\*</sup>, Faozi A. Almaqtari<sup>3</sup> and Shahrokh M. Saudagaran<sup>4</sup>

**Abstract:** The study aims to investigate the relationship between ownership structure (OS) and financial performance (FP) in non-financial listed companies operating in Oman and the UAE, using panel data from 2012 to 2021. The results revealed that Tobin's Q (TQ) is positively and significantly affected by managerial ownership and family ownership. In addition, return on asset (ROA) is found to have a negative and significant relationship with managerial ownership, while return on equity (ROE) is found to have a positive and significant relationship with family ownership. Comparing Oman and the UAE, the results indicated that all ownership variables tested have superior influence on FP. This study also documented that the moderating effect of the audit committee has a more positive relationship between managerial ownership, ownership concentration, and family ownership on firm performance in both countries. This study fills existing gaps in contemporary literature on OS in emerging markets by dissecting the outcome of OS on FP of companies in Oman and the UAE. To the best of our knowledge, most of the prior studies on OS have not examined the moderating effect of audit committee on the relationship between OS and FP. Our study on the OS in Oman and UAE listed firms shows that OS have an important outcome on market-based calculation. This study expands our understanding of the impact of OS on FP in emerging markets in two countries in the Gulf Cooperation Council (GCC), a region of growing economic importance that has not received adequate research attention.

**Subjects:** Accounting; Finance

**Keywords:** Ownership Structure (OS); Financial Performance (FP); Gulf Cooperation Council (GCC); Oman; UAE

### 1. Introduction

Ownership structure (OS) depicts the delegation and entrustment of authority and management rights from company owners to individuals within an organisation to run a company's affairs. The constituents and components of the OS have a significant bearing on how a firm successfully

pursues its objectives and ultimately maximizes shareholder wealth and value. Corporate entities have various short- and long-term goals that they attempt to realise and achieve. Commonly, short-term goals revolve around generating positive returns over a specific timeframe, whereas long-term goals are concerned with maximizing the company's value whilst fulfilling shareholder expectations (Rusyda, 2018). Ozili and Uadiale (2017) noted that the concentration of firm ownership significantly impacts managers' ability to effectively utilize financial resources towards activities that enable the realization of preset objectives. Furthermore, the authors documented that misuse of funds resulting from poor monitoring poses dire consequences to the firm's value.

The company's value is effectively linked to the managerial and OS. In this regard, an improvement in effective OS is shown to result in notable growth and improvement in financial obligations, which ultimately contribute to the company's value. Empirical evidence from prior research has provided inconclusive results (Almudehki & Zeitun, 2012; Eulaiwi et al., 2016; Rusyda, 2018). According to Fauzi and Musallam (2015), corporate ownership positively and significantly affects financial performance. However, findings do not clearly portray whether the outcome holds across diverse economies. The ownership composition is primarily determined by the scope of legal rights assigned to shareholders. The quoted public entities tend to possess a significant link between concentration in shareholdings in those countries with insufficient legal protection. In emerging economies, researchers have looked at the relationship inherent between OS and firm performance (FP), but the empirical evidence is mixed. Moreover, few studies have been conducted in the emerging markets in the member countries of the Gulf Cooperation Council (GCC), a region of growing economic importance, to assess the association between OS and its result on corporate performance. We examine this relationship in the context of Oman and the UAE, two GCC countries.<sup>1</sup>

Globerman et al. (2011) found that corporate ownership of Asian-owned entities does not have a significant impact on FP, which they attribute to weak legal systems, centralized ownership and family retention of ownership. This is similar to the findings of Singam (2003), who argued that a high degree of concentration negatively affects corporate governance procedures, which in turn affects FP. Morck et al. (2005) also found that concentrated ownership hinders effective corporate governance implementation due to conflicts among shareholders. Shareholders with a large controlling stake exert significant influence on company decisions, prioritize their personal interests over those of other shareholders and undermine the interests of minority shareholders (Al-Ahdal et al., 2020). Corporate ownership is a significant administrative mechanism that has been widely studied in various fields such as economics, business management, and finance. It has been examined in both developed (Ducassy & Montandrou, 2015) and developing economies (Abdallah & Ismail, 2017). This study examines the OS and FP of listed companies in Oman and the UAE. Al-Matari and Mgamal (2019) found that internal audits have a positive moderating effect on corporate governance mechanisms and corporate performance in Saudi Arabia. Therefore, in this study, we propose that the characteristics of the audit committee act as a moderating variable, which is more likely to support the interaction effects of managerial ownership, ownership concentration and family ownership on FP. By studying the emerging markets of UAE and Oman, this study aims to fill a gap in current knowledge related to OS and FP. This study also uses UAE and Oman as proxies for the GCC region to examine the impact of corporate OS on FP.

This study looks into the subject matter in the context of Oman and UAE as emerging economies. The reason for this is that previous research conducted in developed countries may not be relevant to these countries. The study contributes to the literature by exploring Oman and UAE as emerging economies with weaker regulatory and institutional systems compared to developed countries. These countries' unique institutional, legal and investment environments offer an interesting case study to examine how weaker institutional settings may decrease the ability to attract foreign investors (DeFond et al., 2019). The study also contributes by introducing audit committees as moderator variables to gauge whether the interaction effects of managerial ownership,

ownership concentration, and family ownership on FP remain positive or negative in the Omani and UAE contexts. Other researchers have not yet examined this. Further, the study contributes to the existing literature by attempting to research this topic in Oman and the UAE, which share similar cultural and socioeconomic backgrounds.

Additionally, there are significant commonalities between their financial reporting systems and institutional structures (Almaqtari et al., 2021; Al-ahdal et al., 2021; Hashed & Almaqtari, 2021). Notably, the study seeks to investigate the effect of ownership on financial performance where the OS of the firms in these countries is highly concentrated and family-owned. Family ownership still dominates in these countries, which may reduce the ability of foreign investors to invest in some companies. Accordingly, studying the financial performance of firms in these countries could provide a better understanding of the relationship between different measures of financial performance and ownership characteristics.

The study is organized as follows: a literature review and hypothesis development in section 2, research methodology in section 3, findings in section 4, and conclusion and policy implications in the last section.

## 2. Literature review and hypothesis development

In this study, we will be taking a closer look at two prevalent theories in the field of corporate governance, which are agency and stewardship theories. Agency theory suggests that there is a fundamental disagreement between shareholders and managers, with managers tending to prioritize their own interests over those of the shareholders. Stewardship theory, on the other hand, holds that the success of a company is closely tied to the satisfaction of its shareholders. According to this theory, a steward's role is to safeguard and increase shareholders' wealth through superior corporate performance while also maximizing their own utility. (Din et al., 2021; Jensen & Meckling, 1976; Rezaee et al., 2020).

### 2.1. Managerial ownership and firm financial performance

The findings from previous research on the connection between managerial ownership and FP are inconsistent. Some studies show a positive association while others indicate a negative association (Almudehki and Zeitun (2012) used data from 29 non-financial firms that traded on the local Qatar bourse to assess the various dimensions of company OS. The variables examined included managerial ownership and ownership concentration. The authors used three estimating tools to determine FP, including Tobin's Q, ROA, and ROE. They found a significantly positive relationship between ownership variables and the three dependent variables. In addition, managerial ownership positively correlated with ROA and ROE. Similarly, they observed a positive and notable link between concentrated ownership and ROA and ROE.

Fauzi and Musallam (2015) discovered a positive correlation between managerial ownership and company performance. They argued that managers are motivated to maximize shareholders' wealth. This aligns with the findings of Rusyda (2018), who found that managers act in the best interest of shareholders by implementing strategies that improve operational performance and increase the company's overall value. Florackis et al. (2009) found that managerial ownership does not have a significant impact on corporate performance for intermediate and high levels of managerial ownership. However, Briano-Turrent and Rodríguez-Ariza (2016) found that ownership indicators have a positive and significant impact on financial performance. Based on these arguments, the following hypothesis is tested:

**H1:** There is a significant impact of managerial ownership on firms' financial performance in Oman and UAE.

## **2.2. Ownership concentration and firm financial performance**

Ozili and Uadiale (2017) assessed whether the concentration of ownership affects banks' profitability in a developing country. The study observed that high ownership concentration amongst banks is characterized by a highly notable return on assets, increased net interest margins, and a significantly high earning capacity. However, banks with a diffused concentration of power have a high equity return and a significantly low return on assets. Additionally, Al-Matari et al. (2017) studied the immediate effect of ownership concentration and managerial ownership on a company's performance, as determined by return on assets (ROA) by sampling non-financial firms from Oman from 2010 to 2014. They found a positive correlation between ownership concentration and ROA, however, they found no significant link between managerial ownership and ROA. In another study, Sulong and Nor (2010) examined how dividend policies, different types of OS, and board governance influenced firm value using data from 403 publicly traded companies on the Bursa Malaysia between 2002 and 2005. Evidence from this work uncovered the importance of board governance variables in improving firm value, particularly the OS. However, the benefits of better corporate governance through enhanced board governance vary across firms under observation due to different dividend policies and OS.

Karim et al. (2022) found a slight connection between the OS of a company and its value. In contrast, Iwasaki and Mizobata (2020) looked into the correlation between the concentration of ownership and the success of a firm. They uncovered a positive correlation between the concentration of ownership and the performance of the company. Laporšek and his team (2021) also identified a meaningful link between the financial performance of a company and the concentration of its ownership. This study posits that ownership concentration would lead to higher FP based on prior studies. Hence, our second hypothesis is as follows:

**H2:** There is a significant impact of ownership concentration on firms' financial performance in Oman and UAE.

## **2.3. Family ownership and firm financial performance**

Eulaiwi et al. (2016) investigated the link between family ownership concentration and external board directorship in non-financial publicly traded companies in the GCC region from 2005 to 2013. They discovered that there was a positive association between family ownership and the amount of external directorships held by board members. This is indicative of the fact that family ownership can diminish the monitoring capacities of the board. Similarly, Kao et al. (2019) discovered that the presence of family ownership had a beneficial impact on the value of a company. Additionally, Hegde et al. (2020) discovered a favourable association between family ownership and the success of companies, in particular at high levels of ownership concentration. Despite this, Lam and Lee (2012) discovered that family ownership has a detrimental effect on the interaction between board committees and the performance of public companies in Hong Kong. In addition, Andres (2008) discovered that the success of family businesses is only improved when the founding family is still actively participating on the executive or supervisory board of the business. According to the findings of Alodat et al. (2021), family ownership has a favourable and substantial effect on enterprises that are smaller in size, but it has a significant and negative effect on firms that are larger in size. Muntahanah et al. (2021) discovered that family ownership considerably decreases FP, and Amin and Haq (2022) discovered that there is a negative link between company performance and state-owned firms in Russia, India, and China. Both of these studies were conducted in the same year. The mixed results in the literature show that family ownership has a significant relationship with corporate performance. Therefore, our third hypothesis is as follows:

**H3:** There is a significant impact of family ownership on the financial performance of firms in Oman and UAE.

#### **2.4. The moderating effect of audit committee characteristics**

Consistent with agency theory, research supports the idea that the audit committee, as a tool for corporate governance, plays a crucial role in reducing managers' self-serving behavior, improving financial performance, and ensuring the credibility of financial reporting. This idea is consistent with agency theory and is supported by the findings of the research (Al-Ahdal & Hashim, 2021). Al-Matari and Mgamal (2019) conducted research to determine the extent to which internal audits moderate the relationship between corporate governance mechanisms and business performance. They discovered a significant positive association between corporate performance and non-executive board size, audit committee independence, audit committee size, and the internal audit profession. Mardessi (2021) discovered that there is a statistically significant correlation between real earnings management and independent members, financial expertise, and the size of the audit committee, with audit quality serving as a moderating factor in this relationship. Isa and Musa (2018) investigated the moderating effect of audit committees on the relationship between board diversity and earnings management. They discovered that board diversity had a significant impact on earnings management even before the moderating effect of audit committees was considered. Nevertheless, following the moderation, board diversity provided a superior explanation of earnings management. According to the findings of Abed et al. (2022), the evaluation of the quality of creative accounting and financial reporting is substantially impacted by the audit committee. Thus, the characteristics of the audit committee may positively influence a firm's ability to deal with its OS. Therefore, the audit committee characteristics may positively help firms deal with their OS. Congruent with agency theory and prior results in the literature, we develop the following hypothesis:

**H4a:** The effect of managerial ownership on firms' financial performance is moderated by audit committee characteristics.

**H4b:** The effect of ownership concentration on firms' financial performance is moderated by audit committee characteristics.

**H4c:** The effect of family ownership on firms' financial performance is moderated by audit committee characteristics.

### **3. Research methodology**

#### **3.1. Data collection and study period**

This study's main aim is to evaluate corporate ownership's effect on the financial performance of publicly traded non-financial companies in UAE and Oman. Our sample consists of the 40 largest non-financial companies selected purposively based on market capitalization from the two countries. They consisted of 20 non-financial firms on the Abu Dhabi Securities Exchange (from a total of 65 non-financial companies) and 20 non-financial firms from the Muscat stock market (out of the total of 49 non-financial companies) traded there as per the available data on Argam official website.<sup>2</sup> The decision to include only large companies was based on two factors. The first one is that large corporations are good indicators of the variables under study, as evidenced by existing literature. Secondly, compared to small and medium-sized companies, large corporations are exposed to ongoing political and public scrutiny due to the magnitude of their operations (Watts & Zimmerman, 1978). We obtained financial performance, leverage, and firm size data from the Thomson Reuters Eikon database. Data from this study is secondary and analyzed using stata14, and it covers a period from 2012 to 2021. It has been sourced from company annual reports and websites.

### 3.2. concepts and measurements of variables in the study

All dependent, independent and control variables are summarized and shown in Table 1.

#### 3.2.1. Model specification

Consistent with previous studies (Al-Ahdal & Hashim, 2021; Dabor et al., 2015; & Sanan et al., 2019), we constructed the model mentioned below to explore the influence of OS characteristics on the financial performance of firms in Oman and UAE. To estimate the impact of OS characteristics on the performance of Omani firms, the study adopted a two-way random effect model (REM) and one-way fixed effects model (FEM). This REM is used for ROA and TQ. Similarly, the ROE model used the one-way fixed effect model. The selection between the random and fixed effect model is based on the Hausman test (Baltagi, 2005). The panel data equation in its ordinary form can be expressed as follows:

$$ROA_{it} = \alpha + \lambda t + \beta MO_{it} + \beta OC_{it} + \beta FO_{it} + \beta LEV_{it} + \beta FSIZE_{it} + \beta AT_{it} + \epsilon_{it} \quad (1)$$

$$ROE_{it} = \alpha + \lambda t + \beta MO_{it} + \beta OC_{it} + \beta FO_{it} + \beta LEV_{it} + \beta FSIZE_{it} + \beta AT_{it} + \epsilon_{it} \quad (2)$$

$$TQ_{it} = \alpha + \lambda t + \beta MO_{it} + \beta OC_{it} + \beta FO_{it} + \beta LEV_{it} + \beta FSIZE_{it} + \beta AT_{it} + \epsilon_{it} \quad (3)$$

The result of the Redundant Fixed Effect Test shows that all models (ROA, ROE, TQ) have a one-way intercept model, which means that there is influence across all companies. On the other hand, the one-way random and fixed effects were exploited to investigate the influence of OS characteristics on FP of UAE firms. Our regression model is summarised in the following equation:

$$ROA_{it} = \alpha + \beta_1 MO_{it} + \beta_2 OC_{it} + \beta_3 FO_{it} + \beta_4 LEV_{it} + \beta_5 FSIZE_{it} + \beta_6 AT_{it} + \epsilon_{it} \quad (4)$$

$$ROE_{it} = \alpha + \beta_1 MO_{it} + \beta_2 OC_{it} + \beta_3 FO_{it} + \beta_4 LEV_{it} + \beta_5 FSIZE_{it} + \beta_6 AT_{it} + \epsilon_{it} \quad (5)$$

$$TQ_{it} = \alpha + \beta_1 MO_{it} + \beta_2 OC_{it} + \beta_3 FO_{it} + \beta_4 LEV_{it} + \beta_5 FSIZE_{it} + \beta_6 AT_{it} + \epsilon_{it} \quad (6)$$

Finally, to establish the impact of OS characteristics on FP in Oman and UAE companies, the study employed two-way random effects models for ROA and ROE and one-way random effect models for TQ as the results of the Redundant Fixed Effect Test. The REM was selected ahead of the FEM because the latter does not consider the impact of a time-invariant dummy variable (Arellano, 2003; Baltagi, 2005). The data set used in this study included a dummy variable that does not consider time (time-invariant). Below are the simple forms of the panel data's mathematical expression:

$$ROA_{it} = \alpha + \beta_1 MO_{it} + \beta_2 OC_{it} + \beta_3 FO_{it} + \beta_4 LEV_{it} + \beta_5 FSIZE_{it} + \beta_6 AT_{it} + \lambda CD + \epsilon_{it} \quad (7)$$

$$ROE_{it} = \alpha + \lambda t + \beta_1 MO_{it} + \beta_2 OC_{it} + \beta_3 FO_{it} + \beta_4 LEV_{it} + \beta_5 FSIZE_{it} + \beta_6 AT_{it} + \lambda CD + \epsilon_{it} \quad (8)$$

$$TQ_{it} = \alpha + \beta_1 MO_{it} + \beta_2 OC_{it} + \beta_3 FO_{it} + \beta_4 LEV_{it} + \beta_5 FSIZE_{it} + \beta_6 AT_{it} + \lambda CD + \epsilon_{it} \quad (9)$$

Where:  $\alpha$  = intercept;  $\epsilon_{it}$  = error term;  $\beta$  = beta;  $\lambda$  = Lamda;  $\lambda t$  = Two-way effect Model; ROA = Return on asset; ROE = Return on equity; TQ = Tobin's Q; MO is the Managerial Ownership; OC is the Ownership Concentration; FO is the Family Ownership; LEV is the corporate leverage; FSIZE is the firm size; AT is the audit type and CD is the countries dummy.

## 4. Results and discussion

### 4.1. Descriptive statistics

Table 2 presents the descriptive data of the tools observed in the research. The mean values for Omani firms for ROA, ROE and TQ from 2012 to 2021 are 9.97, 20.13, and 1.72, respectively. ROA, ROE, and TQ ranges recorded minimum values of -23.74, -22.09 and 0.74 to maximum values of 27.32, 41.00 and 8.21, respectively. The table also shows that MO, OC and FO mean values for Omani firms are 59.70, 44.22 and 0.33, while the higher percentage are 45.19, 93.39 and 1, and



**Table 1. Variables Definition**

<b>Variables</b>	<b>Measurement</b>	<b>References</b>
<b>Dependent variables</b>		
Return of Assets (ROA)	Measures how efficient management is at utilizing its assets to produce profits. ROA = Profit after Tax/Total Asset	(Alodat et al., 2021; Sami et al., 2011)
Return on Equity (ROE)	Determines how effective shareholders' funds are utilized to produce returns. ROE = Profit after Tax/Total Equity	(Al-Ahdal & Hashim, 2021; Sami et al., 2011)
Tobin's Q (TQ)	Tobin's Q is determined by the proportion of market capitalization plus overall debt divided by aggregate assets of the business entity.	(Al-Ahdal & Hashim, 2021; Alodat et al., 2022)
<b>Independent variables</b>		
Managerial Ownership (MO)	Measured as a percentage of shares held by the board of directors.	(Almudehki & Zeitun, 2012; Fauzi & Musallam, 2015).
Ownership Concentration (OC)	Measured as a percentage of shares held by the largest five shareholders.	(Al-Matari et al., 2017; Laporšek et al., 2021)
Family Ownership (FO)	Dummy variable 1 if CEO is from family members and 0 others.	(Andres, 2008; Lam & Lee, 2012)
<b>Control variables</b>		
Firm Size (FS)	Natural logarithm of aggregate assets.	(Arora & Sharma, 2016; Ullah, 2017).
Leverage (LEV)	It is determined by overall debt to aggregate assets.	(Abdallah & Ismail, 2017; Hassan et al., 2016).
Audit Types (AT)	Dummy variable 1 if auditing by big 4 and 0 others.	(Al-Matari et al., 2017; Alarussi & Nawafly, 2019)
Countries Dummy (CD)	UAE is designated the value of one (1) while Oman is assigned the value of zero (0).	(Al-Ahdal et al., 2020; Sanan et al., 2019)
<b>Moderator Variable</b>		
Audit committee characteristics (ACC)	<ol style="list-style-type: none"> <li>(1) Is the audit committee linked to CSR/H&amp;S/Sustainability targets?</li> <li>(2) Is there an audit committee within the company?</li> <li>(3) Does the internal audit department have a direct reporting relationship to the audit committee?</li> <li>(4) Is the audit committee made up of at least three members?</li> <li>(5) Is the entire membership of the audit committee composed of non-executive directors?</li> <li>(6) Is the chairperson of the audit committee an independent director?</li> <li>(7) Does the audit committee have at least one member with expertise in financial matters?</li> <li>(8) Does the audit committee hold meetings at least twice a year?</li> </ol>	(Al-Ahdal & Hashim, 2021; Salehi et al., 2021)

**Table 2. Descriptive Statistics**

Variables	Observations			Mean			Maximum			Minimum			Std. Dev.		
	Oman	UAE	Overall	Oman	UAE	Overall	Oman	UAE	Overall	Oman	UAE	Overall	Oman	UAE	Overall
ROA	200	200	400	9.97	5.85	7.91	27.32	21.65	27.32	-23.74	-28.86	-28.86	6.45	6.908	6.98
ROE	200	200	400	20.13	12.50	16.31	41.00	47.52	47.52	-22.09	-41.36	-41.36	12.53	13.163	13.38
TQ	200	200	400	1.72	1.54	1.63	8.21	4.13	8.21	0.74	0.43	0.43	0.903	0.761	0.838
MO	200	200	400	59.70	52.66	56.81	45.19	66.28	66.28	8.17	11.21	11.21	24.9	20.2	22.1
OC	200	200	400	44.22	43.22	43.26	93.39	76.12	93.39	36.18	29.09	36.18	17.5	20.1	18.8
FO	200	200	400	0.33	0.466	.400	1.00	1.00	1.00	0.00	0.00	0.00	.472	0.500	0.49
LEV	200	200	400	33.38	30.80	32.09	38.41	26.69	38.41	1.26	1.08	1.08	23.49	23.69	23.58
FSIZE	200	200	450	5.65	4.94	5.30	9.81	6.89	9.81	2.00	2.01	2.00	2.33	1.629	2.04
AT	200	200	400	0.71	0.94	0.82	1	1	1	0	0	0	0.457	0.239	0.38
ACC	200	200	400	0.77	0.80	0.79	1.00	1.00	1.00	0.57	0.43	0.43	0.14	0.11	0.13
CD			400			0.50			1		0				.501

lower percentages are 8.17, 36.18 and 0.00 for Omani companies. It is apparent in the table that the presented mean value of leverage and firm size for the sample as a whole during 2012–2021 were 33.38 and 5.65, ranging from 38.41, 9.81 to 1.26, 2.00. Finally, the mean of AT and ACC were 0.71 and 0.77.

On the contrary, the mean values of UAE firms for ROA, ROE and TQ from 2012 to 2021 are 5.85, 12.50 and 1.54, respectively. Therefore, ROA, ROE and TQ range from the lowest value of –28.86, –41.36 and 0.43 to the highest value of 21.65, 47.52 and 4.13, respectively. MO, OC and FO mean values of UAE firms are 52.66, 43.22 and 0.466. However, the number is statistically close to the maximum average value of 66.28, 76.12 and 1.00 witnessed in UAE firms. In the case of control variables, the overall mean value of leverage is 33.38, while the mean value of firm size is 5.65. The mean value of AT is 0.94, and ACC is 0.80. Concerning the mean value of the corporate ownership practice, the result illustrates a slight difference between the implementation of corporate ownership in both countries. The results are consistent with Al-Malkawi et al. (2014) and Shehata (2015).

#### **4.2. Correlation analysis**

To assess the extent of the relatedness of the dependent and independent variables in this work, we used Pearson's correlation technique. Looking at Panel (A), which depicts Pearson's correlation between the variables in Omani firms, the correlation matrix shows a positive correlation of MO and FO with ROA, ROE and TQ models and a negative correlation between OC with ROE and TQ model. Further, in Panel (B), the correlation coefficients indicate that MO and OC in UAE firms have a positive connection with ROE and TQ models. On the other hand, FO is negatively related to ROA, ROE and TQ models. Moreover, Panel (C) demonstrates the overall model, which includes Oman and UAE data. The correlation coefficients indicate that FO positively correlates with all dependent variables: ROA, ROE and TQ. Overall, the correlation among the independent variables does not exceed 0.70, which indicates an absence of multicollinearity issues for all the independent variables in the three panels. We also checked for multicollinearity using the Variance Inflation Factor. As evidenced by the findings, all the correlation coefficients do not possess a value greater than 2, indicating that multicollinearity is not an issue (Judge et al., 1988).

#### **4.3. The unit root test**

We used the Augmented Dickey-Fuller (ADF) test to check for stationarity in the data. Test results, at zero difference, showed evidence that the variables are stationary at 1% and 5% significance levels. This finding rejects the null hypothesis for all variables in both countries. Table 3 shows the results of the P-Values of the ADF Test for all variables at zero level.

#### **4.4. Direct effect analysis**

##### **4.4.1. Direct effect-ROA model**

The regression model used in this study is a statistical tool that assesses whether the independent variable influences the dependent variable. Moreover, it determines the degree of change in the dependent variable resulting from the influence of the independent variable. We used the random effect models to evaluate the influence of MO, OC and FO on the firm's performance of Oman and UAE firms. Prior to running the random effect model, all assumptions were observed. Linearity and homogeneity were evaluated using the scatterplot technique.

Further, VIF was used to check for multicollinearity, as presented in Table 4. The normality of residuals was depicted by a histogram, which shows that the residuals have a normal distribution. The skewness of values was evaluated to confirm the normal distribution of error terms. Furthermore, we have conducted Fisher and Breusch-Pagan tests for heteroscedasticity. This test is conducted by regressing the squared residuals from the initial regression against the independent variables. In the same context, we have calculated the absolute residuals from the initial regression against the independent variables. This is necessary to calculate Wild's heteroscedasticity. The results yield P-Value > 0.05 in all cases, concluding that heteroscedasticity do not exist in

**Table 3. Correlation Matrix between Variables**

<b>Panel A: Correlation Matrix – Oman</b>									
Variables	ROA	ROE	TQ	MO	OC	FO	LEV	FSIZE	AT
ROA	1								
ROE	.649**	1							
TQ	.426**	.269**	1						
MO	.099	.041	.260**	1					
OC	.032	-.043	-.250**	.057	1				
FO	.539**	.331**	.476**	.272**	-.132	1			
LEV	.174*	.456**	.337**	.538**	-.139	.300**	1		
FSIZE	.033	.000	.000	.000	.090	.000	.000	1	
AT	-.404**	-.320**	-.327**	-.537**	-.078	-.325**	-.601**	-.690**	1
<b>Variance inflation factor</b>				1.035	1.076	1.42	1.039	1.005	1.29
<b>Panel B: Correlation Matrix – UAE</b>									
Variables	ROA	ROE	TQ	MO	OC	FO	LEV	FSIZE	AT
ROA	1								
ROE	.618**	1							
TQ	.107	.010	1						
MO	-.147	.032	.137	1					
OC	.118	.019	.168*	-.218**	1				
FO	-.230**	-.131	-.096	.361**	-.188*	1			
LEV	-.134	-.144	.217**	.025	.213**	-.088	1		
FSIZE	-.126	-.096	.215**	.255**	.138	-.142	.614**	1	

(Continued)

**Table3. (Continued)**

<b>Panel A: Correlation Matrix – Oman</b>									
Variables	ROA	ROE	TQ	MO	OC	FO	LEV	FSIZE	AT
AT	-.321**	-.237**	.271**	.112	-.025	.239**	.315**	.454**	1
<b>Variance inflation factor</b>				1.048	1.81	1.13	1.060	1.052	1.35
<b>Panel C: Correlation Matrix – Collective</b>									
	ROA	ROE	TQ	MO	OC	FO	LEV	FSIZE	AT
ROA	1								
ROE	.712**	1							
TQ	.290**	.169**	1						
MO	-.185**	-.063	.055	1					
OC	.083	-.001	-.041	-.164**	1				
FO	.083	.045	.188**	.291**	-.165**	1			
LEV	.030	.157**	.284**	.005	.051	.091	1		
FSIZE	.213**	.140*	.243**	.089	.131*	.096	.573**	1	
AT	-.127*	-.129*	.098	.140*	-.035	.112	.200**	.300**	1
<b>Variance Inflation Factor</b>					1.019	1.029	1.015	1.23	1.51

Note: \*\*. Correlation is significant at the 0.01 level (2-tailed).  
 Correlation is significant at the 0.05 level (2-tailed).

**Table 4. Unit Root Test**

Variables	Oman		UAE		Overall	
	ADF Test		ADF Test		ADF Test	
	Zero Level		Zero Level		Zero Level	
	t- statistic	P value	t- statistic	P value	t- statistic	P value
ROA	60.6511	0.0000	33.0914	0.0003	55.5177	0.0007
ROE	49.9071	0.0002	43.695	0.0017	68.6524	0.0268
TQ	58.1005	0.0000	67.3017	0.0002	70.7027	0.0181
MO	37.6413	0.0000	52.4383	0.0016	67.3017	0.0343
OC	54.6968	0.0000	75.3432	0.0000	127.472	0.0000
FO	9.25968	0.0000	30.3247	0.0000	30.4657	0.0000
LEV	45.8273	0.0009	58.3176	0.0000	98.7234	0.0000
FSIZE	46.311	0.0007	72.7346	0.000	96.3767	0.0000
AT	13.9811	0.0074	19.0994	0.0008	68.0829	0.0000

our study. Similarly, Breusch-Godfrey test for serial correlation is estimated which involves regressing the residuals from the initial regression against their lagged values, as well as the independent variables and their lagged values. Finally, Lagrange multipliers test is done which involves adding squared or higher-order terms of the independent variables to the initial regression and testing the significance of those terms. The result support that that there is no evidence of omitted variables. After checking all relevant assumptions, we run the random effect models because the random effect model considers the impact of a time-invariant dummy variable, which is included in all overall models of this study.

Table 5 displays that MO significantly influences the firm’s performance in Oman and UAE non-financial listed companies and overall model, as accounted for by ROA ( $PV > 0.05$ ). This outcome is similar to that of Almudehki and Zeitun (2012) and Fauzi and Musallam (2015), who argued that MO significantly affects firms’ performance when measured by ROA. However, this evidence contradicts Al-Matari et al. (2017), who documented that MO has an insignificant effect on firms’ performance.

This leads us to accept our hypothesis H1 that managerial ownership significantly impacts the ROA of Oman, UAE and the overall model. On the other side, the coefficient sign shows that OC has a positive and insignificant influence on the ROA of Oman, UAE and the overall model. This leads us to reject our hypothesis H2 that ownership concentration significantly impacts the ROA of Oman and UAE non-financial listed firms as determined in the case of UAE firms. The result is inconsistent with Sulong and Nor (2010) and Laporšek et al. (2021). Regarding family ownership, results show a significant impact in the case of Oman and the overall model and insignificant in the case of UAE. The p-value of FO is statistically significant at the 5% level in the case of Oman and overall models, supporting our hypothesis H3 that there is a significant impact of family ownership on firms’ financial performance in Oman and the overall model and rejected in the case of UAE model. The result is consistent with Al-Qatanani and Siam (2021) and Srivastava and Bhatia (2020). It is also clear from Table 5 that the control variable LEV has an insignificant impact on the firm’s performance as measured by ROA ( $P. V < 0.05$ ) for the non-financial firms of Oman and UAE countries. It can be noted that FSIZE has a significant impact on ROA in the case of the Oman and UAE model and collective model. This result is supported by Abdallah and Ismail (2017), Al-Matari et al. (2014) and Hassan et al. (2016). AT has emerged negative and statistically significant at a 5 % level with ROA in UAE and overall model and positive insignificant in case of Oman. In terms of CD, Table 2 demonstrates that firms in the UAE were assigned the value of 1, whereas firms in Oman were assigned the value of zero. The regression results show a negative relationship

**Table 5. Model (1) ROA**

Variables	Oman	UAE	Overall
C	13.5385***	1.46766***	7.574979**
MO	-6.471644**	0.002195**	-0.075582***
OC	1.429399	0.204955*	1.261479
FO	6.645408**	0.023121	2.317494***
LEV	-0.040902*	0.00005	-0.045317**
FSIZE	0.631449**	-0.132904*	0.932641***
AT	0.667382	-6.682642**	-2.380269**
CD			-2.58802***
R-squared	0.42	0.41	0.174
Adjusted R-squared	0.39	0.31	0.151
F-statistic	15.18	4.29	7.93
Prob(F-statistic)	0.000	0.000	0.000
Breusch-Pagan-Godfrey Test	0.09	0.11	0.06
Serial correlation by Breusch-Godfrey	0.073	0.06	0.08
Hausman test (FE vs. RE)	0.9126	0.7037	Dummy Variable
			REM

Note: \*\*\*, \*\*, and \* indicate that correlation is significant at the 0.01, 0.05, and 0.10 level (2-tailed).

between the countries and OS practices. This means that the Omani non-financial listed firms contribute more than the UAE non-financial listed firms in terms of the effect of OS on the firm's performance in the ROA model.

#### 4.4.2. Direct effect-ROE model

Empirical results presented in Table 6 point to a negative and statistically significant association between the ROE and MO in Oman and a positive but insignificant one in the case of UAE. This finding is in accordance with Fauzi and Musallam (2015) and Ozili and Uadiale (2017). This leads us to accept hypothesis H1 in the case of Oman and reject it in the case of UAE and the overall model, which states that managerial ownership significantly impacts the ROE of Oman and UAE non-financial listed firms. A positive but insignificant association is also detected between ROE and OC in the case of Oman, UAE and overall models. This leads us to reject hypothesis H2 in the case of Oman, UAE and the overall model. The findings differ from Iwasaki and Mizobata (2020) and Ozili and Uadiale (2017). Regarding family ownership, the results show a positive and significant impact on ROE in the case of Oman and the collective model, while insignificant but negative in the case of UAE. This outcome is similar to that of Acheson et al. (2016); Kao et al. (2019) and Muntahanah et al. (2021). The result supports our hypothesis H3, that family ownership significantly impacts firms' financial performance in Oman and the overall model but not for the UAE model. Table 6 also depicts a significant relationship between LEV and ROE in all models. Furthermore, we find an insignificant relationship between FSIZE and ROE in all models. This finding conforms with Arora and Sharma's (2016) and Kaufmann et al. (2011). AT has a negative and statistically insignificant association with ROE in UAE and overall model and positive but insignificant in the case of Oman. However, a negative but significant association is observed in the case of CD. This indicates that the effect of OS on ROE is higher in the case of Omani firms than in the context of the UAE firms.

#### 4.4.3. Direct effect-TQ model

Table 7 reports the results of the regression analyses of the effects of OS characteristics on the FP measured by TQ. Regression models show that the coefficient of MO is positively related to the

**Table 6. Model (2) ROE**

Variables	Oman	UAE	Overall
C	24.470***	1.624538***	16.75817***
MO	-19.47352***	0.000523	-0.011863
OC	6.361251	0.095262*	0.495279
FO	6.923158***	-0.00593	3.798116***
LEV	0.287997***	-0.002075**	0.114755***
FSIZE	-0.478088	0.037346	0.365285
AT	1.049818	-0.028584	-1.519312
CD			-17.86326***
R-squared	0.34	0.32	0.25
Adjusted R-squared	0.31	0.15	0.23
F-statistic	10.65	1.90	12.28
Prob(F-statistic)	0.000	0.007	0.000
Breusch-Pagan-Godfrey Test	0.14	0.13	0.106
Serial correlation by Breusch-Godfrey	0.061	0.086	0.092
Hausman test (FE vs. RE)	0.0432	0.9907	Dummy Variable
			REM

Note: \*\*\*, \*\*, and \* indicate that correlation is significant at the 0.01, 0.05, and 0.10 level (2-tailed).

**Table 7. Model (3) TQ**

Variables	Oman	UAE	Overall
C	2.225599***	0.43933***	2.356994***
MO	0.191989	0.006709**	0.006639**
OC	-1.003497**	-0.098397	-0.23922
FO	0.708483***	1.063584**	0.26274**
LEV	0.003786	0.011763**	0.005459**
FSIZE	-0.023601	0.048561	-0.029379
AT	0.038989	0.847455***	0.044807
CD			-0.273388**
R-squared	0.31	0.58	0.19
Adjusted R-squared	0.28	0.51	0.16
F-statistic	9.31	8.62	7.009
Prob(F-statistic)	0.009	0.000	0.000
Breusch-Pagan-Godfrey Test	0.12	0.11	0.08
Serial correlation by Breusch-Godfrey	0.12	0.09	0.13
Hausman test (FE vs. RE)	0.923	0.003	Dummy Variable
			REM

Note: \*\*\*, \*\*, and \* indicate that correlation is significant at the 0.01, 0.05, and 0.10 level (2-tailed).

market-based measures. However, the *P* value of MO is significant only for UAE and overall models and insignificantly for the Oman model. This evidence is in line with that of Al-Matari et al. (2014), Almudehki and Zeitun (2012) and Eulaiwi et al. (2016). Hence, H1 is supported in the case of UAE and overall models and not supported in the case of Oman. A positive and significant association is



also detected between TQ and OC in the case of Oman and a negative but insignificant impact in the case of UAE and overall models. Thus, the evidence supports H2 in the case of UAE and the overall model but not in the case of Oman. The findings agree with Altaf and Shah (2018) and Mugobo et al. (2016). Table 7 also showed a positive and statistically significant relationship between TQ and FO in the case of Oman, UAE and the overall model. This leads us to accept hypothesis H3 for all three models. These results are consistent with Hegde et al. (2020) and Srivastava and Bhatia (2020).

Regarding the control variable LEV, Table 7 shows an insignificant link in the case of Oman and significant in the case of UAE and the collective model. This result is similar to that of Aggarwal (2013) and Almudehki and Zeitun (2012). Moreover, there is a statistically insignificant association between TQ and FSIZE in Oman, UAE and overall models. This result contradicts the findings of Ehikioya (2016) and Kaufmann et al. (2011). AT has a positive and statistically insignificant association with TQ in the Oman, UAE and overall model. CD was found to have a statistically significant but negative effect on TQ. As far as the comparison between the two countries is concerned, the results show that the effect of OS on TQ is higher in the case of Oman than it is in the UAE.

In GCC companies, the OS is centralised, and the corporate governance law puts a lot of weight on making the board more independent to solve agency conflicts and make monitoring more effective (Al-Matari et al., 2014). So, stewardship theory may be a better fit for GCC companies because it looks at management's strategic decisions and actions as stewardship behaviours that protect all capitals, including financial, strategic, operational, environmental, and reputational capitals. Stewardship theory assumes that managers are honest stewards who act in the best interests of shareholders. Agency theory says that managers should do what's best for them. Our results add to the stewardship theory because they explain why managers aren't driven by their own goals but by those of their bosses (Davis et al., 1997).

#### **4.5. Interaction (moderating) effect analysis**

Table 8 reports the results of the regression analyses of the effects of OS characteristics on the FP under conditions of the audit committee. The results show that Managerial Ownership has a significant but negative impact on ROA (Oman: coefficient =  $-12.58$ ,  $p < 0.01$ ; UAE: coefficient =  $-0.273$ ,  $p < 0.05$ ; and overall coefficient =  $-0.505$ ,  $p < 0.01$ ). The results also show that audit committee characteristics (ACC) significantly and positively impacts ROA in all cases. Looking at the interaction and moderating effect of ACC between MO and ROA, the results show that ACC has a positive moderating effect on ROA (coefficient =  $10.32$ ,  $p < 0.05$ ) in the case of Oman, but ACC has an insignificant moderating effect between MO and financial performance measured by ROA in the UAE (coefficient =  $0.319$ ,  $p > 0.10$ ) and the overall sample (coefficient =  $0.500$ ,  $p > 0.10$ ). Similarly, while OC has a significant positive impact on ROA in all cases, the moderating effect of ACC between OC and ROA is significant and negative in the case of Oman (coefficient =  $-48.08$ ,  $p < 0.10$ ) and the overall sample (coefficient =  $-29.96$ ,  $p < 0.05$ ). However, the results show that ACC has an insignificant and negative moderating effect between OC and ROA in the case of UAE (coefficient =  $-58.49$ ,  $p > 0.10$ ). This indicates that in Oman, ACC plays a significant positive role between financial performance and MO; however, this role is negative in the case of OC, but the role of ACC does not moderate the relationship between OC and MO on the one hand and financial performance on the other in the UAE.

As far as the impact of FO on ROA is concerned, the results revealed that FO has a significant positive impact on ROA in the case of Oman (coefficient =  $23.02$ ,  $p < 0.01$ ) and the overall sample (coefficient =  $2.989$ ,  $p < 0.01$ ) however, it has an insignificant impact on ROA in the context of the UAE (coefficient =  $3.559$ ,  $p > 0.10$ ). Importantly, the results show that ACC does not moderate the relationship between FO and ROA in all cases. Further, the results reveal that ACC has a negative moderating effect between FO and ROA in all cases (Oman: coefficient =  $-21.69$ ,  $p > 0.10$ ; UAE: coefficient =  $-6.448$ ,  $p > 0.10$ ; and overall coefficient =  $-0.887$ ,  $p > 0.10$ ).

**Table 8. The Moderating Effect of Audit Committee**

Variables	ROA Model			ROE Model			TQ Model		
	Oman	UAE	All	Oman	UAE	All	Oman	UAE	All
<b>C</b>	-11.90***	-24.95**	-7.159***	-3.925***	-46.43***	0.99***	-0.47***	-2.046***	0.586**
<b>MO</b>	-12.58***	-0.273**	-0.505***	-4.45**	0.0357*	-0.512	2.071*	0.0234***	0.0178***
<b>ACC</b>	22.51**	47.55**	16.06*	27.52*	86.91**	19.28*	2.669**	3.389*	0.752**
<b>MO*ACC</b>	10.32**	0.319	0.500	20.92*	0.0435*	0.554*	3.178**	-0.0194**	0.0201**
<b>OC</b>	35.25**	50.39***	23.35**	-32.66	102.0**	25.25	-2.769**	-3.621*	-0.00609
<b>OC*ACC</b>	-46.08*	-58.49	-29.96**	-35.97	-123.2*	-36.69	-5.157*	-3.622	-0.177
<b>FO</b>	23.02***	3.559	2.989***	44.40***	-5.141	1.506**	1.287**	-2.287***	0.522***
<b>FO*ACC</b>	-21.69	-6.448	-0.887	-49.88**	3.076	-0.51*	0.688*	-2.519**	1.087**
<b>LEV</b>	0.0932	-0.276*	-0.142**	0.252**	-0.612**	-0.114*	-0.0219	-0.0169*	-0.00482*
<b>LEV*ACC</b>	-0.16	0.298	0.124	0.0633**	0.674*	0.23**	-0.0346	-0.016	-0.039
<b>FSIZE</b>	0.612***	2.192**	1.827**	-1.623	2.44*	0.98*	-0.327*	0.245	0.193
<b>FSIZE*ACC</b>	0.453***	-2.683**	-0.763**	1.91	-3.059*	0.0262	0.426*	-0.196**	-0.212*
<b>AT</b>	6.559**	0.117*	1.977**	7.414	16.82*	0.26**	0.362	3.488**	0.121
<b>AT*ACC</b>	7.1***	9.203**	2.016**	-6.144	-33.68**	-9.751**	0.417**	3.084*	0.188**
R-squared	0.24	0.228	0.187	0.38	0.142	0.183	0.35	0.242	0.137

Note: This table provides panel data analysis for the moderating effect of ACC between MO, OC, FO, LEV, FSIZE, and AT from one side and ROA, ROE, TQ from the other. The regression model for estimating the moderation effect is:

$$\text{Financial Performance (ROA, ROE, TQ)}_{it} = \alpha + \beta_1 \text{MO}_{it} + \beta_2 \text{ACC}_{it} + \beta_3 \text{OC}_{it} + \beta_4 \text{FO}_{it} + \beta_5 \text{LEV}_{it} + \beta_6 \text{FSIZE}_{it} + \beta_7 \text{AT}_{it} + \beta_8 (\text{MO} \times \text{ACC})_{it} + \beta_9 (\text{OC} \times \text{ACC})_{it} + \beta_{10} (\text{FO} \times \text{ACC})_{it} + \beta_{11} (\text{LEV} \times \text{ACC})_{it} + \beta_{12} (\text{FSIZE} \times \text{ACC})_{it} + \beta_{13} (\text{AT} \times \text{ACC})_{it} + \epsilon_{it}$$

See Table 1 for variables' definition. Significance levels are two-tailed p-values. \*\*\* p<0.01, \*\* p<0.05, \* p<0.1.

With regards to firm-specific variables; LEV and FSIZE, the findings indicate that LEV has a negative significant effect on ROA in the case of the UAE (coefficient =  $-0.276$ ,  $p < 0.10$ ) and the overall sample (coefficient =  $-0.142$ ,  $p < 0.05$ ), but no significant effect is observed in the case of Oman (coefficient =  $-0.093$ ,  $p > 0.10$ ). In the same context, ACC exhibits an insignificant moderating effect between LEV and ROA in all cases ( $p > 0.10$ ). In addition, the results show that FSIZE has a significant positive effect impacts on ROA in all cases (Oman: coefficient =  $0.612$ ,  $p < 0.01$ ; UAE: coefficient =  $2.192$ ,  $p < 0.05$ ; and overall coefficient =  $1.827$ ,  $p < 0.05$ ). Along the same line, the results reveal that ACC moderates the relationship between FSIZE and ROA in the case of Oman (coefficient =  $0.435$ ,  $p < 0.01$ ) however, this moderating effect is significant but negative in the UAE (coefficient =  $-2.683$ ,  $p < 0.05$ ) and the overall sample (coefficient =  $-0.763$ ,  $p < 0.05$ ). Finally, the results show that AT has a significant positive impact on ROA in all cases (Oman: coefficient =  $6.559$ ,  $p < 0.05$ ; UAE: coefficient =  $0.117$ ,  $p < 0.10$ ; and overall coefficient =  $1.977$ ,  $p < 0.05$ ). Moreover, the results show that ACC has a significant and positive moderating effect between AT and ROA in the both countries; Oman (coefficient =  $7.1$ ,  $p < 0.01$ ) and the UAE (coefficient =  $9.203$ ,  $p < 0.05$ ) and the overall sample (coefficient =  $2.016$ ,  $p < 0.05$ ). Concerning the moderating role of ACC between the independent variables and the financial performance measured by ROE, the results show that ACC has a significant moderating effect in the case of MO (coefficient =  $20.92$ ,  $p < 0.10$ ) and FO (coefficient =  $-49.88$ ,  $p < 0.05$ ), but it has an insignificant effect in OC (coefficient =  $32.66$ ,  $p > 0.10$ ) in Oman. This effect is negative in the case of OC and FO, indicating that AC has better performance related to MO, but its role in the case of OC and FO is negative. However, the interaction moderating role of ACC in the UAE exhibits a significant positive effect in the case of MO (coefficient =  $20.92$ ,  $p < 0.10$ ) and a negative significant impact in OC (coefficient =  $-123.2$ ,  $p < 0.10$ ), but an insignificant role in OF (coefficient =  $3.76$ ,  $p > 0.10$ ). Overall, AC exhibits a significant positive moderating effect between ROE and MO (coefficient =  $0.554$ ,  $p < 0.10$ ), a negative interaction in the case of FO (coefficient =  $-0.51$ ,  $p < 0.10$ ) however, no impact is observed in the case of OC (coefficient =  $-36.69$ ,  $p > 0.10$ ). Further, the results indicate that ACC positively enhances the relationship between ROE and LEV in all cases. This is not the case in FSIZE, where ACC shows a significant negative interaction role in the case of the UAE (coefficient =  $-3.059$ ,  $p < 0.10$ ) and an insignificant interaction role in Oman and the overall sample. Moreover, the results reveal that ACC has a negative moderating role between AT and ROA in all cases. This interaction role is statistically significant in the case of the UAE (coefficient =  $-33.68$ ,  $p < 0.05$ ) and the overall sample (coefficient =  $-9.75$ ,  $p < 0.05$ ) but it is insignificant in the case of Oman.

The results indicate that the moderating effect of ACC between TQ and MO is significant and positive in all cases (Oman: coefficient =  $3.178$ ,  $p < 0.05$ ; overall: coefficient =  $0.021$ ,  $p < 0.05$ ) except for the UAE which has a negative effect (coefficient =  $-0.0194$ ,  $p < 0.05$ ). The results also exhibit a similar effect in the case of FO (Oman: coefficient =  $0.688$ ,  $p < 0.10$ ; the UAE: coefficient =  $-2.519$ ,  $p < 0.05$ ; overall: coefficient =  $1.087$ ,  $p < 0.05$ ). However, ACC shows an insignificant and negative moderating role in all cases concerning OC. Further, the results indicate that ACC negatively weakens the relationship between TQ and LEV, but this relationship is insignificant in all cases. Furthermore, the results find that ACC strengthens the relationship between FSIZE and TQ in Oman (coefficient =  $0.426$ ,  $p < 0.10$ ), but it weakens this relationship in the case of the UAE (coefficient =  $-1.96$ ,  $p < 0.05$ ) and the overall sample (coefficient =  $-212$ ,  $p < 0.10$ ). ACC strengthens the relationship between TQ and AT as it has a statistically significant positive moderating effect in all cases.

Overall, the findings of interaction effect analysis revealed that the effects of managerial ownership, ownership concentration, and family ownership on FP are more positive under conditions of the audit committee. This supports our hypotheses H4a, H4b and H4c. The findings are consistent with Al-Matari and Mgamal (2019) and Isa and Musa (2018).

**Table 9. Endogeneity Test**

Variables	2SLS		
	ROA	ROE	TQ
C/C/Lag DV	13.25***	15.62***	0.422***
MO	-0.00453***	0.0903*	0.00803***
OC	2.932	0.836**	-0.821*
FO	2.116***	-2.711	0.370***
LEV	-0.00628**	-0.0438***	0.00614***
FSIZE	3.829***	3.126	-0.422
AT	8.108***	-4.999	1.128*
R-squared	0.149	0.368	0.125

#### 4.6. Additional analysis

##### 4.6.1. Endogeneity (two stage least square analysis)

Nadarajah et al. (2018) assume that there may be problems with endogeneity with corporate governance variables and leverage. Also, Guest (2008) asserts that endogeneity problems can happen when corporate governance variables affect firm-specific indicators and when both corporate governance variables and firm-specific indicators are studied together in a way that doesn't show how they affect each other. Hence, we address the possible endogeneity issues arising from the relationship between corporate governance variables and firms' specific variables using two-stage least squares. Several studies address endogeneity problems by conducting a 2SLS model (e.g., Al-Qadasi et al., 2019; Stewart & Cairney, 2019). Further, Lennox et al. (2012) described the steps for conducting 2SLS which we also followed (Stewart & Cairney, 2019). We estimate the endogeneity issues using the following model:

$$FinancialPerformance_{it} = \beta_0 + \beta_1 y_{it} + \beta_2 Z_{it} + \epsilon_{it}$$

Where firms' specific variables ( $y_{it} = LEVE_{it}$ , and  $FSIZE_{it}$ ) are considered endogenous variables and corporate governance variables ( $Z_{it} = MO_{it}, OC_{it}, FO_{it}$ ) are treated as exogenous variables; however, the instrumental variables are the lagged variables of the DVs, the fitted values of the main models, and audit committee characteristics (ACC). Where  $y_{it} = \pi_0 + \pi_1 Z_{it} + v_{it}$ .

The results of the two-stage least square in table 9 exhibit similar to those of the ROA model in Table 5. In both cases, the results show that MO and LEV significantly negatively impact ROA. Further, the results show that FO, FSIZE, and AT are associated positively and significantly with ROA; however, no significant effect is observed in the case of OC. This indicates a consistent finding of the mean analysis of 2SLS and the main result presented in Table 5.

Regarding the ROE model, the results show that the main findings of ROE have slightly changed compared to the results of the 2SLS model. The results of MO and OC changed to be statistically significant, and FO has changed to be insignificant in the 2SLS model. This could be due to endogeneity issues in the relationship between corporate governance and firm-specific variables. Concerning the TQ model, the results of the 2SLS model exhibit similar results to the primary model except for OC and AT, which turned out to be statistically significant in the 2SLS model.

##### 4.6.2. Testing of sample selection bias (Heckman Test)

Westman (2009) studied corporate governance issues in European banks. The study addressed several tests for sample selection bias. Westman (2009) cited Demsetz and Villalonga (2001), who argue that due to access to insider information and performance-based compensation, historical profitability is expected to influence the current OS. Accordingly, we follow Westman (2009) by including both the previous year's OS ( $OwnershipStructure_{it-1}$ ) and size ( $FSIZE_{it-1}$ ) in the initial

stage of Heckman’s test. Westman (2009) argues that Himmelberg et al. (1999) estimated managerial discretion proxied by several variables, including company size.

$$FinancialPerformance(ROA, ROE, TQ)_{it} = \alpha + \beta_1 MO_{it-1} + \beta_2 OC_{it-1} + \beta_3 FO_{it-1} + \beta_4 LEV_{it} + \beta_5 FSIZE_{it-1} + \beta_6 FSIZE_{it} + \beta_7 AT_{it} + \beta_8 ACC_{it} + it$$

Table 10 presents the regression results of Heckman’s two-stage treatment to control for potential self-selection bias. To control for self-selection bias, we follow Kim et al. (2013) by obtaining the fitted value of ROA, ROE, and TQ from the leading models above and then using it as an instrumental variable. In the next step also, we follow Westman (2009) by including two groups based on a categorical variable. CD is used to distinguish between the two countries. Westman (2009) specified the estimation using the legal rights index since OS is likely to vary across nations with diverse legal systems. Moreover, Westman (2009) used the lagged management and board ownership variables in the model specification.

$$FinancialPerformance(ROA, ROE, TQ)_{it} = \alpha + \beta_1 MO_{it-1} + \beta_2 OC_{it-1} + \beta_3 FO_{it-1} + \beta_4 LEV_{it} + \beta_5 FSIZE_{it-1} + \beta_6 FSIZE_{it} + \beta_7 AT_{it} + \beta_8 ACC_{it} + \beta_9 CD_{it} + it$$

In most steps, the results show consistent and robust findings with the main models. When sample selection bias results are taken into account in assessing the influence of management ownership on profitability, the overall finding is that there is a negative effect of MO on ROE. However, this negative effect is insignificant in the sample selection bias test. Further, the results reveal that OC has a significant and positive effect on ROA; this effect was insignificant in the 2SLS specification. OC exhibits a negative influence on ROE, while it has a positive effect in the 2SLS model. Finally, LEV changed to have a positive effect on ROE. This could be due to FSIZE, where large firms possibly have less MO. In addition, audit committee characteristics that vary from Oman to the UAE may influence MO (Westman, 2009). Overall, the results of sample selection bias are in line with prior results’ estimations.

#### 4.6.3. Generalized method of moments (GMM)

Nadarajah et al. (2018) suggest that finding the causal effects between leverage and corporate governance is impossible. In our study, we address these problems by employing the generalized method of moments suggested by Arellano and Bover (1995). They used a two-step system, GMM,

Table 10. Heckman Test						
Variables	1 <sup>st</sup> Step Heckman Test			2 <sup>nd</sup> Step Heckman Test		
	ROA	ROE	TQ	ROA	ROE	TQ
C	3.487***	11.207***	0.820***	5.876***	18.19***	1.196***
MO <sub>it-1</sub>	-0.278***	-0.456	0.215**	-0.0751***	-0.00354	0.00134**
OC <sub>it-1</sub>	0.698*	-1.325**	-0.879**	1.415*	-1.017**	-0.134**
FO <sub>it-1</sub>	1.344***	1.270	0.121***	2.336***	1.944	0.275***
LEV	-0.875**	0.389*	0.456***	-0.0421**	0.0734*	0.00766***
FSIZE <sub>it-1</sub>	1.870***	0.583	0.870	1.017***	0.324	0.0281
AT	-1.451**	-1.579*	0.927**	-2.286**	-3.580*	0.11**
CD				-2.498***	-6.583***	-0.212**
ACC	0.825***	-1.020*	0.421***	1.126***	-1.311	0.270**
Mill’s Lambda	0.413***	0.321***	0.390***	0.214***	0.451***	0.281***
	(0.075)	(0.051)	(0.043)	(0.043)	(0.103)	(0.211)
R-squared	0.231	0.192	0.202	0.282	0.234	0.240

**Table 11. Generalized Method of Moments (GMM)**

Variables	GMM		
	ROA	ROE	TQ
LagDV	0.482***	0.447***	0.542***
MO	-0.0044***	-0.00943	0.00492**
OC	2.715	6.24**	-0.418*
FO	6.017***	15.46*	1.454**
LEV	-0.0276***	0.0138***	-0.00663***
FSIZE	4.657***	4.769*	-0.122
AT	-3.328***	-3.326*	0.036**
AR1	0.24	0.32	0.19
AR2	0.18	0.23	0.11
Sargan test	68.38***	84.22***	79.10***

to tackle the endogeneity issues. We use GMM to estimate the outcome consistency across the models presented in the earlier steps.

$$FinancialPerformance(ROA, ROE, TQ)_{it} = \beta_0 + \beta_1 FinancialPerformance(ROA, ROE, TQ)_{it} + \sum_{j=1}^3 \delta_j X_{it} + \sum_{k=1}^3 \theta_k Y_t + \eta_i + \mu_t + \varepsilon_{it} \quad (4)$$

Where  $X_{it}$  represents the vector of the OS (MO, OC and FO),  $Y_t$  is the vector of firm-specific variables (LEV and LFSIZE) and audit type and  $i, t$  and  $\varepsilon_{it}$  measure the individual effect, the temporal effect, and the stochastic error, respectively.

$$\sum_{j=1}^3 \delta_j X_{it} = \delta_1 MO_{it} + \delta_2 OC_{it} + \delta_3 FO_{it} \quad (5)$$

And

$$\sum_{k=1}^3 \theta_k Y_t = \theta_1 LEV_{it} + \theta_2 FSIZE_{it} + \theta_3 AT_{it} \quad (6)$$

The results in Table 11 show GMM outcomes estimation. Across the three models conducted, the results are consistent with prior estimations of the leading models. The results in ROA and TQ models exhibit consistent and robust findings with 2SLS. However, in the ROE model, the results show some differences compared to the 2SLS model. MO changed to be insignificant and negative. FO and LEV changed to have a positive effect. Further, both FSIZE and AT have a significant positive effect in the case of GMM estimation.

## 5. Conclusion and policy implications

This study utilized panel data to investigate the correlation and association between OS and financial performance. The research sample consisted of 40 publicly traded non-financial companies from the Oman and UAE stock markets, covering the period from 2012 to 2021. The study employed a panel data regression approach to analyze the data. The findings indicate that family ownership has a positive and significant impact on the firm's performance, as measured by ROA, ROE, and TQ, suggesting that family ownership enhances the company's value. On the other hand, there is no significant effect between ownership concentration and FP, as measured by ROA, ROE, and TQ.

In contrast, the overall model shows a negative but insignificant relationship between managerial ownership and ROE and a positive but significant with ROA. Collective model results demonstrate a substantial relationship between LEV and ROE and a positive and statistically significant association between firm size and ROA. There is a negative and statistically significant association between ROA and leverage. As far as the comparison between Oman and the UAE is concerned, the results indicate that managerial ownership, ownership concentration, and family ownership

have a superior influence on FP in the case of Oman than in the UAE. These results may be attributed to the 2002 Omani law prohibiting any individual from owning more than 25 per cent of the shares in a joint-stock firm whose shares are offered for public subscription. Moreover, Oman likely benefits from the early introduction of corporate governance norms in 2002 and the opening to the forces of competition and globalization, in contrast to the UAE, which did not begin until 2009 due to a series of unanticipated events in the commercial arena. This study also found that the moderating effect of the audit committee has a higher positive association between managerial ownership, ownership concentration, and family ownership on company performance in both nations.

The study finds that FP works best at levels of ownership concentration in the middle. The research backs up the idea that as ownership concentration goes up, the positive monitoring effect of concentrated ownership works well at first, but over time, negative effects like the lack of participation from minority shareholders outweigh the positive effects. The study's results shed light on the role of OS in how well a company does, and they can help policymakers in emerging economies, like those in the GCC, improve corporate governance. This research also adds to the literature about the relationship between OS and FP in important ways. First, it helps people learn more about how OS works in emerging markets, with a focus on Oman and UAE firms, where family and royal ownership play a major role in OS. Second, this study adds to what we already know by looking at the relationship between OS and financial performance from 2012 to 2021. In the study, both accounting-based metrics and market-based metrics are used to measure financial performance. Third, the study looks into characteristics of OS, such as ownership by managers, concentration, and ownership by families. Fourth, this study gives new information about how OS works in Oman and UAE by looking at how OS affects FP for non-financial firms that are listed on the stock market. Also, the type of audit has been considered when looking at the link between OS characteristics and FP. The research shows that ownership indicators have a big effect on market-based measures, which is a big deal.

Our results point to the need for shareholders and other key firms' stakeholders to strengthen corporate governance practices and to take effective steps to create fair, independent boards and increase the scope of board oversight (by raising the number of external board members). By so doing, the process of decision-making related to upholding corporate governance principles and practices will mitigate inherent existential and operational risks. It also suggests additional research opportunities that explore the different aspects of corporate OS in the GCC region. While we limited our sample to non-financial firms, future research could focus on firms in the financial sector in these countries, particularly as it relates to Islamic banks.

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#### Correction

This article has been corrected with minor changes. These changes do not impact the academic content of the article.

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#### Notes

1. The Gulf Cooperation Council (GCC) is a regional and intergovernmental group established in 1981. Member countries included Bahrain, Kuwait, Oman, Qatar, Saudi Arabia and UAE, all Arab monarchies. Since its creation, the GCC's membership has not expanded.
2. <sup>1</sup>Argaam official website is available at <https://www.argaam.com/en>.

#### Disclosure statement

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