

# Government ownership as a moderator between earnings management and firm performance: Insights from GCC countries

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**Abstract:** The study's objectives are to investigate the relationships between earnings management, government ownership, and corporate performance in the Gulf Cooperation Council (GCC) region during the period 2017–2021, utilizing a dataset comprising 188 companies. It further explores the moderating role of government ownership in the association between earnings management and company performance. The study used the panel regression data analysis to investigate the relationship between the variables under the study. Employing linear regression and moderated linear regression, the research discerns notable patterns. The result shows a positive effect emerges between government ownership and corporate performance. Conversely, the result shows a negative association is observed between earnings management and corporate performance. Finally, the moderating role of government ownership in GCC countries is a good governance mechanism to mitigate the agency problem.

**Keywords:** government ownership; earnings management; firm performance; GCC

## 1. Introduction

The ownership structures observed in publicly listed companies have profound implications in finance and accounting as well as companies' performance (Arslan et al., 2021; Bansal and Singh, 2022; Georgakopoulos et al., 2022). These ownership arrangements are often complex, with distinct goals. Government ownership of listed enterprises is noteworthy because, unlike institutional ownership, which is primarily driven by the desire to maximize profits, it is usually concentrated on the achievement of political and socio-economic objectives (Cuervo-Cazurra et al., 2023; Szarzec et al., 2021; Thomsen and Pedersen, 2000). Given the government's reputation for giving these companies both official assistance and important political connections, many publicly traded corporations choose government ownership as their top shareholder to have greater control and influence over their performance (Aguilera et al., 2021; DesJardine et al., 2023; Yu, 2013). Government ownership of businesses is acknowledged in the Gulf Cooperation Council (GCC) region as a crucial practice as it is believed to enhance projected financial performance goals and mitigate any potential agency problem. However, in contrast to alternative ownership structures, several studies on the relationship between government ownership and financial performance have consistently shown that government ownership could contribute towards poor financial performance (Alfaraih et al., 2012; Boulanouar et al., 2021; Laporek et al., 2021). While government ownership may have moderating effects on the relationship between earnings management and business success, these studies

primarily focus on the direct correlation between government ownership and financial performance.

In this regard, the practice of managerial actions that are reflected in a company's financial performance is known as earnings management (EM). EM is also defined by Healy and Walden (1999) as the alteration of a company's stated economic performance by insiders to deceive certain stakeholders or influence contractual outcomes which is also supported by Verma (2012). These actions can be taken to present a smooth periodic or annual earnings picture, to highlight high annual profits at the "expense" of lowering future reported earnings, or to highlight low annual profits in order to potentially increase future years' reported profits. Management frequently conveys confidential information to stakeholders in financial reports by using a variety of accounting techniques. Stakeholders may be misled about a company's genuine financial performance by these earnings. It is critical to comprehend EM since managers can influence net income through current assets, and net income is a key component of business performance (such as Tobin's Q). EM is carried out by altering the total accruals and discretionary accruals and entails the use of unusual approaches. Earnings manipulation is linked to accruals, according to (Richardson et al., 2006).

In this regard, several studies supported the negative association between EM and companies' performance (Al-Shattarat et al., 2022; Chakroun et al., 2022; Gonçalves et al., 2021). In terms of government ownership, mixed results have been documented; a negative relationship between government ownership and firm performance (Abramov et al., 2017; Aguilera et al., 2021; Alfaraih et al., 2012; Boulanouar et al., 2021; Chu, 2012; Cooper et al., 2008; Fama and French, 2006; Fairfield et al., 2003; Laporek et al., 2021; Liu, 2018; Sloan, 1996; Yu, 2013), a positive relationship between government ownership and firm performance (Din et al., 2022; Laporšek et al., 2021; Loch et al., 2020; Muthoni and Nasieku, 2018; Wang and Shailer, 2018). Most studies demonstrate that government-owned businesses are not as profitable as private ones (Aranda et al., 2014; Abramov et al., 2017). Their presence in listed companies may result in lower financial performance because they prioritize social welfare and political goals over profitability (Laporšek et al., 2021; Muthoni and Nasieku, 2018; Wang and Shailer, 2018).

In the Arab region, there are several studies on ownership structures and its effect on different aspects (Al-Janadi, 2021; Abughniem et al., 2021; Al-Smadi et al., 2014; Al-Smady et al., 2014; Alsmady, 2018; Boshnak, 2023; Tawfik et al., 2022). Alsmady (2018), found that ownership types affect the timeliness of financial reports. On the other hand, the royal ownership effect positively on Jordanian privatized firms and GCC countries' companies' performance (Al-Smadi et al., 2014; Tawfik et al., 2022). Furthermore, the performance of publicly traded and specialty industry enterprises in the Jordanian market is positively impacted by government ownership (Abughniem et al., 2021; Al-Smady et al., 2014). The authors suggested that government ownership may help reduce the issue of manipulating earnings and benefit these GCC companies.

In summary, most of the abovementioned studies have examined the relationship between earnings management and firm performance or ownership structure and firm performance. Despite these contributions, a significant research gap exists as these studies have predominantly addressed the direct effects between earnings management

or ownership structure on firm performance either in specific middle east countries or in the GCC. Thus, this study intends to add to the literature by investigating the abovementioned relationship amongst GCC countries and more importantly examine the moderating effects of government ownership on the relationship between earnings management and firm performance. This has not been sufficiently addressed as government ownership may potentially impact the relationship due to the differences in regulatory environments, economic conditions, and corporate governance practices across the GCC countries. Understanding the impacts and consequences of the relationship is important as government ownership is a discernable feature in the GCC countries' business environment. Government ownership in the GCC countries could affect firm performance depending on the level of government intervention, industry and the governance structures in these GCC countries. Balancing the advantages of government support with the need for efficiency and competitiveness is crucial for optimizing firm performance in this context. Therefore, by analyzing the relationship from a GCC multi-country perspective, this study is expected to provide a holistic view of the role of government ownership in firms performance and the moderating role of government ownership on the relationship between earnings management and firm performance across all GCC countries. The findings should contribute to policy implications in terms of appropriate corporate governance framework via tailored guidelines on transparency and accountability. This is utmost necessary as most GCC countries have peculiar government involvement in businesses. Such policies and guidelines could help balance government oversight with managerial autonomy, boosting investor confidence and attracting foreign investment. The insights can apprise policy revisions, benchmark practices internationally, and support sustainable economic growth. Effective governance frameworks, informed by this research, ensure government-owned firms contribute positively to national economic goals while managing diverse stakeholder interests.

The remainder of the paper is structured as follows: Section 2 develops the hypotheses while Section 3 presents the variables and data. Section 4 presents the findings, and Section 5 wraps up the investigation.

## **2. Theoretical framework and hypothesis development**

Several theories have provided a robust framework to analyze the complex interactions between government ownership, earnings management, and firm performance in the GCC context, allowing for a deeper understanding of the underlying mechanisms and implications. Agency theory addresses the conflicts of interest between principals (owners) and agents (managers) (Jensen and Meckling, 1976). To reduce agency issues, proponents of agency theory proposed a variety of internal and external control mechanisms (Jensen and Meckling, 1976), as the partnership between the agent and the company owner (principal), with the agent receiving decision-making authority. In the context of government ownership, the government acts as a principal, and the firm's management acts as agents. Government ownership could minimize agency costs via improved monitoring and control, possibly reducing earnings management practices. The oversight of shareholders, particularly those with larger capital shares in the company, is one of the external

control mechanisms (Grossman and Hart, 1983). Institutional theory can also explain variations in practices across different GCC countries due to differing regulatory environments. Government ownership in GCC countries could impose stricter regulatory and institutional controls, thus mitigating earnings management and its eventual impact on firm performance. Another prominent theory widely used in this context is the Stakeholder Theory. The theory posits that stakeholder's value maximization should be a priority to all businesses. Thus, government ownership could work favorably to align firms' goals with the wider stakeholders' interest and effectively influence any effects of earnings management and its adverse impact on performance.

## **2.1. Relationship between government ownership and companies' performance**

Several studies have examined the relationship between corporate ownership, government ownership, corporate governance, corporate performance (Omer and Aljaidi, 2019; Rathnayake and Sun, 2017). Hassan Bazhair and Naif Alshareef (2022) investigated the dynamic relationship between ownership structure and financial performance (FP) of Saudi non-financial listed firms from 2010 to 2019. The results indicate that government and family ownership have a positive effect on FP for businesses. The results confirm that governments will typically take the necessary steps to prevent any situations that could lead to their investment companies performing below par compared to the impact of foreign ownership (Mamatzakakis and Xu, 2021). On the other hand, research has also shown a negative correlation between government ownership and business performance (Alfaraih et al., 2012; Boulanouar et al., 2021; Laporek et al., 2021; Zeitun, 2009). Musallam (2015), investigated the association between state ownership and foreign ownership on business success. The results show that state ownership has a negative relationship with corporate performance while foreign ownership has a positive relationship. Abdallah and Ismail (2017) discovered a U-shaped association between state ownership and corporate performance, with similar results found by Ngilisho et al. (2022). These results support the claims made by institutional and agency theory, and that ownership structure is a crucial governance tool that affects organizational outcomes. To promote corporate governance and boost financial performance, regulatory bodies in the GCC region ought to design policies and regulations that ensure a balanced shareholdings. Based on the above discussion, the proposed hypotheses are as follows:

H<sub>1</sub>: There is a significant relationship between government ownership and companies' performance.

## **2.2. Relationship between earnings management and companies' performance**

Research on the relationship between earnings management and firm performance has gained significant traction in recent times (Al-Shattarat, 2021; Eissa, 2023). Earnings management refers to the manipulation of financial statements by firms to showcase a preferred financial image to all stakeholders. According to

Tabassum et al. (2015), managers alter a company's earnings through actual operations, via manipulation of sales. The purpose is to report greater earnings through real earnings management and effectively demonstrate strong financial performance in the short-term, but it could hurt future FP. This is further supported by Ahmad-Zaluki et al. (2011), who documents that firms engaging in aggressive earnings management eventually experience underperformance. In a similar vein, Chiraz and Anis (2013) discovered an association between post- IPOs' underperformance and aggressive earnings management. According to Gill et al. (2013), the more severe the earnings management undertaken by firms, the worse it will be for the company's rate of return on assets the following year. De Jong et al. (2014) documents that CFOs opine that controlling earnings can improve investors' opinions of the firm's worth, but doing so will eventually have an adverse impact on performance. Mahrani and Soewarno (2018), demonstrated that both the good governance mechanism (GCG) and corporate social responsibility (CSR) mechanisms and the impact of CSR on financial performance are positively correlated, with partial earnings management mediating the effect of GCG mechanisms on financial performance and full earnings management mediating the effect of CSR on financial performance. Nevertheless, Okafor et al. (2018) conjectured that corporate company performance in the Nigerian consumer goods market is not significantly impacted by earnings management. The impact of actual activity earnings management on the performance of energy-listed companies in Vietnam's stock market between 2010 and 2016 was examined by Khuong et al. (2019) and proved detrimental in the long run. In an emerging market, Hernawati et al. (2021), examined the effects of related party transactions (RPTs) and earnings management (EM) on corporate financial performance. They discovered a negative correlation between earnings management and firm performance in the subsequent periods. Zimon et al. (2021) and Gajdosikova et al. (2022) reported similar results. In light of the conversation above, the following hypotheses were investigated:

H<sub>2</sub>: There is a significant relationship between earnings management and companies' performance.

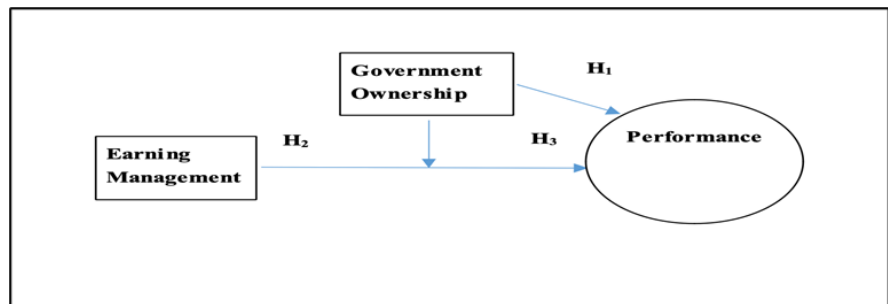
### **2.3. Moderation effects of government ownership on earnings management and firm performance**

Minimal research has been undertaken to examine the moderating role of government ownership on earnings management and firm performance. Most companies have government ownership mainly via state holding a significant share in a firm, and this sort of ownership could influence the extent and impact of earnings management on performance. Al-Janadi et al. (2016), examined the importance of agency theory and the presence of government ownership on the effectiveness of corporate performance and the reduction in earnings management. A positive relationship is documented. Government ownership often brings about increased control, scrutiny and regulation, theoretically limiting unprincipled and devious earnings management. Hamdan (2017), investigated the moderating role of accounting conservatism on the relationship between ownership structure and performance of Gulf Cooperation Council (GCC) firms and found that accounting conservatism directly affects corporate performance and reduces earnings management. State-

owned enterprises (SOEs) are characteristically subject to severe supervision and transparency constraints, which could prevent firms from being overly involved in hostile earnings management. Furthermore, government stakeholders might prioritize socio-economic objectives over short-term financial gains, reducing the incentive for earnings management to present inflated performance metrics. Khuong et al. (2022), further studied the relationship between corporate performance and continuity, its relationship with profit management, and the mediating effects of government ownership. The results concluded that the management of profits increases the performance of companies in the short term, while government intervention improves the performance of companies and reduces the management of profits because of the governing laws. In conclusion, government ownership plays a complex role in moderating the relationship between earnings management and performance. While it can provide checks against earnings manipulation, it can also introduce alternative motivations for such practices, highlighting the importance of contextual factors in understanding this dynamic.

H<sub>3</sub>: Government ownership affects the relationship between earnings management and performance.

Therefore, the following **Figure 1**. is a theoretical framework that summarizes the previous argument.



**Figure 1.** Theoretical framework.

Source: Authors.

### 3. Data and methodology

The data used in this study is cross-country data obtained from companies listed on websites and the “Gulf Base” database in the GCC countries. The sample covers Kuwait, the United Arab Emirates, Bahrain, Oman, Qatar, and Saudi Arabia. The total data observation is 1316 years of 188 firms over the 2017 to 2021 period. This period was chosen for several reasons. The study data was collected in 2022, and the study was finished in 2023. Moreover, the World Health Organization announced that COVID-19 started in GCC countries at the end of 2020, and the economic effect of the pandemic on companies’ performance appears after 2021. Thus, the study doesn’t account for the post-period, which will significantly affect the results and company performance. The time frame of 2017 to 2021 was selected due to a persistent downward trend in firms’ stability brought on by weak macroeconomic factors like labor market imbalances, political unpredictability, difficulties achieving suitable structural reform, and concerns with youth unemployment. The exclusion of banks and insurance organizations was due to the varying restrictions in their individual

countries. The data sample did not include suspended corporations or companies with inadequate information on the stock markets of these countries.

The final data samples used in this investigation are shown in **Table 1**. **Table 1** presents the percentage of 188 companies, arranged from highest to lowest. Kuwait 5%, Bahrain 5%, Qatar 7%, Oman 34%, the United Arab Emirates 13%, and Saudi Arabia 36%. These percentages from the corresponding countries have been determined based on the availability of the basic variables in the “Gulf Base” database and on business websites.

**Table 1.** Industry classification of GCC countries 2017–2021.

| Over Seven Years |              |      |     |       |        |         |             |          |      |       |
|------------------|--------------|------|-----|-------|--------|---------|-------------|----------|------|-------|
| Sector           | Saudi Arabia | Oman | UAE | Qatar | Kuwait | Bahrain | Total Comp. | Sectors% | Obs. | Obs.% |
| Consumer Dis     | 13           | 10   | 3   | 0     | 1      | 4       | 31          | 16%      | 217  | 16%   |
| Health care      | 2            | 2    | 2   | 1     | 0      | 0       | 7           | 4%       | 49   | 4%    |
| Real Estate      | 9            | 13   | 9   | 4     | 3      | 1       | 39          | 21%      | 273  | 21%   |
| Telecom          | 3            | 1    | 2   | 1     | 0      | 1       | 8           | 4%       | 56   | 4%    |
| Industrial       | 0            | 1    | 0   | 0     | 1      | 0       | 2           | 1%       | 14   | 1%    |
| Basic Materials  | 25           | 12   | 3   | 3     | 4      | 1       | 48          | 26%      | 336  | 26%   |
| Financial        | 10           | 17   | 3   | 1     | 0      | 2       | 33          | 18%      | 231  | 18%   |
| Energy           | 4            | 4    | 1   | 3     | 0      | 0       | 12          | 6%       | 84   | 6%    |
| Techn            | 2            | 4    | 1   | 1     | 0      | 0       | 8           | 4%       | 56   | 4%    |
| Total            | 68           | 64   | 24  | 14    | 9      | 9       | 188         | 100%     | 1316 | 100%  |
|                  | 36%          | 34%  | 13% | 7%    | 5%     | 5%      |             |          |      |       |

### 3.1. Variables definitions and the study empirical models

The current study uses Model (1) to investigate the direct relationship between government ownership and earnings management on the performance of companies ( $H_1$ ,  $H_2$ ). Next, the study will use Model (2) to investigate the effects of government ownership on earnings management and company performance ( $H_3$ ). Consequently, the models for the direct and indirect relationship were developed as follows: First, using additional control variables that have been employed in previous studies, Model 1 expresses the direct association between government ownership and earnings management on company performance:

$$\Delta perf_{i,t} = \beta_0 + \beta_1 EM_{i,t} + \beta_2 GOW_{i,t} + \Delta \beta_3 Chsales_{t,t-1} + \beta_4 LEVE_{i,t} + \beta_5 Revenue_{i,t} + \beta_6 SDRevenue_{i,t} + \beta_7 Log(ASSET)_{i,t} + \epsilon_{i,t} \quad (1)$$

$\Delta perf_{i,t}$  is the company's performance, measured by total market value of the company/total assets [Tobin's Q] (Al-Ghamdi and Rhodes, 2015; Butt et al., 2021; Fallatah, 2012; Gentry and Shen, 2010; Singh et al., 2018).

$EM_{i,t}$  is the proxy for companies' earnings management. Managers exercise opportunistic behaviors in terms of the accrual process (Healy and Wahlen, 1999) which affects companies' performance. In this study, we focus on accrual earnings management. Accrual earnings management involves the manipulation of accounting entries that do not directly impact the cash flow but influence reported earnings. This type of management allows firms to alter their financial statements through

adjustments to accruals, which can misrepresent the true economic performance of the company (Dechow et al., 1998). According to De Meyere et al. (2018), the accruals can be measured more reliably using the following model, which controls heteroscedasticity by scaling all variables by the companies' year average total assets. The model used in this study is commonly used to estimate discretionary accruals, which are a component of accrual-based earnings management Dechow and Dichev Model (2002). The discretionary accruals, which are the focus of our analysis, are captured in the error term  $\epsilon_{i,t}$  after controlling for the non-discretionary components through the other variables. Most other alternative measurements required a change in receivables such as the suggested models by Dechow et al. (1995), Jones Model (1991), Kothari et al. (2005), but one of the current study limitations is the unavailability of the data for receivables for the current sample. So, the current study follows Dechow and Dichev Model (2002) model to measure accrual earnings management and discretionary accruals.

$$\Delta WC_{i,t} = \gamma_0 + \gamma_1 CFO_{i,t-1} + \gamma_2 CFO_{i,t} + \gamma_3 CFO_{i,t+1} + \gamma_4 \Delta sales_{i,t} + \gamma_5 PPE_{i,t} + \epsilon_{i,t}$$

Second, this study uses the following model to examine the moderating effects of government ownership on the relationship between earnings management and company performance, which validates H<sub>3</sub>. Consequently,  $\beta_3(EM_{i,t} * \beta_2 GOW_{i,t})$  is inserted into Model 2 in order to modify Model 1 as follows:

$$\Delta perf_{i,t} = \beta_0 + \beta_1 EM_{i,t} + \beta_2 GOW_{i,t} + \beta_3 (EM_{i,t} * \beta_2 GOW_{i,t})_{i,t} + \Delta \beta_4 Chsales_{t,t-1} + \beta_5 LEVE_{i,t} + \beta_6 Revenue_{i,t} + \beta_7 SDRevenue_{i,t} + \beta_7 \text{Log}(ASSET)_{i,t} + \epsilon_{i,t} \quad (2)$$

The symbols and measurements of each independent and dependent variable used in the above models are given in **Table 2**.

**Table 2.** Variables and measurements.

| Variable  | Symbol        | Measurement   |
|---|---------------|---|
| <b>Panel A: Dependent Variable</b>                  |               |   |
| Companies 'performance                              | $\Delta perf$ | The total market value of the company/total assets  |
| <b>Panel B: Independent and Moderator Variables</b> |               |   |
| Government Ownership                                | GOW           | the percentage of government ownership.   |
| Earnings management                                 | EM            | $\Delta WC_{i,t} = \gamma_0 + \gamma_1 CFO_{i,t-1} + \gamma_2 CFO_{i,t} + \gamma_3 CFO_{i,t+1} + \gamma_4 \Delta sales_{i,t} + \gamma_5 PPE_{i,t} + \epsilon_{i,t}$ |

Where,  $(I, t)$  = company  $I$ , year  $t$ .  
 $\Delta WC_{i,t}$  = change in non-cash working capital in year  $t$   
 $CFO_{i,t}$  = cash flow from operations in year  $t$ .  
 $\Delta sales_{i,t}$  = change in net sales in year  $t$   
 $PPE_{i,t}$  = the gross value of property, plant and equipment in year  $t$ .  
 Moreover,  $GOW_{i,t}$  = the percentage of government ownership.  
 $Chsales_{t,t-1}$  = The change in sales from  $t-1$  to  $t$ .  
 $LEVE$  = total liabilities divided by total shareholder equity to control for financial risk.  $\text{Log}(ASSET)_{i,t}$  Natural Logarithm of total assets.  
 $Revenue_{i,t}$  = revenue for firm  $i$  and year  $i,t$  calculated by  $= (REV_{i,t} - REV_{i,t-1}) / REV_{i,t-1}$ .  
 $SDRevenue_{i,t}$  = is the standard deviation of revenue.  
 $\text{Log}(ASSET)_{i,t}$  is the the natural logarithm of total assets.



**Table 2.** (Continued).

| Variable  | Symbol      | Measurement  |
|---|-------------|--|
| <b>Panel B: Independent and Moderator Variables</b> |             |  |
| <b>Control Variables:</b>                           |             |  |
| Change of sales                                     | CH_S        | The change in sales of assets from $t$ to $t - 1$  |
| Leverage  | LEV         | total liabilities divided by total shareholders' equity to control the financial risk      |
| Revenues  | Revenue     | revenue for firm and year $i, t$ calculated by $= (REV_{t,t} - REV_{t-1,t} / REV_{t-1,t})$ |
| Standard deviation of revenue                       | SDRevenue   | is the standard deviation of revenue   |
| Logarithm (total of assets)                         | Log (ASSET) | Natural Logarithm of total assets.   |

### 3.2. Results and discussion

The study's descriptive statistics are shown in **Table 3**. This result shows that Tobin's Q varies between the minimum and maximum values ( $-0.28$ ) and ( $0.32$ ) in the GCC region. These findings explain the data sample's narrow range and the acceptable range of other studies. Furthermore, the earnings management proxy (EM) displays a range between the minimum and maximum values of ( $0.086$ ) and ( $50.2$ ), and the government ownership proxy (GOW) displays a range between the minimum and maximum values of ( $0.020$ ) and ( $0.85$ ), respectively. Thus, this suggests that earnings management strategies have advantages and disadvantages. Managers' opportunistic behaviors can impact businesses and their performance when there is no control mechanism.

The control variables are added to the models to manage heterogeneity, and the outcome of government ownership in conjunction with earnings management (GOW\*EM) lagged for  $t - 1$  and  $t - 2$ , indicating the minimum and maximum values. The range of values was  $22.44$  to  $0.012$ , in that order. Therefore, revenue impacts companies' performance, both positively and negatively. Leverage (LEVE), which varies from  $-30.17$  to  $26.32$ , is a measure of financial risk that could impact the models' estimation. It is calculated by dividing the total liabilities by the total shareholders' equity. These findings align with other research in the Gulf Cooperation Council (GCC) (Alsayegh et al., 2020). The standard deviation of revenue (SDRevenue) and the natural logarithm of total assets (LOG (ASSET)) are finally explained. These figures illustrate the size of the companies (log (ASSET) as a proxy) as a range between  $1.18$  and  $11.55$ , which is comparable to the findings of Zaidan et al. (2019). The revenue standard deviation, with a minimum range value of  $0.055$  and a maximum value of  $28.76$ , may impact the company's performance.

**Table 3.** Descriptive analysis.

|        | Tobin's Q | GOW   | EM     | GOW*EM | Chsales   | LEVE      | Revenue | SDR revenue | Log(ASSET) |
|--------|-----------|-------|--------|--------|-----------|-----------|---------|-------------|------------|
| Mean   | 0.058     | 0.139 | 86.047 | 27.499 | 30.826    | 0.739     | 27.781  | 12.048      | 5.817      |
| Median | 0.050     | 0.000 | 8.195  | 0.000  | 3.900     | 0.350     | 17.400  | 19.248      | 5.856      |
| Max    | 0.328     | 0.849 | 50.244 | 22.440 | 27.400    | 26.315    | 34.900  | 28.761      | 11.548     |
| Mini   | $-0.285$  | 0.020 | 0.086  | 0.012  | $-28.800$ | $-30.171$ | 0.000   | 0.055       | 1.176      |

**Table 3.** (Continued).

|        | Tobin's Q | GOW   | EM     | GOW*EM | Chsales | LEVE   | Revenue | SDR revenue | Log(ASSET) |
|--------|-----------|-------|--------|--------|---------|--------|---------|-------------|------------|
| Std. D | 0.074     | 0.213 | 34.533 | 15.021 | 31.366  | 2.286  | 20.909  | 37.573      | 1.932      |
| Skew   | 0.183     | 1.607 | 7.633  | 8.926  | -9.342  | 1.739  | 5.002   | 8.558       | 0.159      |
| Kurto  | 4.909     | 4.462 | 30.287 | 20.055 | 14.118  | 20.082 | 29.833  | 13.421      | 2.847      |
| Obs.   | 837       | 837   | 837    | 837    | 837     | 837    | 837     | 837         | 837        |

The correlation matrix for the independent variables is shown in **Table 4**. When the independent variable correlation was less than 0.80, multicollinearity regression had no issues. Additionally, the findings indicate a negative correlation between earnings management and Tobin's Q, which is examined in more detail in the regression section.

**Table 4.** The correlation matrix with the corresponding  $p$ -values for each correlation coefficient.

| Variables  | Tobin's Q | GOW       | EM        | GOW*EM    | Chsales   | LEVE      | Revenue   | SDRevenue | Log(ASSET) |
|------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|------------|
| Tobin's Q  | 1         |           |           |           |           |           |           |           |            |
|            | 0.078     |           |           |           |           |           |           |           |            |
| GOW        | (0.025)   | 1         |           |           |           |           |           |           |            |
|            | -0.08     | 0.206     |           |           |           |           |           |           |            |
| EM         | (0.022)   | (0.001)   | 1         |           |           |           |           |           |            |
|            | -0.027    | 0.378     | 0.69      |           |           |           |           |           |            |
| GOW*EM     | (0.439)   | (< 0.001) | (< 0.001) | 1         |           |           |           |           |            |
|            | 0.048     | 0.098     | 0.03      | 0.083     |           |           |           |           |            |
| Chsales    | (0.169)   | (< 0.001) | (0.414)   | (< 0.001) | 1         |           |           |           |            |
|            | -0.149    | 0.042     | 0.079     | 0.063     | -0.044    |           |           |           |            |
| LEVE       | (< 0.001) | (0.019)   | (0.006)   | (< 0.001) | (0.081)   | 1         |           |           |            |
|            | -0.014    | 0.35      | 0.514     | 0.568     | 0.159     | 0.103     |           |           |            |
| Revenue    | (0.688)   | (< 0.001) | (< 0.001) | (< 0.001) | (< 0.001) | (< 0.001) | 1         |           |            |
|            | -0.043    | 0.194     | 0.445     | 0.381     | -0.004    | 0.129     | 0.787     |           |            |
| SDRevenue  | (0.218)   | (0.001)   | (< 0.001) | (< 0.001) | (0.016)   | (< 0.001) | (< 0.001) | 1         |            |
|            | 0.064     | 0.353     | 0.412     | 0.353     | 0.093     | 0.189     | 0.571     | 0.478     |            |
| Log(ASSET) | (0.067)   | (< 0.001) | (< 0.001) | (< 0.001) | (< 0.001) | (< 0.001) | (< 0.001) | (< 0.001) | 1          |

The figures between the parentheses are the  $p$ -values.

### 3.3. Regression analysis

The regression analysis of Model 1, which examines the direct correlation between government ownership, earnings management, and firm performance in the GCC countries, is presented in **Table 5**. Hypotheses (H<sub>1</sub>) and (H<sub>2</sub>) tested in Model 1. The model had a good fit and model accuracy with an  $R^2$  of 43%, which is similar to the results of Alsayegh et al. (2020).

Indicating the existence of a statistically significant correlation between government ownership and corporate performance at the 10% level, H<sub>1</sub> displays a positive coefficient at a level less than 10% (0.02,  $p = 0.06$ ). Companies engaged in government ownership initiatives exhibit superior performance, augmenting corporate

governance. Furthermore, when government ownership declines, the quality of the results reported to the financial markets declines, leading to a notable degree of information asymmetry and a decline in the company’s performance.

The results of the H<sub>2</sub> test, which examines the connection between earnings management and company performance, reveal a negative coefficient of less than 1% (−0.00,  $p \geq 0.00$ ). The findings show that company performance, the dependent variable, is negatively impacted by earnings management.

**Table 5.** Direct relationship (Tobin’s Q).

| Variable    | Coefficient | Std. Error        | t-Statistic | Prob.    |
|-------------|-------------|-------------------|-------------|----------|
| GOW         | 0.024       | 0.013             | 1.856       | 0.064*   |
| EM          | 0.023       | 0.000             | −2.873      | 0.004*** |
| Chsales     | 0.000       | 0.000             | 0.776       | 0.438    |
| LEVE        | −0.005      | 0.001             | −4.694      | 0.000    |
| Revenue     | 0.000       | 0.000             | −0.276      | 0.782    |
| SDRevenue   | 0.000       | 0.000             | −0.695      | 0.487    |
| Log (ASSET) | 0.006       | 0.002             | 3.340       | 0.001    |
| C           | 0.029       | 0.009             | 3.245       | 0.001    |
| R           | 0.515       | F-statistic       | 6.429       | Obs.     |
| Adj. R      | 0.435       | Prob(F-statistic) | 0.000       | 837      |

$\Delta perf_{i,t}$  is the companies performance measured by Tobin’s Q  $GOW_{i,t}$  = the percentage of government ownership. EM is proxy by  $\Delta WC_{i,t} = \gamma_0 + \gamma_1 CFO_{i,t-1} + \gamma_2 CFO_{i,t} + \gamma_3 CFO_{i,t+1} + \gamma_4 \Delta sales_{i,t} + \gamma_5 PPE_{i,t} + \epsilon_{i,t}$  Chsales<sub>t,t-1</sub> = The change in sales from to t − 1. LEVE. = total liabilities divided by total shareholders’ equity to control the financial risk.  $Log(ASSET)_{i,t}$  = Natural Logarithm of total assets. Revenue<sub>i,t</sub> =revenue for firm and year i,t calculated by =  $(REV_{i,t} - REV_{i,t-1}/REV_{i,t-1})$ .SDRevenue<sub>i,t</sub> = is the standard deviation of revenue.  $Log(ASSET)_{i,t}$  = is the natural logarithm of total assets.

### Robustness test and endogeneity

The current study used robust standard errors to ensure that our coefficient estimates are not biased due to heteroscedasticity. Also, the study Variance Inflation Factor (VIF) to test the multicollinearity among the predictors in **Table 6**. Here are the results:

**Table 6.** Heteroscedasticity Test and Variance Inflation Factor (VIF)

| Variable     | Coefficient | Robust Std. Error | t-Statistic | Prob. | VIF |
|--------------|-------------|-------------------|-------------|-------|-----|
| GOW          | 0.024       | 0.014             | 1.714       | 0.087 | 1.5 |
| EM           | −0.023      | 0.008             | −2.875      | 0.004 | 2.1 |
| Chsales      | 0.000       | 0.000             | 0.775       | 0.438 | 1.2 |
| LEVE         | −0.005      | 0.001             | −4.695      | 0.000 | 1.3 |
| Revenue      | 0.000       | 0.000             | −0.276      | 0.782 | 1.7 |
| SDRevenue    | 0.000       | 0.000             | −0.694      | 0.487 | 1.6 |
| Log (ASSET)  | 0.006       | 0.002             | 3.340       | 0.001 | 2.3 |
| Constant (C) | 0.029       | 0.010             | 3.200       | 0.001 |     |

Using robust standard errors, the results for EM, LEVE, and Log(ASSET) remain significant, while GOW is marginally significant. The significance levels are slightly adjusted due to the robust standard errors, but the overall interpretation remains consistent. Also, all VIF values are below 10, indicating that multicollinearity is not a concern in this model.

Moreover, the endogeneity occurs when a predictor variable in a regression model is correlated with the error term ( $e$ ) in the model. Several researchers argued that the ownership have an endogeneity problem and could correlated with the error ( $e$ ) which will ecet on OLS estimation results (Ali Al-smadi et al., 2014; Alsmady, 2018; Boubakri et al., 2005; Pillai and Al-Malkawi, 2018).

In this regard, the result of the Durbin-Watson test or the Breusch-Pagan test shown in **Table 7** have been tested in our regression and the result provided as follows;

**Table 7.** Durbin-Watson and Breusch-Pagan

| Test          | Statistic | P-Value | Interpretation                             |
|---------------|-----------|---------|--|
| Durbin-Watson | 1.856     | 0.064*  | No significant autocorrelation             |
| Breusch-Pagan | 6.429     | 0.000   | Reject null hypothesis of homoscedasticity |

These results are based on the coefficients and standard errors provided earlier. The Durbin-Watson test indicates that there is no significant autocorrelation, and the Breusch-Pagan test suggests rejecting the null hypothesis of homoscedasticity, indicating evidence of heteroscedasticity.

In this study, the first model has one ownership variable, namely GOW. It is argued that the potential of endogeneity may come from another omitted variable and the simultaneous relationship (inverse causality) between ownership and the value of the company. Thus, the correlation between the ownership and  $e_{it}$  (error term) will exist through *i.e.*  $(x_{it}, u_{it}) \neq 0$  (Wooldridge, 2003). Therefore, our study follows other researchers (Ali Al-smadi et al., 2014; Alsmady, 2018; Boubakri et al., 2005) to examine and validate the uncorrelation assumption *i.e.*  $(x_{it}, u_{it}) \neq 0$  as follows:

Firstly, the study runs the OLS model for GOW as the dependent variable in the first-stage equations with lagged for LEVE, Revenue and ASSET as instrumental variables, respectively, in the following equations:

$$GOW = \gamma_0 + \gamma_1 \text{lagged(LEVE)} + \gamma_2 \text{lagged(Revenue)} + \gamma_3 \text{lagged(ASSET)} + \gamma_4 EM + \gamma_5 \text{Chsales} + \gamma_6 LEVE + \gamma_7 \text{Revenue} + \gamma_8 \text{SDRevenue} + \gamma_9 \log(ASSET) + \gamma_{10} C + \mu \dots a.$$

where is  $\gamma_t$  the fixed year effect (to control or year-specific effects), to estimate the IV regression, we'll use the instrumental variables lagged for the potentially endogenous variable "GOW". Let's denote these instrumental variables as Z1 (lagged LEVE), Z2 (lagged Revenue), and Z3 (lagged ASSET).

$$GOW = \gamma_0 + \gamma_1 Z_1 + \gamma_2 Z_2 + \gamma_3 Z_3 + \gamma_4 EM + \gamma_5 \text{Chsales} + \gamma_6 LEVE + \gamma_7 \text{Revenue} + \gamma_8 \text{SDRevenue} + \gamma_9 \log(ASSET) + \gamma_{10} C + \mu \dots a.$$

Secondly, the fitted value of  $\widehat{GOW}_{it}$  without the instrumental variables was replaced in the second-stage Model 1 separately. This step examined the Wald test for the endogenous variables (*i.e.* the coefficient of fitted value of the first stage) and validated that no correlation exists between GOW and the

$e_{it}$  (error term). The results show that the  $t$ -statistic for the coefficient on the residuals from the first step regression (a.) is (1.81), respectively. The  $p$ -value of this test is clearly not significant at any level. Since the Hausman test statistic is less than the critical value at the 5% significance level, we fail to reject the null hypothesis of exogeneity. This indicates that there is no evidence of endogeneity between the predictor variable “GOW” and the  $e_{it}$  (error term) in the regression model. Thus, this test cannot reject the null hypothesis of no correlation between government ownership and the error term and validated the assumption of *i.e.*  $(x_{it}, u_{it}) = 0$ . Thus, the endogeneity problem does not exist in our OLS model. Also, the compute the Hausman test statistic using the coefficient estimates and covariance matrices obtained from both the OLS and IV regressions. The Hausman test statistic results are presented in **Table 8** below;

**Table 8.** Hausman test statistic

| Test    | Statistic | Critical Value (5%) | Conclusion                                       |
|---------|-----------|---------------------|--|
| Hausman | 1.81      | 3.84                | Fail to reject the null hypothesis of exogeneity |

### 3.4. Moderating effects of earnings management

**Table 9.** Moderating relationship (Tobin’s Q).

| Variable    | Coefficient | Std. Error         | t-Statistic | Prob.    |
|-------------|-------------|--------------------|-------------|----------|
| GOW         | 0.024       | 0.013              | 1.856       | 0.064*   |
| EM          | 0.019       | 0.000              | -2.708      | 0.007*** |
| GOW*EM      | 0.032       | 0.000              | 1.976       | 0.049**  |
| Chsales     | 0.000       | 0.000              | 1.204       | 0.229    |
| LEVE        | -0.002      | 0.001              | -2.892      | 0.004    |
| Revenue     | 0.000       | 0.000              | 0.010       | 0.992    |
| SDRevenue   | 0.000       | 0.000              | 0.130       | 0.897    |
| Log (ASSET) | -0.006      | 0.003              | -2.226      | 0.026    |
| C           | 0.089       | 0.015              | 5.893       | 0.000    |
| R           | 0.305       | Adj. R             | 0.211       | Obs.     |
| F-statistic | 3.254       | Prob (F-statistic) | 0.001       | 837      |

$\Delta\Delta perf_{i,t}$  is the companies performance measured by Tobin’s Q  $GOW_{i,t}$  = the percentage of government ownership. EM is proxy by  $\Delta WC_{i,t} = \gamma_0 + \gamma_1 CFO_{i,t-1} + \gamma_2 CFO_{i,t} + \gamma_3 CFO_{i,t+1} + \gamma_4 \Delta sales_{i,t} + \gamma_5 PPE_{i,t} + \epsilon_{i,t} Chsales_{t,t-1}$  = The change in sales from to  $t - 1$ . LEVE. = total liabilities divided by total shareholders’ equity to control the financial risk.  $Log(ASSET)_{i,t}$  = Natural Logarithm of total assets.  $Revenue_{i,t}$  =revenue for firm and year i,t calculated by =  $(REV_{i,t} - REV_{i,t-1})/REV_{i,t-1}$ .  $SDRevenue_{i,t}$  = is the standar deviation of revenue.  $Log(ASSET)_{i,t}$  = is the natural logarithm of total assets \*, \*\*, \*\*\* Significance at the 10%, 5%, and 1% levels, respectively.

The moderating effects of government ownership on the relationship between earnings management and company performance are shown by **Table 9**’s regression results for Model 2 ( $H_3$ ). At the 5% significance level ( $0.00, p \geq 0.04$ ), the interaction between government ownership and earnings management in this model demonstrated

a positive moderating effect. Companies the government owns perform better, reducing the need to manipulate profits. Government-observed increases in corporate governance, laws, and regulations may cause this.

The findings corroborate earlier theories that earnings management negatively impacts a company's performance over the long run for several reasons, including a deficiency in strong governance mechanisms and direct oversight. On the other hand, the existence of government ownership increases the performance of companies and reduces earnings management because of direct monitoring by the government, laws imposed on companies, and increased corporate governance.

#### **4. Conclusion**

The GCC region, which includes Bahrain, Qatar, Oman, Saudi Arabia, the United Arab Emirates, and Kuwait, is the focus of this study, which examines the moderating effect of government ownership between earnings management and company performance. The dataset used in this study includes 188 listed companies in GCC countries between 2017 and 2021. The study discovered a negative correlation between performance and earnings management but a positive correlation between government ownership and corporate performance. Additionally, the relationship between earnings management and firm performance is positively moderated by government ownership. The main causes might be improved corporate governance and the passage of legislation that makes businesses more productive and efficient.

This study sheds light on the connection between government ownership, earnings management, and business performance in the GCC. Therefore, to improve company performance, this study advises governments and investors to concentrate on lowering the degree of earnings management in businesses. This study emphasizes how crucial it is to consider government ownership as a factor that might affect the managerial caliber of businesses in the GCC. For sectors other than those covered in this study, more research is necessary to fully examine the moderating impact of government ownership on the relationship between earnings management and company performance in the GCC region.

The study of the moderating role of government ownership between earnings management and company performance in the GCC region has several limitations that suggest avenues for future research. First, the study focused only on the GCC region, which limits the generalizability of the results to other regions. Future research could investigate the relationship among earnings management, government ownership, and company performance in other regions to provide a broader perspective. Second, the study undertook only multiple regression analysis, which limits its ability to establish causality and temporal relationships. Future research could use longitudinal designs to investigate the dynamic relationship between earnings management, government ownership, and company performance. Finally, future studies could consider the potential impact of cultural factors on shaping the relationship between earnings management, government ownership, and company performance in the GCC region.

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