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# Earnings management of acquiring and non-acquiring companies: the key role of ownership structure and national corporate governance in GCC

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## Abstract

We are mainly interested in the impact of acquisition, ownership structure, and national governance quality on accrual earnings management (AEM) in the GCC listed companies' context. Our sample is composed of 3210 firm-year observations for the period from 2007 to 2017. We employ panel data models in investigating the determinants of AEM for acquiring and non-acquiring firms. The findings reveal that acquiring firms involve more in earnings management than non-acquiring firms and that acquiring firms involve in AEM through income increasing rather than income decreasing. Institutional and state ownership are found to be an efficient tool in restraining companies' engagement in earnings management whereas foreign ownership is shown to have no impact. National governance quality is found to be an efficient mechanism to reduce the companies' engagement in earnings management. The study has both organizational and policy implications. In the organizational context, the GCC listed companies could benefit from attracting institutional and state owners to mitigate earnings management and therefore enhance firm performance. In the legislative context, policy makers are encouraged to concentrate on developing national governance systems to mitigate AEM.

**Keywords** Accrual earnings management · Ownership structure · National corporate governance · GCC

## Introduction

Mergers and acquisitions (M&A) are major strategic events for companies (Deng 2009). During this event, the involved companies rely heavily in their reported financial statements when determining the transaction value of this strategy. From an acquiring perspective, managers can be highly motivated to present a more favorable financial position of their firm which affects their company's value (Erickson and Wang 1999) and can achieve the lowest possible acquisition costs (Lehmann 2016). Earnings management (EM) is a common technique for manipulating company's financial

statement (Louis 2004) and empirical literature reports that acquiring companies use this technique to influence the acquisition process (e.g., Kassamany et al. 2017).

In this study, we investigate whether acquiring companies in Gulf Cooperation Council (GCC) region engage in earnings management. In the last 3 decades, GCC have experienced a rapid growth in mergers and acquisitions. Just in the first half of 2021, there has been a 39% rise in the volume of mergers and acquisitions (M&A) deals in GCC (Amar et al. 2022). Despite the large volume in M&A deals, there is a lack of research examining whether acquiring companies in this region engage in earnings management. Our study aims to address this knowledge gap, by investigating whether acquiring companies in the six countries of GCC region use earnings management to mask the genuine information of their companies' financial position.

By focusing on the GCC region, in this study we also look whether ownership structure influence firm's engagement in earnings management, and whether the behavior in earnings management is different between acquiring and non-acquiring companies. The GCC suffers from the concentration of ownership being kept in state hands

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and upper-class families (Soural 2004; Abdelsalam et al. 2016). Each type of ownership has different interest and benefits at different levels (Feng and Huang 2021), thus influencing EM differently (Gong and Choi 2021). In this study, we examine the relationship between earnings management and the three ownership types: state ownership, institutional ownership, and foreign ownership.

In addition to investigating in the GCC region the relationship between earnings management and ownership structure, which is a firm-level governance mechanism, in this study we also look at the relationship between earnings management and country-level governance mechanism. The countries in the GCC region are still developing countries, characterized by weak corporate governance mechanisms (Abdallah and Ismail 2017), by large power distance (Hofstede 2011), a culture of secrecy (Gray 1988), under-developed capital markets (Grassa and Gazdar 2014) and low financial transparency (Claessens and Yurtoglu 2013) despite all six countries in the region have mandatorily adopted International Financial Reporting Standards (IFRS) when preparing financial statements (Al-Enzy et al 2023). Despite the common features, the level of investor protection varies across the six countries in the region, with UAE having the highest ranking in country-level corporate governance (Al-Malkawi et al. 2014). The variance in the quality of corporate governance mechanisms among the six countries of GCC has resulted in different levels of earnings management affecting the quality of reported earnings (Shubita 2015). In our study, we investigate whether acquiring companies behave different from non-acquiring companies in the involvement in earnings management depending on country quality of governance systems.

While earnings management technique can occur in three different ways: Accruals Earnings Management (AEM), Real Earnings Management (REM), and classification shifting (CS) (Parfet 2000), in this study we focus on the use of AEM. We concentrate on AEM for several reasons. First AEM technique affects both past and future earnings via balance sheet implications (Dechow et al. 1995). Second, the GCC are developing countries, and as such these countries may involve in AEM due to being the least costly technique when compared with other types of EM (Graham et al. 2005). Third, the quality of investor protection environment in the six countries of GCC is weak (World Bank 2021) and as such there is lower supervision and regulatory enforcement, suggesting that there is a higher likelihood for managers to engage in accruals earnings management and not being detected. Lastly, the ownership structure of firms in these countries is mainly concentrated ownership, which can influence differently managers behavior in earnings management.

Given that existing literature suffers from a lack of studies regarding the role of ownership structure mechanisms in mitigating EM in GCC region, our study has significant practical and theoretical contributions. Firstly, this study is considered as one of first studies investigating the combined effect of national corporate governance (country-level mechanism) and ownership structure (firm-level governance mechanisms) on EM in acquiring and non-acquiring companies in the GCC. While previous literature in corporate governance has discussed the impact of internal governance tools (firm-level) on EM, the effect of national corporate governance has been under-researched. Several studies such as Gerged et al. (2021), Aslan and Kumar (2014), and Van Essen et al. (2013) argue that corporate governance studies must consider national corporate governance systems which companies are embedded in. Hence, our study responds to this gap in the literature (Bao and Levellyn 2017). Secondly, this study further extends the existing literature on acquiring companies in merger and acquisition in the GCC by adopting multi-theoretical dimensions. Thirdly and from shareholders viewpoint, this study empirically examines the companies' EM involved in merger and acquisition and provides a significant caution for acquiring companies engaging in AEM before the acquisition as the pre-acquisition share price is likely to be overestimated, leading the share price to be decreased after the acquisition. Finally, this study contributes to policymakers through providing a view of understanding of how the differences in institutional and legal systems across the six Gulf countries affect the use of earnings management.

This paper is divided as follows: “Literature review and hypotheses development” section reveals the theoretical framework and hypothesis development. “Data and methodology” section shows data and methodology, while “Empirical results” section demonstrates the empirical results and “Conclusion” section concludes.

## Literature review and hypotheses development

There are two key theories: agency theory and institutional theory, which we use to explore the relationship between earnings management, internal corporate governance mechanism (firm ownership structure) and external corporate governance mechanism (country corporate governance). We examine these relationships under the context of acquiring and non-acquiring companies.

The agency theory argues that when there is a separation between ownership and control, it can lead to conflict of interests between shareholders and managers (Jensen and Meckling 1976) with managers engaging in activities that are not of shareholders' interests. One such activity is



incorrect reporting of company's financial statements via earnings management to support managers' private interests at the expense of shareholders' interests (Davidson et al.). One way to control managers behavior so that it is aligned to their shareholders' interests is via ownership concentration (Fama and Jensen 1983; Shleifer and Vishny 1997). Shareholder with large ownership in the company will be more incentivized in monitoring managers to produce accurate financial reporting as any incorrect reporting via earnings management would result in higher impact on the wealth of large shareholders as opposed to small shareholders (Fama and Jensen 1983; Shleifer and Vishny 1997). The GCC listed companies are characterized as having concentrated ownership, either in the form of state ownership, institutional ownership or foreign ownership which can increase the control over managers using earnings management to report incorrect information.

While the agency theory, focuses on the relationship between ownership concentration, and internal corporate governance mechanism that can control managers use of earnings management; institutional theory focuses on a broader relationship between stakeholders, including country corporate governance rules and its effect on earnings management.

According to institutional theory, managers can engage in earnings management due to both formal and informal coercive pressures to achieve legitimacy among their peers and in front of their legislators (Habbash and Alghamdi 2017; Makhael and Sherer 2017).

As per Meyer and Rowan (1977)'s institutional theory, companies adopt rules due to "coercive," "mimetic," or "normative" isomorphism. Coercive isomorphism happens when companies alter their institutional practices because of stakeholders' pressure (Meyer and Rowan 1977). Mimetic isomorphism exists when companies attempt to mime other companies' practices, to obtain a legitimacy competitive advantage (Powell and Dimaggio 1991). In terms of normative isomorphism, it is groups' pressure to adopt worthy institutional practices, e.g., introducing recognized standards (Powell and Dimaggio 1991). In each of the three types of institutional theory's isomorphism, earnings management enables managers to manipulate their earnings to preserve competitiveness with their peers and meet any government rules on reported earnings. The latter is of particular importance for listed companies which are subject to more stringent government requirements creating stronger coercive pressure for managers to manipulate company's financial reporting via managing earnings to meet government requirements. Given that our dataset is composed of listed companies in the GCC region, we use the institutional theory as the theoretical context in the relationship between a country's government rule on corporate governance,

national governance, and a firm's engagement in earnings management.

Hence, institutional theory and agency theory are complementary approaches to corporate governance (Young et al. 2000), with the former focusing on external corporate governance mechanism—national corporate governance rules, whereas the later focuses on internal corporate governance mechanism—ownership structure, both mechanisms influencing managers engagement in earnings management for acquiring and non-acquiring companies, which is the scope of our study. In the subsequent section, we present in more detail the hypotheses development for acquiring companies, for three types of ownership structure and national corporate governance on earnings management motivation.

## Hypothesis development

### Earnings management and acquisitions

Mergers and acquisitions (M&A) are one of the key strategic events for an acquiring firm and as such managers will be highly motivated to manipulate financial statements in order to present a more favorable financial position of their firm which affects company's stock price before acquisition (Erickson and Wang 1999). The manager's engagement in earnings management will be further triggered when acquisition motive for managers differs from shareholders, in other words when there is a conflict interest between the owners and their agent (managers) as per the agency theory Erickson and Wang (1999).

According to Erickson and Wang (1999), agency theory suggests that acquirers engage in EM before the acquisition motivations to boost their company's stock price before acquisition so that they can influence the exchange ratio. Thereby, an impression of confidence and a low level of risk could be generated among investors toward financing the company (Spence 1973). Preparation and planning are required from the management of the acquiring company to achieve acquisition transaction. The high cost of acquisition could result in a failure to achieve the desired aim. Therefore, managers of acquiring companies seek the best way to reduce the acquisition cost as much as possible to benefit shareholders (Erickson and Wang 1999). From institutional theory perspectives, it is argued that institutional environment could lead companies to change their earnings to preserve their reputations and competitiveness (Meyer and Rowan 1977). Hence, earnings management can serve as a key tool in achieving acquisition with the lowest cost.

Empirical studies have observed this phenomenon. Berrill et al. (2021) find that acquiring companies in the largest countries in Europe (Germany, Italy, Spain and the UK) engage in AEM when they are involved in acquisition with asymmetric information. Based on a sample of 50 UK



companies over the period from 1998 to 2011, Lehmann (2016) finds that well-governed acquiring companies are more engaged in AEM than weak-governed acquirers. This is because of the role of corporate governance that motivates manager's actions in the interests of company shareholders. However, this result is contradictory to the common argument that strong CG mitigates the engagement in AEM. In addition, Kassamany et al. (2017) examine the link between acquisition and EM; using a sample of 197 UK acquirers, they find that acquiring companies engage in AEM pre-acquisition to attract the target's shareholders and receiving their approval. In the same region, Tutuncu (2019) investigates the impact of AEM before the acquisition on the performance of firms acquired by their managers. Similar to Kassamany et al. (2017), Tutuncu (2019) finds that firms engage in EM before the acquisition to attract shareholders. In a larger study analyzing 30 countries, Karim et al. (2016) report acquiring companies to engage in EM before acquisition transactions via income increasing in order to influence their companies' stock prices. A similar finding was reported by Lennox et al. (2018) on Chinese companies.

As for GCC region, there is no research investigating the engagement in EM of companies involved in acquisition process, in particular acquiring companies use of accruals earnings management technique to manipulate the financial statements. As accruals earnings management technique is less costly because it does not have an immediate impact on company's cash flows, managers are more likely to choose this earnings management technique over other earnings management technique whenever there is low supervisory and regulatory scrutiny (Zang 2012). As GCC region is characterized by low supervisory and regulatory scrutiny (Al-Amri et al. 2017), we argue that managers of acquiring companies will use this technique to manipulate their financial statements so that they can present a better financial position of the company. In fact, managers will be incentivized to use this technique more during an acquisition event, which has more significant impact on the strategic future of the company. As such we hypothesize that:

**H1** GCC acquiring companies engage more in AEM than GCC non-acquiring companies.

### Earnings management and ownership structure

Agency problems are linked to the efficacy of corporate governance mechanisms. Institutional owners as a main internal governance tool tend to monitor managers' behavior to mitigate agency problems. From institutional theory viewpoint, institutional governance environment plays a critical role in the functioning of ownership mechanisms (Meyer and Rowan 1977). Institutional ownership has more experience as they have access to resources, specialized knowledge and

extensive research not available to other types of investors. Thus, institutional ownership could monitor managers at lower costs. In addition, the controlling process taken by institutional ownership could drive managers to concentrate more on the firm performance; therefore, it may mitigate managers to engage in opportunistic behaviors (Arouri et al. 2014). Moreover, institutional owners, as long-term shareholders, are expected to be more committed to monitoring managers' behavior (Dalwai et al. 2015). Consequently, institutional ownership can supervise management more effectively than individual shareholders and minimize manager's engagement in earnings management (Roychowdhury 2006). A different view is argued by Duggal and Milar (1999) which states that institutional shareholders are negative shareholders since they sell their shares rather than investing their resources to improve managers' behaviors when companies are underperforming. In a similar context, (Chen et al. 2007) argue that institutional shareholders concentrate on short-term outcome and, thus, support management to obtain short-term interests, which plays a role in determining stock prices when taking investment decisions. As a result, institutional shareholders can push management to pursue short-term gains over long-term gains, which can influence investment decisions (Chen et al. 2007), and encourage managers to engage in earnings management.

The existing literature on the role of institutional ownership on AEM reports mixed results. Miller et al. (2021) find that institutional ownership mitigates EM across 45 countries, since institutional investors have a stronger incentive to monitor. The stability of institutional ownership plays a positive role in mitigating EM (Sakaki et al. 2017). In the USA, Ramalingegowda et al. (2021) find that EM in the USA is mitigated by institutional owners. On the other hand, Garel et al. (2021) find that companies with institutional ownership in the USA engage more in AEM. This is attributed to institutional investors, who often hold thousands of stocks and cannot monitor simultaneously all their stocks with managers behaviors. As for GCC region, which is composed of emerging countries with weak regulatory monitoring (Al-Amri et al. 2017), we argue that managers of GCC companies will be more likely to engage in accruals earnings management. However, when GCC companies have institutional ownership, we argue that managers of these companies will engage less in accruals earnings management due institutional owners having higher monitoring expertise which will constrain managers manipulation of financial reporting via accruals earnings management. Therefore, we hypothesize that GCC companies with institutional ownership will engage less in accruals earnings management than GCC companies with no institutional ownership. Hence, we hypothesize a negative relation between institutional ownership and accruals earnings management for GCC





companies. This negative relation will be even stronger for GCC acquiring companies, where the monitoring of manager's behavior for reporting genuine financial statements regarding company's financial position and ability to undertake the proposed acquisition becomes even more crucial.

In terms of state ownership, state-owned companies have easier access to financial resources and are more likely to obtain greater government support when company faces difficulties (Wang and Mao 2021). As a result, there is less incentives for managers to manipulate earnings via accruals earnings management to attract new investor funding. Moreover, due to high public scrutiny, state-owned businesses are less likely to engage in earnings management, fearing that it would affect government reputation in international markets. In fact, under the institutional theory, firms with state ownership are more likely to adopt more rigorously the regulatory practices, due to the coercive pressure of showcasing legitimacy as a result of their state ownership (Meyer and Rowan 1977). Consequently, firms with state ownership are more likely to increase monitoring over managers, reducing any manager's opportunistic behavior such as manipulation of financial statements for supporting their private interests at the expense of their state owners. In this context, the presence of state ownership would make sure to align manager's interest to that of state owners by increasing monitoring over managers, reducing any agency cost as per agency theory (Shleifer and Vishny 1986). Given the easy access to financial resources, and the public scrutiny over state reputation, companies with state ownership have the power to monitor and mitigate more strongly any manipulation of manager's financial statements via earnings management (Wang et al. 2022).

The empirical evidence on the role of companies with state ownership on EM is mixed. Wang et al. (2011) and (Ding et al. 2007) show that Chinese state-owned companies engage in AEM at lower levels than family-owned companies, attributing this result to state-owned companies having easy ways to access resources. A similar result is reported by Charumilind et al. (2006) for Thai companies. Other studies (e.g., Wang et al. (2022), Komal et al. (2021), Hoang et al. (2019), Ding et al. (2007), and Shleifer and Vishny (1986)) also report similar negative association between state ownership and company's engagement in earnings management. On the other hand, a large study of 45 countries by Ben-Nasr et al. (2015) report that companies with state ownership engage in AEM to hide the expropriation of company resources for political aims. The political objective argument has been referred also by Gong and Choi (2021) when they found a positive relationship between state ownership and EM on their study on Chinese companies. However, this relationship is mitigated by mixed-ownership reform of state-owned companies.

In terms of GCC region, we argue that firms with state ownership will have easy access to financial resources due to the large sovereign wealth funds, and as such managers of these companies will be less incentivized to manipulate their financial reports for new investor funding resources. Furthermore, as firms with state ownership are subject to public scrutiny on state reputation, we argue that state ownership will act as a monitoring device in constraining managers in these firms to engage in accruals earnings management. Therefore, we hypothesize that firms with state ownership are less likely to engage in accruals earnings management. We argue that during an acquisition process, if the acquiring firm has state ownership, there will be even stronger public scrutiny and as such even further pressure for the acquiring firm with state ownership to monitor managers against using accruals earnings management for manipulating accruals earnings management.

Our last ownership structure indicator is foreign ownership. According to the agency theory, large foreign shareholders are active monitors of manager's opportunistic behavior making sure that managers do not engage in actions that do not benefit foreign shareholders, and hence, foreign ownership is associated with low agency cost (Shleifer and Vishny 1986). There are several arguments in the literature why foreign shareholders actively monitoring constraints managers' reporting of misleading financial statements using accruals earnings management. One argument is that foreign investors bring new technologies into the local firms which assist in better monitoring and control of firms daily activities (De Clercq et al. 2010), increasing the accuracy of information used to prepare financial statements. Another argument is that the attraction of foreign ownership is subject to higher regulatory disclosure (Porta et al. 1999) reducing the incentive for managers presenting misleading financial statements. A further argument is that foreign investors have strong motivations to maximize the value of the companies they invest in (Ahmed and Iwasaki 2021), and as such as, they be actively participating in firm operations making sure that manager's actions benefits foreign shareholders' interests and do not mislead them by presenting inaccurate financial statements using accruals earnings management.

Several empirical studies argue that a highly skilled foreign owner can boost earnings quality. For example, Vo and Chu (2019) find that foreign investors enhance the earnings quality in Vietnam. Ben-Nasr et al. (2015) argue that foreign owners are associated with high quality financial information, high earnings quality and low EM. Similarly, Firth et al. (2007) find that foreign investors enhance the earnings quality in China due to foreign investors actively monitoring local management. In contrast, other studies argue that geographic distance limits foreign investors in monitoring managers' opportunistic behaviors. For instance, both Maswadeh (2018) and Al-Haddad and Whittington (2019) find



that foreign ownership in Jordan is unable to mitigate the engagement in AEM as distance mitigates foreign investor monitoring. Regarding the GCC region, as foreign investors have better monitoring resources and incentives to protect their investment in GCC companies, we argue that managers of these firms will be subject to higher quality of financial reporting, constraining managers engagement in misleading financial statements through accruals earnings management technique. As such we hypothesize a negative association between firms with foreign ownership and firm's use of accruals earnings management. We further argue that this negative association will be even stronger for acquiring companies with foreign owners, as they will be incentivized to assess accurately the true value of the proposed acquisition.

Based on the detailed theoretical arguments for each ownership variable presented above, we list below the three hypotheses for the three ownership variables:

**H2a** There is a negative association between institutional owners and AEM before acquisition.

**H2b** There is a negative association between state owners and AEM before acquisition.

**H2c** There is a negative association between foreign owners and AEM before acquisition.

### Earnings management and country-level governance

The quality of national governance quality (country-level) shapes firms corporate governance mechanisms (firm-level) (Doidge et al. 2007). The quality of country-level governance is commonly assessed using investor protection, the power of legal environment, the level of corruption, political connections, and government effectiveness (Gong and Choi 2021).

Countries with strong investor protection provide an accurate information environment and minority shareholder protection that are better than countries with weak shareholder protection (Porta et al. 2002). Therefore, firms in countries with strong investor protection are more likely to engage in ethical reporting practices that provides accurate financial reporting as a reflection of high institutional and regulatory monitoring pressures (Lourenço et al. 2018). In other words, the quality of investor protection (rule of law) influences manager's involvement in manipulating financial statements (Leuz et al. 2003).

The empirical literature supports this relation by reporting a negative association between the quality of a country's investor protection and firm engagement in manipulating financial statement using earnings management technique. For instance, Abdou et al. (2021) find that national governance quality is an efficient mechanism in mitigating the

engagement in EM in the UK and Egypt. Similarly, Saona and Muro (2018) find that the legal and regulatory systems are efficient mechanisms in mitigating the engagement in EM. Likewise, Dyreng et al. (2012) state that companies running their business in a strong legal environment have a lower level of engagement in AEM. Lang et al. (2006) argue that non-American companies, especially firms that are in weak investor protection countries, have higher use of EM than American companies. This is attributed to markets being less financially developed in countries with weak legal environment, and as such adopting a high level of governance mechanisms can be costly to firms (Doidge et al. 2007).

In the context of GCC region, GCC countries follow common civil law with high insider shareholdings and concentrated ownership usually in the form of family shareholdings (Al-Malkawi et al. 2014) or state ownership. The six countries in the region are also, characterized by large power distance (Hofstede 2011), a culture of secrecy (Gray 1988), under-developed capital markets (Grassa and Gazdar 2014) and low financial transparency (Claessens and Yurtoglu 2013), despite all of the six countries of the region have mandatorily adopted International Financial Reporting Standards (IFRS) when preparing financial statements (Al-Enzy et al 2023).

Despite these common features, the level of investor protection varies across the six countries in the region, with UAE having the highest ranking in country-level corporate governance and Kuwait the lowest (Al-Malkawi et al. 2014). One of the main reasons is that the countries differ by their institutional enforcement requirements on country codes for good corporate governance practices with UAE being the only country choosing mandatory compliance over voluntarily compliance. Still even the provisions of good corporate governance codes of practices (such as definition of director independence) vary between corporate governance codes in each of six countries (Abdallah and Ismail 2017). These institutional differences will affect differently the company management involvement in manipulating financial statements using accruals earnings management. We argue that countries with stronger corporate governance codes that protect investors will implement stronger monitoring over managers against manipulation of financial statements, and as such managers will be less likely to engage in accruals earnings management. In the event of a firm acquisition, the monitoring over managers behavior in countries with stronger country-level governance will be even stronger; as such managers will be less likely to engage in manipulation financial statements via accruals earnings management.

**H3** GCC listed companies with high national governance engage at a lower level in accruals earnings management than GCC listed companies with low national governance.



**Table 1** Data selection and filtering process in finalizing the dataset

Descriptive	Saudi Arabia	UAE	Kuwait	Oman	Qatar	Bahrain	Total
Total number of listed companies in the market	206	121	169	130	44	44	714
Less banks and insurance companies	46	52	51	37	16	21	223
Less non-financial companies with missing data	35	27	69	35	7	10	183
Final sample	125	42	49	58	21	13	<b>308</b>
Acquiring Companies	43	21	25	13	11	3	<b>116</b>
Non-acquiring companies	82	21	24	45	10	10	<b>192</b>

Bold underline indicates the final numbers of listed companies in the GCC

## Data and methodology

### Data and sample construction

We adopt different ways to collect our data. The financial data of GCC companies for the Accruals Earnings Management variable and control variables are obtained using OSIRIS database. ThomsonOne database is used to collect acquisition and ownership structure data. Additionally, external audit quality data are collected manually from the published financial statements. Furthermore, the WorldBank database is used to obtain national corporate governance information. Following prior research such as Klein (2002), we exclude banks and insurance companies due to their difference in financial statements' characteristics. Banks and insurance companies are subject to various regulations and corporate governance codes than other companies. Due to the difference in regulations and corporate governance code between non-financial companies and financial companies (banks and insurance companies), this study excluded banks and insurance companies to ensure a consistent and appropriate observation (Alqatamin et al. 2017).

Concretely, our study uses non-financial companies listed in the six GCC stock markets (i.e., Saudi Stock Exchange; Dubai Financial Market and Abu Dhabi Securities Exchange (UAE); Bourse Kuwait; Muscat Securities Market; Qatar Stock Exchange; and Bahrain Bourse). We examine the period from 2007 to 2017. It is worthy to note that the sample period experienced the exciting growth in oil prices during 2007. In addition, the recovery of the stock market from the global financial crisis (which happened in 2008) started in 2010 (Dalwai et al. 2015). Our sample data contain all listed companies regardless of the firm size (Wintoki et al. 2012). Our initial sample is composed of only GCC targeted firms to ensure the consistency of our data, such as accounting standards and disclosure requirements. No other restrictions have been applied on the type of consideration to ensure a larger sample of mergers and acquisitions within the GCC regions. The final sample contains 308 companies (176 non-acquiring companies and 132 acquiring companies)

creating 2322 firm-year observations for the financial year 2007–2017.

Table 1 shows that the total numbers of listed companies in the GCC are 714 companies. Among the 714 listed companies, 233 companies are classified under banks, and insurance companies. By removing the financial services companies from the initial sample, we are left with 491 non-financial companies. 183 companies are excluded from 491 non-financial companies, due to missing data. As a result, the final number of companies in the sample is 308. All the 308 companies are GCC non-financial listed companies. The final sample consists of 116 acquiring companies, and 192 non-acquiring companies.

Table 2 shows the descriptive statistics for our sample. AEM ranges from a minimum of 0.00 to a maximum of 0.958 with a mean and median of 0.065 and 0.44, respectively. As for the independent variables, acquiring firms make only 8.3% of the firms in the sample. Institutional investors on average hold 19.8% of the shares in firms in the sample, whereas state ownership holds 5.4% of the shares. Foreign owners hold on average 6.1% of the shares in a company. National governance quality (country-level variable) has a mean value of 0.328, and median of 0.306, with a mini and max of around – 0.093 and 1.09, respectively. This implies that national governance quality on average is 0.328 in the GCC. As for our control variables, we find that 66.3% of firms in our sample are audited by Big 4 auditors and the profitability of the company (presented by (ROA) has a mean value of 0.058 which is relatively low.

Table 3 provides the correlation matrix. All the independent variables have correlation coefficients lower than 0.80. Therefore, our models have no multi-collinearity problems as correlation coefficients are lower than 0.80 (Wooldridge 2010). Furthermore, the variance inflation factors (VIFs) are less than 10 confirming no multi-collinearity issue.

To highlight the importance of national governance quality and EM across the GCC, Fig. 1 shows that the highest engagement in accruals earnings management across the GCC is in Saudi Arabia, whereas the lowest engagement in accruals earnings management is in UAE. This is due to Saudi Arabia having the lowest national governance quality across the





**Table 2** Descriptive statistics

Variable	Obs	Mean	Median	Min	Max	Std. dev.	Skewness	Kurtosis
AEM	2782	0.065	0.44	0.000	0.958	0.070	3.326	24.184
ACQ	2761	0.083	0	0	1	0.272	3.022	10.133
INSTOWN	2782	0.198	0.059	0	0.999	0.264	1.319	3.755
STOWN	2780	0.054	0	0	0.937	0.133	3.405	15.181
FOWN	2782	0.061	0	0	0.996	0.150	3.283	14.761
NGQ	2782	0.328	0.306	-0.093	1.09	0.307	0.663	2.660
EAUDQ	2782	0.663	1	0	1	0.472	-0.690	1.476
FSIZE	2782	16.837	17.352	9.565	24.275	3.523	-0.068	1.886
LEV	2780	0.203	0.164	0	1.664	0.194	1.213	5.757
GROW	2768	0.041	0.021	-0.936	0.962	0.153	0.799	11.717
MTB	2340	1.942	1.462	-4.786	36.626	1.987	5.996	76.865
ROA	2782	0.058	0.054	-0.775	0.396	0.090	-1.410	14.012

Variables are defined in Table 4

GCC, whereas UAE has the highest national governance quality across the GCC. This result supports the argument of the World Bank (2021) that the UAE and Qatar have a relatively better-developed governance system compared to other countries in the same region. Likewise, Fig. 1 shows that national governance quality in Bahrain and Oman is high, and it mitigates the engagement in AEM, whereas in Kuwait, where the national governance quality is relatively low, it affects the engagement in AEM. This implies that the legal and regulatory systems are efficient mechanisms in mitigating the engagement in EM (Leuz et al. 2003).

## Methodology

This study aims to examine the impact of acquisition, ownership structure, and national governance quality on accruals earnings management. To do, we estimate the following model that represents our main dependent and independent variables:

$$\begin{aligned}
 AEM_{i,t-1} = & \beta_0 + \beta_1 ACQ_{i,t} + \beta_2 INSTOWN_{i,t-1} + \beta_3 STOWN_{i,t-1} + \beta_4 FOWN_{i,t-1} \\
 & + \beta_5 NGQ_{i,t-1} + \beta_6 EAUDQ_{i,t-1} + \beta_7 FSIZE_{i,t-1} + \beta_8 LEV_{i,t-1} + \beta_9 GROW_{i,t-1} \\
 & + \beta_{10} MTB_{i,t-1} + \beta_{11} ROA_{i,t-1} + \beta_{12} Countrydummy_{it} \\
 & + \beta_{13} Industrydummy_{i,t} + \varepsilon_{i,t}
 \end{aligned} \quad (1)$$

where AEM reflects accrual earnings management measured by:

$$AEM(DA)_{t-1} = \beta_0 \frac{TA_{i,t-1}}{A_{i,t-2}} - \beta_1 \frac{1}{A_{i,t-2}} + \beta_2 \frac{(\Delta REV_{i,t-1} - \Delta REC_{i,t-1})}{A_{i,t-2}} + \beta_3 \frac{(PPE_{i,t-1})}{A_{i,t-2}}$$

$\Delta \Delta REV_{i,t-1}$ : revenues of a company I in year  $t - 1$  less revenue in year  $t - 2$ .

$\Delta REC_{i,t-1}$ : net receivables of a company I in year  $t - 1$  less net receivable in year  $t - 2$ .

$PPE_{i,t-1}$ : the total of plants, properties, and equipment of a company I for a period  $it - 2$ .

$\beta_1, \beta_2$ , and  $\beta_3$ : model parameters.

Our main independent variables are acquisition (ACQ), institutional ownership (INSTOWN), state ownership (STOWN), and foreign ownership (FOWN) and country-level mechanism (NGQ). We also controlled for firm-level factors to monitor the likely effect on both variables: dependent and independent, which have been commonly used in prior research (Lennox et al. 2018; Lehmann 2016; Klein 2002). This research uses the firm's characteristics: Big 4, Firm size, Leverage, Growth, Profitability (ROA), and Market-to-Book value (MTB)). Jensen and Meckling (1976) suggest that auditors could minimize agency costs between shareholders and

management through minimizing errors in financial statements if they belong to one of the "Big 4" auditing companies. The

$AEM(DA)_{t-1}$ : discretionary accruals of year  $t - 1$ .

$TA_{t-1}$ : total of accruals of year  $t - 1$ .

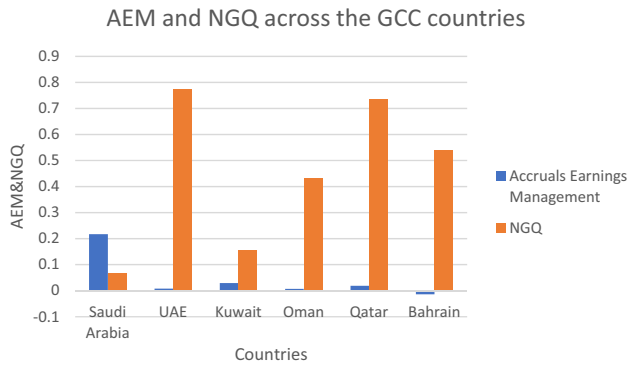
$A_{i,t-2}$ : the total assets of a company I for a period  $t - 2$ .

Big4 audit company (Deloitte, Touche Tohmatsu, Price Water-HouseCooper, Ernst & Young, KPMG) has a great reputation of providing a high quality of audit (Guna and Herawaty 2010). In addition, Jensen and Meckling (1976) suggest that

Table 3 Pair-wise correlation coefficients and VIF

	ABS_DACC	ACQ	EAUDQ	INSTOWN	STOWN	FOWN	NGQ	FSIZE	LEV	GROW	MTB	ROA	VIF
ABS_DACC (AEM)	Corr	1											
	Sig												
ACQ	Corr	0.012	1										1.04
	Sig	(0.535)											
INSTOWN	Corr	-0.046**	0.016	1									1.14
	Sig	(0.016)	(0.412)										
STOWN	Corr	-0.071***	0.042**	-0.053***	1								1.06
	Sig	(0.000)	(0.028)	(0.006)									
FOWN	Corr	-0.018	0.137***	0.200***	0.108***	1							
	Sig	(0.354)	(0.000)	(0.000)	(0.000)								1.12
NGQ	Corr	-0.028	0.278***	0.023	0.107***	0.140***	1						1.84
	Sig	(0.143)	(0.000)	(0.230)	(0.000)	(0.000)							1.23
EAUDQ	Corr	-0.026	0.085***	1									
	Sig	(0.176)	(0.000)										
FSIZE	Corr	-0.056***	0.100***	0.212***	0.165***	0.199***	0.658***	1					2.29
	Sig	(0.003)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)						
LEV	Corr	-0.025	0.005	0.031*	-0.016	0.114***	0.023	0.090***	1				
	Sig	(0.186)	(0.772)	(0.104)	(0.402)	(0.000)	(0.221)	(0.000)					1.16
GROW	Corr	0.112***	0.029	-0.046**	-0.042**	-0.018	-0.005	-0.004	-0.019	1			
	Sig	(0.000)	(0.127)	(0.015)	(0.027)	(0.346)	(0.800)	(0.850)	(0.313)				1.06
MTB	Corr	0.066***	-0.013	-0.070***	-0.024	-0.042**	-0.177***	-0.325***	-0.087***	0.139***	1		
	Sig	(0.001)	(0.527)	(0.001)	(0.255)	(0.043)	(0.000)	(0.000)	(0.000)	(0.000)			1.21
ROA	Corr	0.030	0.003	-0.031*	0.043**	-0.001	-0.050***	-0.055***	-0.294***	0.193***	0.177***	1	
	Sig	(0.111)	(0.866)	(0.103)	(0.023)	(0.973)	(0.008)	(0.004)	(0.000)	(0.000)	(0.000)		1.19

\*\*\*, \*\*, \* significant at 1%, 5%, and 10%



**Fig. 1** Accruals earning management and national governance quality across the GCC countries

firm size impacts positively on the agency cost. This is due to the increase in opportunistic behavior by managers. In terms of leverage, Spence (2002) suggests that Debt is a motivation for management to engage in EM to give a signal of financial health (Spence 2002). Alzoubi (2018) argues that growth is more likely to be positively associated with EM due to positive economic conditions tend to be reflected in a company's

income. Market-to-book ratio (MTB) considers as indicator to the perspective's growth of the company due it is associated with the internal context (book value) and the investors' view (market value). For ROA, Alzoubi (2018) argues that companies with lower profitability are forced to engage in EM to meet the request of shareholders who want a high profitability. We define our variables in Table 4. We use 1 year lag in our independent variables as agency theory suggests that acquirers engage in AEM before acquisitions take place to impact the exchange ratio by increasing their company's share price (Erickson and Wang 1999). Previous studies such as Tutuncu (2019) reported similar impact before the acquisition to attract shareholders, since firms are not able to fund all transactions.

As an additional test, we have added interaction effect between our main independent variables (ownership structure and national governance quality) and acquisition and included these interactions in Eq. 1. We further checked our results and re-estimate our main models to capture the impact of positive and negative AEM (Gul et al. 2009). The signed AEM is divided into two groups, namely income-increasing AEM and income-decreasing AEM.

**Table 4** The variables definition

The variables	The measurement
1. The dependent variable (EM):	
1.1 AEM (Modified Jones Model)	$AEM(DA)_{it-1} = \beta_0 \frac{TA_{it-1}}{A_{it-2}} - \beta_1 \frac{1}{A_{it-2}} + \beta_2 \frac{(\Delta REV_{it-1} - \Delta REC_{it-1})}{A_{it-2}} + \beta_3 \frac{(PPE_{it-1})}{A_{it-2}} (1.1)$
1.2 AEM (Kothari)	
	$AEM(DA)_{it-1}$ : discretionary accruals of year $t - 1$
	$TA_{it-1}$ : total of accruals of year $t - 1$
	$A_{it-2}$ : the total assets of a company $I$ for a period $t - 2$
	$\Delta \Delta REV_{it-1}$ : revenues of a company $I$ in year $t - 1$ less revenue in year $t - 2$
	$\Delta REC_{it-1}$ : net receivables of a company $I$ in year $t - 1$ less net receivable in year $t - 2$
	$PPE_{it-1}$ : the total of plants, properties, and equipment of a company $I$ for a period $it - 2$
	$\beta_1, \beta_2$ , and $\beta_3$ : model parameters
	$ROA_{it-1}$ : return on assets of a company $i$ for a period $t - 1$
	$\varepsilon_{it-1}$ : Residuals a company $I$ for a period $t - 1$
2. The independent variables:	
2.1. $ACQ_{i,t}$ :	1 if the firm $I$ is an acquiring firm, otherwise 0
2.2. $INSTOWN_{i,t-1}$ :	Total shares held by institutional ownership to number of shares outstanding
2.3. $STOWN_{i,t-1}$ :	Total shares held by government to number of shares outstanding
2.4. $FOWN_{i,t-1}$ :	Total shares held by foreign investors to number of shares outstanding
2.5. $NGQ_{i,t-1}$ :	National governance Quality. The average of Government Effectiveness, Regulatory Quality, Rule of Law (− 2.5 to 2.5)
3. The control variables:	
3.1. $EAUDQ_{i,t-1}$ :	1 if a firm $I$ is audited by one of the Big 4 auditing companies, otherwise 0
3.2. $FZISE$	Total assets (natural logarithm)
3.3. $GROW$	The percentage of growth (change in sales over the total assets)
3.4. $LEV$ :	Total debt over total assets
3.5. $MTB$	Market-to-book value as indicator of a company's future
3.6. $ROA$	Net income over total assets



AEM (income-increasing) $_{i,t-1}$

$$= \beta_0 + \beta_1 ACQ_{i,t} + \beta_2 INSTOWN_{i,t-1} + \beta_3 STOWN_{i,t-1} + \beta_4 FOWN_{i,t-1} + \beta_5 NGQ_{i,t-1} + \beta_6 EAUDQ_{i,t-1} + \beta_7 FSIZE_{i,t-1} + \beta_8 LEV_{i,t-1} + \beta_9 GROW_{i,t-1} + \beta_{10} MTB_{i,t-1} + \beta_{11} ROA_{i,t-1} + \beta_{12} Countrydummy_{it} + \beta_{13} Industrydummy_{it} + \varepsilon_{i,t}. \quad (2)$$

AEM (income-decreasing) $_{i,t-1}$

$$= \beta_0 + \beta_1 ACQ_{i,t} + \beta_2 INSTOWN_{i,t-1} + \beta_3 STOWN_{i,t-1} + \beta_4 FOWN_{i,t-1} + \beta_5 NGQ_{i,t-1} + \beta_6 EAUDQ_{i,t-1} + \beta_7 FSIZE_{i,t-1} + \beta_8 LEV_{i,t-1} + \beta_9 GROW_{i,t-1} + \beta_{10} MTB_{i,t-1} + \beta_{11} ROA_{i,t-1} + \beta_{12} Countrydummy_{it} + \beta_{13} Industrydummy_{it} + \varepsilon_{i,t}. \quad (3)$$

As a robust check, we employ Kothari et al.'s (2005) model as an alternative estimator of discretionary accruals and we followed the same previous process by dividing AEM into two groups, namely income increasing and income decreasing (based on Kothari et al.'s model).

## Empirical results

The regression results are stated in Table 5. There are two prevalent techniques for panel data regression. The Hausman test indicates that the assumption of the fixed effect estimation with the robust standard error should be used. According to Model 1 in Table 5, the acquisition variable has a statistically significant positive association with AEM, implying that there is an association between acquisition and AEM before acquisition (H1). This finding supports the agency theory suggestion as suggested by Erickson and Wang (1999) and Gong et al. (2008) that acquirers engage in EM before the acquisition to boost their company's stock price before acquisition so that they can influence the exchange ratio. This negative relation supports also institutional theory as it is argued that institutional environment could lead companies to make changes to their earnings to preserve their reputations and competitiveness (Meyer and Rowan 1977). The result is in line with findings reported from studies investigating developed markets (Tutuncu 2019; Lehmann 2016; Karim et al. 2016; Kassamany et al. 2017; Louis 2004; Erickson and Wang 1999). It is also in line with Lennox et al. (2018) study who investigated AEM in the Chinese market. This result therefore can help shareholders in non-acquiring companies, to be aware of the consequences of EM used by managers. It also can help target companies to be aware of the consequences of EM employed before the acquisition by acquiring companies.

Table 5 also shows that institutional ownership has a statistically significant negative association with AEM, indicating that there is an association between companies with institutional ownership and level of AEM before acquisition. (H2a). This finding supports the agency's theory perspective. Agency problems in companies are closely associated with the quality of corporate governance mechanisms. It also supports institutional theory viewpoint as institutional governance environment plays a critical role in the functioning of ownership mechanisms (Meyer and Rowan 1977). Institutional owners as one of the main corporate governance mechanisms tend to monitor managers' behavior to mitigate agency problems. Institutional ownership also has more expertise as they have access to resources, specialized knowledge, and extensive research that is not available to other types of investors. Thus, institutional ownership could monitor managers at a lower level of cost than other shareholders. In addition, the controlling process taken by institutional ownership could drive managers to concentrate more on the firm performance; therefore, it may mitigate opportunistic managers (Arouri et al. 2014). Moreover, being long-term shareholders (Dalwai et al. 2015), institutional owners are more committed to monitoring managers' behavior. The negative effect shown in Table 5 in GCC listed companies supports the findings reported by previous studies such as Pound (1988), Sakaki et al. (2017), and Miller et al. (2021).

The state ownership variable has a statistically significant negative association with AEM, suggesting that there is an association between companies with state ownership and level of AEM before acquisition. (H2b). This finding supports the argument that state owners pay attention to political benefits and employment more than maximizing profits (Shleifer and Vishny 1986). It also supports institutional theory as it suggests that the efficiency of CG mechanisms is impacted by the level of legitimacy quality (Meyer and Rowan 1977). State owners often give advantages to the companies such as credit liquidity, thus there is less needed to engage in AEM. Moreover, state owners seek to build credibility in international markets (Pan et al. 2014). The negative effect supports the findings reported from studies investigating developing countries-China such as Wang et al. (2011). This result shows the importance of state ownership in maintaining social stability rather than generating profit (Li and Zhang 2010).

The third and last ownership structure factor is foreign ownership which has an insignificant association with AEM, contradicting H2c. One explanation is that foreign ownership has different characteristics (i.e., culture, and religion) making them unable to monitor accurately (Dvořák 2005). This result is consistent with Maswadeh (2018) who report an insignificant effect for Jordanian firms.

**Table 5** The robust regression results of the relationship between acquisition and CG mechanisms on AEM in the GCC companies

ABS_DACC		Fixed effect (M1)	Random effect (M2)	Random effect (M3)	OLS (M4)	OLS (M5)
ACQ	Coef	0.009*	0.005	0.008*	0.003	0.008
	Significance level	(0.096)	(0.276)	(0.089)	(0.570)	(0.126)
INSTOWN	Coef	−0.022*	−0.011*	−0.012*	−0.006	−0.010*
	Significance level	(0.073)	(0.106)	(0.085)	(0.234)	(0.080)
STOWN	Coef	−0.041*	−0.031***	−0.015	−0.025***	−0.007
	Significance level	(0.079)	(0.002)	(0.134)	(0.001)	(0.326)
FOWN	Coef	−0.012	0.000	0.000	0.006	0.005
	Significance level	(0.363)	(0.980)	(0.990)	(0.522)	(0.572)
NGQ	Coef	−0.034***	−0.004	−0.036***	0.005	−0.036***
	Significance level	(0.007)	(0.529)	(0.002)	(0.258)	(0.001)
EAUDQ	Coef	0.003	−0.001	0.000	−0.003	−0.000
	Significance level	(0.760)	(0.707)	(0.923)	(0.257)	(0.898)
FSIZE	Coef	−0.009	−0.000	−0.006***	−0.000	−0.006***
	Significance level	(0.211)	(0.580)	(0.000)	(0.116)	(0.000)
LEV	Coef	0.015	−0.002	0.014	−0.003	0.016**
	Significance level	(0.454)	(0.769)	(0.226)	(0.657)	(0.057)
GROW	Coef	0.044***	0.046***	0.040***	0.044***	0.037*
	Significance level	(0.005)	(0.001)	(0.006)	(0.002)	(0.010)
MTB	Coef	0.000	0.001	0.001	0.001**	0.001**
	Significance level	(0.614)	(0.095)	(0.117)	(0.018)	(0.027)
ROA	Coef	0.043	0.010	0.018	−0.014	0.001
	Significance level	(0.147)	(0.622)	(0.425)	(0.396)	(0.933)
Countrydum		<b>X</b>	<b>X</b>	✓	<b>X</b>	✓
Industrydum		<b>X</b>	<b>X</b>	✓	<b>X</b>	✓
Observations numbers		2310	2310	2310	2310	2310
$R^2$		0.036	0.026	0.033	0.021	0.066
Rho		0.42				
F statistic (11, 2018)		5.10			3.90	5.52
Wald chi2(11)			36.12	1088.29		
Prob > F/Prob > chi2(11)		0.000	0.002	0.000	0.000	0.000

The Bold Model is the main model of the results explanations. M1 = the robust results of the fixed effect model (FE), M2 = the robust results of the random effects model (RE) without country&industry dummies, M3 = the robust results of RE with country&industry dummies, M4 = the robust results of OLS without country&industry dummies, M5 = the robust results of the OLS with country and industry dummies; Variables are defined in Table 4; \*\*\*, \*\*, \* significant at 1%, 5%, and 10%

Overall, our results on firm-level ownership governance mechanism show that only two firm-level governance mechanisms (institutional ownership and state ownership) are influential in reducing the engagement in AEM in GCC listed companies.

As for country-level governance mechanism, we find a negative relationship between national governance quality and AEM practices of the GCC companies, suggesting that there is an association between companies with high national governance and level of AEM before acquisition (H3). The result supports the institutional theory argument, and EM motivations are influenced through the strength of formal (legal rules). Countries with strong investor protection are more likely to engage in ethical practices

responding to local pressures (Lourenço et al. 2018). Consistent with this argument, the level of investor protection (rule of law) reduces reporting manipulation of companies as strong investor protection mitigates the ability of management to acquire private benefits of control at the expense of investors (Leuz et al. 2003). This finding supports the prior studies (such as Elkalla 2017) arguing that companies running their businesses in countries with strong legal environment have lower levels of engagement in AEM. Hence, national governance quality is found to be an efficient tool in restraining engagement in AEM. However, national governance quality in each country in the GCC region varies. UAE and Qatar have higher national governance quality compared to the other 4 countries with Saudi Arabia having the lowest



quality. Therefore, Saudi Arabia has the highest level of the engagement in AEM. This result could help policymakers in the GCC to review and improve the national governance quality factors in Saudi Arabia, Kuwait, Oman, and Bahrain to mitigate the engagement in AEM.

In terms of control variables, the growth rate is noted to have a positive and a significant relationship with AEM. This is consistent with Alzoubi (2018), González and García-Meca (2014), Lobo and Zhou (2006), and Abdul Rahman and Ali (2006). High growth companies tend to engage more in EM to mitigate fluctuations in earnings as such fluctuations deliver negative signals to participants in the market.

In addition, we test the interaction effects in the GCC markets using four interactions between acquisition and ownership structure (institutional, state, and foreign) and national governance quality (country level) to reflect the importance of GCC context and we report these models in Table 6. We find no significant impact of these interactions, while our main independent variables have similar findings as those reported in Table 5. Thus, our results are robust after controlling for any possible interactions that might lead acquiring firms with ownership structure and whether national governance quality (country-level) can interact with acquisition decisions to engage more in AEM than non-acquiring companies in the GCC framework (Table 6).

## Further results

In the previous analysis, we use absolute value of accruals earnings management to capture the combined impact of positive and negative accruals earnings management (Gul et al. 2009). To enhance the strengths of the main results, in this section we employ signed accruals earnings management to replace absolute accruals earnings management. The signed accruals earnings management is divided into two groups, namely income increasing and income decreasing. This procedure follows the vast empirical studies Tutuncu (2019), Lennox et al. (2018), Kassamany et al. (2017), Lehmann (2016), Karim et al. (2016), García-Meca and Sánchez-Ballesta (2009), Louis (2004), and Erickson and Wang (1999). As regards income increasing, prior studies such as Tutuncu (2019), Lennox et al. (2018), Kassamany et al. (2017), Lehmann (2016), Karim et al. (2016), Louis (2004), and Erickson and Wang (1999) have reported that acquiring companies engage in earnings management pre-acquisition through income increasing, since managers seek to increase the opportunity of the company to attract more investors from the market. Hence, an impression of confidence and a low level of risk could be generated among investors toward financing the company (Spence 1973). However, we have also added in our analysis income decreasing to further investigate our results. The final sample of the income-increasing group is 1303 observations and

281 companies, and the income-decreasing group is 1007 observations and 272 companies.

First, we use signed AEM as an alternative of absolute value. Further test results in Table 7 extend the evidence that the main result of this research is robust and consistent with various alternative signed accruals earnings management, reported in Tables 5 and 6. Even though the values of coefficients and significance level were different, the pattern of the associations between AEM and the factors is the same.

Second, as shown in Table 8 (Model 1), the acquisition has a significant and positive association with income-increasing AEM. This implies that managers in acquiring companies engage in AEM by the end of the financial year through income increasing. This is consistent with the findings from other studies investigating other markets (e.g., Tutuncu 2019; Lennox et al. 2018; Kassamany et al. 2017). These studies argue that acquiring companies engage in EM before acquisition through income increasing, since managers seek to increase the opportunity of the company to attract more investors from the market. Thereby, an impression of confidence and a low level of risk could be generated among investors toward financing the company (Spence 1973). According to Table 6, ownership structure as firm-level governance mechanism (institutional ownership, state ownership, and foreign ownership) and national governance quality as country-level governance mechanism do not have a statistically significant association with income-increasing AEM.

As regards the income-decreasing group, Model 1 in Table 9 shows acquisition, state ownership, and foreign ownership have an insignificant association with income-decreasing AEM. However, institutional ownership has a significance and negative association with income-decreasing AEM. This negative association could be due to institutional ownership companies have more expertise and reasonable access to resources, which qualify them to obtain suitable information at a lower level of cost and therefore monitoring managers' opportunistic behavior and mitigate engaging in EM (Arouri et al. 2014). In addition, national governance quality as country level is observed to have a significance and negative association with income-decreasing AEM. This implies that managers in acquiring companies engage less in AEM through income decreasing when they have a higher quality of national governance. This result can be due to countries with a high national governance quality bear manager responsible for the rights of shareholders, which, in turn, mitigates engaging in EM to hides genuine performance (Huang 2018).

These two separate subsets income increasing and income decreasing are the cumulative results in the Signed-AEM (Table 7) as robustness check. This could help in providing further robustness checks on examining which factor influences the EM and how it influences.



**Table 6** Regression results of the effect of the interaction of acquisition with firm level and country level on accruals earnings management in the GCC listed companies

AEM		Fixed effect (Model1)	Random effect (Model2)	Random effect (Model3)	OLS (Model4)	OLS (Model5)
ACQ	Coef	<i>0.017*</i>	<i>0.019**</i>	<i>0.021**</i>	<i>0.019**</i>	<i>0.024***</i>
	P value	<i>(0.062)</i>	<i>(0.026)</i>	<i>(0.012)</i>	<i>(0.024)</i>	<i>(0.005)</i>
INSTOWN	Coef	<i>−0.023**</i>	<i>−0.012*</i>	<i>−0.011*</i>	<i>−0.007*</i>	<i>−0.009*</i>
	P value	<i>(0.016)</i>	<i>(0.062)</i>	<i>(0.065)</i>	<i>(0.187)</i>	<i>(0.093)</i>
ACQ* INSTOWN	Coef	<i>−0.002</i>	<i>−0.006</i>	<i>−0.007</i>	<i>−0.004</i>	<i>−0.008</i>
	P value	<i>(0.905)</i>	<i>(0.738)</i>	<i>(0.710)</i>	<i>(0.818)</i>	<i>(0.659)</i>
STOWN	Coef	<i>−0.040**</i>	<i>−0.030**</i>	<i>−0.015</i>	<i>−0.024**</i>	<i>−0.008</i>
	P value	<i>(0.038)</i>	<i>(0.010)</i>	<i>(0.197)</i>	<i>(0.015)</i>	<i>(0.426)</i>
ACQ* STOWN	Coef	<i>−0.020</i>	<i>−0.028</i>	<i>−0.027</i>	<i>−0.041</i>	<i>−0.037</i>
	P value	<i>(0.618)</i>	<i>(0.451)</i>	<i>(0.466)</i>	<i>(0.295)</i>	<i>(0.331)</i>
FOWN	Coef	<i>−0.006</i>	<i>0.007</i>	<i>0.007</i>	<i>0.013</i>	<i>0.011</i>
	P value	<i>(0.716)</i>	<i>(0.523)</i>	<i>(0.560)</i>	<i>(0.193)</i>	<i>(0.274)</i>
ACQ* FOWN	Coef	<i>−0.015</i>	<i>−0.028</i>	<i>−0.022</i>	<i>−0.035</i>	<i>−0.024</i>
	P value	<i>(0.552)</i>	<i>(0.216)</i>	<i>(0.324)</i>	<i>(0.126)</i>	<i>(0.289)</i>
NGQ	Coef	<i>−0.033***</i>	<i>−0.017</i>	<i>−0.033***</i>	<i>0.008</i>	<i>−0.032***</i>
	P value	<i>(0.003)</i>	<i>(0.800)</i>	<i>(0.001)</i>	<i>(0.172)</i>	<i>(0.003)</i>
ACQ* NGQ	Coef	<i>−0.014</i>	<i>−0.022</i>	<i>−0.022</i>	<i>−0.027*</i>	<i>−0.028**</i>
	P value	<i>(0.368)</i>	<i>(0.120)</i>	<i>(0.115)</i>	<i>(0.059)</i>	<i>(0.050)</i>
EAUDQ	Coef	<i>0.003</i>	<i>−0.001</i>	<i>−0.001</i>	<i>−0.003</i>	<i>−0.001</i>
	P value	<i>(0.711)</i>	<i>(0.631)</i>	<i>(0.794)</i>	<i>(0.236)</i>	<i>(0.550)</i>
FSIZE	Coef	<i>−0.008*</i>	<i>−0.000</i>	<i>−0.006***</i>	<i>−0.000</i>	<i>−0.006***</i>
	P value	<i>(0.095)</i>	<i>(0.573)</i>	<i>(0.000)</i>	<i>(0.144)</i>	<i>(0.000)</i>
LEV	Coef	<i>−0.015</i>	<i>−0.003</i>	<i>0.017*</i>	<i>−0.004</i>	<i>0.018**</i>
	P value	<i>(0.347)</i>	<i>(0.723)</i>	<i>(0.073)</i>	<i>(0.586)</i>	<i>(0.024)</i>
GROW	Coef	<i>0.044***</i>	<i>0.045***</i>	<i>0.041***</i>	<i>0.044***</i>	<i>0.039***</i>
	P value	<i>(0.000)</i>	<i>(0.000)</i>	<i>(0.000)</i>	<i>(0.000)</i>	<i>(0.000)</i>
MTB	Coef	<i>−0.000</i>	<i>0.001</i>	<i>0.001*</i>	<i>0.017**</i>	<i>0.001**</i>
	P value	<i>(0.625)</i>	<i>(0.118)</i>	<i>(0.094)</i>	<i>(0.032)</i>	<i>(0.021)</i>
ROA	Coef	<i>0.044**</i>	<i>0.011</i>	<i>0.017</i>	<i>−0.013</i>	<i>−0.001</i>
	P value	<i>(0.039)</i>	<i>(0.530)</i>	<i>(0.328)</i>	<i>(0.424)</i>	<i>(0.905)</i>
Country dummy		No	No	Yes	No	Yes
Industry dummy		No	No	Yes	No	Yes
Number of observations		2310	2310	2310	2310	2310
R-squared		0.006	0.022	0.056	0.025	0.057
F statistic (18, 238)		5.13			3.92	7.03
Wald chi2(12)			56.22	109.58		
Prob > F/Prob > chi2(11)		0.000	0.000	0.000	0.000	0.000

The Bold Model is the main model of the results explanations. M1=the robust results of the fixed effect model (FE), M2=the robust results of the random effects model (RE) without country&industry dummies, M3=the robust results of RE with country&industry dummies, M4=the robust results of OLS without country&industry dummies, M5=the robust results of the OLS with country and industry dummies; Variables are defined in Table 4; \*\*\*, \*\*, \* significant at 1%, 5%, and 10%

## Robustness check

In our key analysis, this study uses the modified Jones model to estimate AEM. As a robust check, we use Kothari et al.'s (2005) model as an alternative estimator of discretionary accruals, i.e., a proxy for absolute AEM. The results are reported in Table 8 and strengthen our previous findings.

Even though the values of coefficients and significance level were different, the trend of the association between AEM and acquisition, external audit quality, institutional ownership, state ownership, foreign ownership, and national governance quality in Kothari et al.'s (2005) model is similar to modified Jones model (Table 10).



**Table 7** The robust regression results of the relationship between acquisition and CG mechanisms on signed AEM in the GCC companies

Signed_DACC		Fixed effect (Model1)	Random effect (Model2)	Random effect (Model3)	OLS (Model4)	OLS (Model5)
ACQ	Coef	0.017**	0.012*	0.012*	0.009	0.009
	Significance level	(0.021)	(0.062)	(0.076)	(0.155)	(0.170)
INSTOWN	Coef	−0.001	−0.002	−0.004	−0.003	−0.006
	Significance level	(0.929)	(0.821)	(0.618)	(0.669)	(0.403)
STOWN	Coef	0.023	−0.029***	−0.014	−0.038***	−0.021*
	Significance level	(0.401)	(0.007)	(0.262)	(0.000)	(0.064)
FOWN	Coef	−0.002	−0.026*	−0.018	−0.030**	−0.019
	Significance level	(0.880)	(0.056)	(0.173)	(0.014)	(0.116)
NGQ	Coef	−0.036**	−0.030***	−0.036**	−0.030***	−0.036**
	Significance level	(0.024)	(0.000)	(0.014)	(0.000)	(0.011)
EAUDQ	Coef	0.019**	0.003	0.006	0.002	0.005
	Significance level	(0.044)	(0.512)	(0.277)	(0.535)	(0.218)
FSIZE	Coef	−0.006	0.000	−0.002	0.000	−0.002*
	Significance level	(0.460)	(0.779)	(0.121)	(0.567)	(0.10)
LEV	Coef	0.120***	0.056***	0.069***	0.048***	0.061***
	Significance level	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
GROW	Coef	0.093***	0.087***	0.086***	0.079***	0.081***
	Significance level	(0.000)	(0.001)	(0.000)	(0.000)	(0.000)
MTB	Coef	−0.001	−0.001	−0.002	−0.002*	−0.002**
	Significance level	(0.503)	(0.199)	(0.167)	(0.051)	(0.038)
ROA	Coef	0.173***	0.113***	0.114***	0.095***	0.095***
	Significance level	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Countrydum		<b>X</b>	<b>X</b>	✓	<b>X</b>	✓
Industrydum		<b>X</b>	<b>X</b>	✓	<b>X</b>	✓
Observations numbers		2310	2310	2310	2310	2310
$R^2$		0.062	0.055	0.058	0.051	0.070
F statistic (11, 2018)		5.45			10.43	7.45
Wald chi2(11)			74.98	1177.15		
Prob > F/Prob > chi2(11)		0.000	0.000	0.000	0.000	0.000

The Bold Model is the main model of the results explanations. M1=the results of RE with country&industry dummies, M2=the results of the RE without country&industry dummies, M3=the results of the FE model, M4=the results of OLS without country&industry dummies, M5=the results of OLS with country&industry dummies; Signed\_DACC represents the signed value accruals earnings management before transforming to absolute value in year  $t - 1$ ; Variables are defined in Table 4; \*\*\*, \*\*, \* significant at 1%, 5%, and 10%

Variables are defined in Table 4

Endogeneity might generate biased and inconsistent parameters leading regression estimators to be unreliable (e.g., Wintoki et al. 2012), and it is commonly recognized that the endogeneity problem is prevalent in corporate governance research (e.g., Roberts and Whited 2013). Wintoki et al. (2012) argue that dynamic models (when lagged of the performance of firm is employed) ought to be the suitable model in corporate governance studies. Hence, this study uses a 1-year lagged independent variables and dependent variable in the main and alternative regressions. Hence, endogeneity issue is not of a matter in this study's empirical regressions.

## Conclusion

This paper investigates the factors influencing AEM in the GCC listed companies. These factors are acquisition, ownership structure, and country-level mechanism. The results provide evidence that the GCC listed companies engage in AEM. The highest engagement in AEM across the GCC region is in Saudi Arabia, whereas the lowest engagement in AEM is in UAE and Qatar. This is because the lowest national governance quality across the GCC is in Saudi Arabia, whereas the highest national governance quality is in UAE and Qatar. It is noted that acquiring companies engage



**Table 8** Regression results of the effect of acquisition, firm level, and country level on income-increasing accruals earnings management in the GCC listed companies

AEM (income increasing)		Fixed effect (M1)	Random effect (M2)	Random effect (M3)	OLS (M4)	OLS (M5)
ACQ	Coef	<b>0.013*</b>	0.010	0.011*	0.009	0.012*
	Significance level	<b>(0.071)</b>	(0.218)	(0.079)	(0.188)	(0.079)
INSTOWN	Coef	−0.016	−0.004	−0.009	0.000	−0.007
	Significance level	(0.214)	(0.624)	(0.285)	(0.994)	(0.331)
STOWN	Coef	−0.026	−0.036**	−0.014	−0.039***	−0.011
	Significance level	(0.399)	(0.028)	(0.412)	(0.007)	(0.437)
FOWN	Coef	−0.018	−0.018	−0.009	−0.014	−0.002
	Significance level	(0.428)	(0.232)	(0.546)	(0.302)	(0.854)
NGQ	Coef	−0.015	−0.007	−0.022	−0.003	−0.029*
	Significance level	(0.343)	(0.455)	(0.129)	(0.690)	(0.063)
EAUDQ	Coef	0.006	0.002	0.005	0.001	0.005
	Significance level	(0.566)	(0.702)	(0.288)	(0.686)	(0.222)
FSIZE	Coef	−0.008	−0.000	−0.007***	−0.000	−0.008***
	Significance level	(0.250)	(0.722)	(0.000)	(0.591)	(0.000)
LEV	Coef	0.069***	0.019	0.042***	0.013	0.040***
	Significance level	(0.006)	(0.138)	(0.002)	(0.242)	(0.001)
GROW	Coef	0.057***	0.067***	0.064***	0.074***	0.068***
	Significance level	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
MTB	Coef	0.000	0.000	0.000	0.000	0.000
	Significance level	(0.716)	(0.511)	(0.726)	(0.456)	(0.770)
ROA	Coef	0.083**	0.036	0.051*	0.009	0.031
	Significance level	(0.020)	(0.201)	(0.079)	(0.737)	(0.265)
Countrydum		<b>X</b>	<b>X</b>	✓	<b>X</b>	✓
Industrydum		<b>X</b>	<b>X</b>	✓	<b>X</b>	✓
Observations numbers		1303	1303	1303	1303	1303
R <sup>2</sup>		0.040	0.034	0.038	0.036	0.088
F statistic		3.89			4.47	4.67
Wald chi2(11)			47.38	90.17		
Prob > F/Prob > chi2(11)		0.000	0.000	0.000	0.000	0.000

The Bold Model is the main model of the results explanations. M1=the results of RE with country&industry dummies, M2=the results of the RE without country&industry dummies, M3=the results of the FE model, M4=the results of OLS without country&industry dummies, M5=the results of OLS with country&industry dummies; Variables are defined in Table 4; \*\*\*, \*\*, \* significant at 1%, 5%, and 10%

more in AEM than non-acquiring companies. Acquiring companies engage in AEM through income increasing rather than income decreasing. In terms of ownership structure, institutional ownership and state ownership are obtained to be an efficient tool in restraining engagement in AEM, while foreign ownership is observed to be an inefficient mechanism in mitigating engagement in AEM. Finally, national governance quality is found to be an efficient tool in restraining engaging in AEM.

As for the interaction between acquisition and firm level and country level, it is not statistically significant.

The study has several empirical implications. For instance, shareholders in non-acquiring companies should be aware of the consequences of EM used by managers in acquiring firms. Target companies also should be aware of the consequences of EM employed before the acquisition by acquiring companies, given the role of EM in masking the genuine information of the company. The results are helpful in assisting regulatory activities, especially in policies making to regulate the ownership structure. Companies in GCC should benefit from institutional and state ownership to act as monitoring device to mitigate EM.

**Table 9** Income-decreasing accruals earnings management in the GCC listed companies

AEM (income decreasing)*(-1) <sup>1</sup>		Fixed effect (M1)	Random effect (M2)	Random effect (M3)	OLS (M4)	OLS (M5)
ACQ	Coef	-0.001	-0.005	-0.001	-0.007	-0.001
	Significance level	(0.848)	(0.395)	(0.807)	(0.294)	(0.769)
INSTOWN	Coef	-0.025*	-0.011	-0.007	-0.010	-0.006
	Significance level	(0.063)	(0.133)	(0.365)	(0.153)	(0.421)
STOWN	Coef	-0.030	-0.014	-0.004	-0.009	0.001
	Significance level	(0.188)	(0.270)	(0.748)	(0.428)	(0.917)
FOWN	Coef	-0.007	0.020*	0.010	0.028**	0.014
	Significance level	(0.678)	(0.094)	(0.386)	(0.016)	(0.211)
NGQ	Coef	-0.037**	0.012	-0.036***	0.019**	-0.034**
	Significance level	(0.014)	(0.131)	(0.008)	(0.011)	(0.014)
EAUDQ	Coef	-0.008	-0.006	-0.005	-0.010**	-0.007
	Significance level	(0.560)	(0.162)	(0.272)	(0.016)	(0.115)
FSIZE	Coef	-0.004	-0.000	-0.003**	-0.001	-0.003***
	Significance level	(0.587)	(0.441)	(0.031)	(0.154)	(0.007)
LEV	Coef	-0.067***	-0.036***	-0.026**	-0.030***	-0.021**
	Significance level	(0.005)	(0.002)	(0.030)	(0.005)	(0.059)
GROW	Coef	0.000	0.004	-0.004	0.008	-0.004
	Significance level	(0.960)	(0.690)	(0.700)	(0.473)	(0.737)
MTB	Coef	0.001	0.002*	0.002*	0.002**	0.002**
	Significance level	(0.395)	(0.086)	(0.090)	(0.038)	(0.043)
ROA	Coef	-0.020	-0.029	-0.024	-0.033*	-0.023
	Significance level	(0.486)	(0.151)	(0.250)	(0.098)	(0.257)
Countrydum		<b>X</b>	<b>X</b>	✓	<b>X</b>	✓
Industrydum		<b>X</b>	<b>X</b>	✓	<b>X</b>	✓
Observations numbers		1007	1007	1007	1007	1007
R <sup>2</sup>		0.039	0.008	0.028	0.039	0.11
F statistic		2.73			3.73	4.81
Wald chi2(11)			27.11	97.72		
Prob > F/Prob > chi2(11)		0.001	0.001	0.000	0.000	0.000

The Bold Model is the main model of the results explanations. M1=the results of RE with country&industry dummies, M2=the results of the RE without country&industry dummies, M3=the results of the FE model, M4=the results of OLS without country&industry dummies, M5=the results of OLS with country&industry dummies; Variables are defined in Table 4; \*\*\*, \*\*, \* significant at 1%, 5%, and 10%

Investors should invest in state or institutional owners' companies as state-owned companies have easy ways to access resources and have the aim of maintaining social stability rather than generating profit. In addition, institutional ownership companies have more expertise and reasonable access to resources, which qualify them to monitor managers' opportunistic behavior and mitigate engaging in EM. Policy makers in GCC are also encouraged to concentrate on developing the national governance system to mitigate EM.

This study has also some limitation as when compared with developed countries the access to corporate governance data in the GCC seems challenging due to the lack of publishing in the well-known databases. This leads to collect data manually from the reported financial statements. In addition, the lack of database of corporate governance poses a limitation to this research as other variables of corporate governance could assist in identifying the importance of corporate governance



**Table 10** The robust regression results of the relationship between acquisition and CG mechanisms on AEM in the GCC companies by Kothari model as an alternative test

ABS_DACC		Fixed effect (M1)	Random effect (M2)	Random effect (M3)	OLS (M4)	OLS (M5)
ACQ	Coef	0.008	0.006	0.009*	0.003	0.009
	Significance level	(0.113)	(0.223)	(0.062)	(0.460)	(0.084)
INSTOWN	Coef	−0.024**	−0.011*	−0.012*	−0.007	−0.010*
	Significance level	(0.043)	(0.085)	(0.069)	(0.175)	(0.066)
STOWN	Coef	−0.021	−0.031***	−0.019**	−0.031***	−0.018
	Significance level	(0.279)	(0.001)	(0.022)	(0.000)	(0.013)
FOWN	Coef	−0.006	−0.000	−0.000	0.002	0.001
	Significance level	(0.643)	(0.966)	(0.949)	(0.784)	(0.884)
NGQ	Coef	−0.026**	−0.002	−0.028**	0.004	−0.028***
	Significance level	(0.036)	(0.659)	(0.014)	(0.334)	(0.006)
EAUDQ	Coef	0.002	−0.001	0.000	−0.002	−0.000
	Significance level	(0.822)	(0.793)	(0.882)	(0.420)	(0.966)
FSIZE	Coef	−0.010	−0.000	−0.005***	−0.000	−0.005***
	Significance level	(0.144)	(0.497)	(0.000)	(0.164)	(0.000)
LEV	Coef	0.021	0.000	0.018	−0.000	0.018**
	Significance level	(0.304)	(0.932)	(0.126)	(0.944)	(0.028)
GROW	Coef	0.050***	0.052***	0.048***	0.051***	0.047***
	Significance level	(0.001)	(0.000)	(0.001)	(0.000)	(0.001)
MTB	Coef	0.000	0.001	0.001	0.001**	0.001**
	Significance level	(0.749)	(0.185)	(0.181)	(0.083)	(0.069)
ROA	Coef	0.051	0.016	0.021	−0.006	0.002
	Significance level	(0.080)	(0.416)	(0.291)	(0.705)	(0.885)
Countrydum		<b>X</b>	<b>X</b>	✓	<b>X</b>	✓
Industrydum		<b>X</b>	<b>X</b>	✓	<b>X</b>	✓
Observations numbers		2310	2310	2310	2310	2310
R <sup>2</sup>		0.036	0.028	0.034	0.026	0.056
F statistic (11, 2018)		4.87			4.42	6.22
Wald chi2(11)			39.62	91.47		
Prob > F/Prob > chi2(11)		0.000	0.000	0.000	0.000	0.000

The Bold Model is the main model of the results explanations. M1=the results of RE with country&industry dummies, M2=the results of the RE without country&industry dummies, M3=the results of the FE model, M4=the results of OLS without country&industry dummies, M5=the results of OLS with country&industry dummies; Variables are defined in Table 4; \*\*\*, \*\*, \* significant at 1%, 5%, and 10%

mechanisms in mitigating EM in acquiring and non-acquiring companies.

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