What do we know about Real Earnings Management in the GCC?

Abstract

Purpose: We empirically investigate the association between acquisition, ownership structure and accrual earnings management (AEM) on real earnings management (REM) using GCC listed firms' context.

Design/methodology/approach –Our sample consists of 1,892 firm-year observations for the period from 2007-2017, and we adopt a panel data approach in investigating the interrelationships in this study. We employ different econometrics approach to test our hypotheses.

Findings: The findings reveal that acquiring companies engage more in AEM if compared to REM. In terms of ownership structure: institutional ownership and state ownership mitigate the engagement in REM, whereas foreign ownership is found to be an ineffective mechanism in reducing engagement in REM. We report similar findings on ownership structure for AEM. We also find that the GCC firms engage more in REM when they engage in AEM, suggesting a complementary relation between these two earnings management techniques. These findings are robust after controlling for different aspects including any endogeneity issue in our models.

Originality/value: Our research highlights the importance of understanding REM and AEM dynamics in GCC context. Also, our findings on ownership structure suggest that GCC listed firms can gain from institutional and state ownership which restricts earnings management, improving firm transparency and subsequently impacting firm performance.

Keywords: GCC, Accrual Earnings Management, Real Earnings Management, Ownership Structure,

1. Introduction:

The manipulation of a firm's earnings, known as earnings management, has extensively been investigated in both developed and developing countries (Graham et al., 2005). There are two types of earnings management: real earnings management (REM) and accruals earnings management (AEM), which have been the subject of ongoing debate among academics and regulators to examine their determinants and implications for companies and their stakeholders. AEM can be easily detected by auditors due to the use of accruals in financial statements' preparation, leading researchers to focus on REM, which is more challenging to detect as it can occur at any time during the financial year (Osma et al., 2022).

Real earnings management can be achieved through three legal activities: increasing sales through sales discounts, reducing expenses to boost income, and minimizing goods sold costs through overproduction. Empirical studies have shown that developing countries use both real and accrual earnings management techniques, while developed markets only use real earnings management (Al-Haddad and Whittington, 2019; Chen et al., 2012; Ge and Kim, 2013; Kuo et al., 2014; Zang, 2012). In this study, we focus on real earnings management and examines whether there is a complementary or substitution effect between accruals earnings management and real earnings management in firms operating in the Gulf Cooperation Council (GCC), namely Bahrain, Kuwait, Qatar, Oman, Saudi Arabia, and The United Arab Emirates. Existing empirical evidence on GCC region shows that real earnings management is used by firms in GCC region (Al-Amri, 2017). However, the existing research has not addressed whether the observed real earnings management is dependent on accruals earnings management. Given that GCC region is characterized by poor supervisory and regulatory scrutiny (Al-Amri, 2017, Abdallah and Ismail, 2017), we argue that the observed REM in the region is dependent on the use of AEM, given that AEM is less costly and less likely to be detected in countries with poor supervisory and regulatory scrutiny (Zang, 2002 and Barton, 2001, Piosik and Genge, 2020). As such our study aims to fills this existing gap in the knowledge, which will have implications both to academics and practitioners having an interest in GCC region.

As we investigate the use of REM for firms operating on GCC region, our study delves deeper by examining whether the use of REM differs between acquiring and non-acquiring firms of GCC countries. Despite that GCC region is characterized with poor supervisory and regulatory scrutiny (Al-Amri, 2017 and Abdallah and Ismail, 2017), we argue that during an acquisition, acquiring firms can be subject to higher scrutiny on their reported financial

earnings which can lead them to be less likely to use REM when compared with non-acquiring firms in GCC region.

In this study, we also examine the impact of ownership types on earnings management (REM) in GCC region, given the prevalence of concentrated ownership in the GCC region (Al-Sehali and Spear, 2004),. Specifically, we focus on investigating three types of ownership: institutional, state, and foreign. Since each of these types of ownership offers distinct advantages and has diverse interests for the firm, it may result in varying implications for earnings management, as suggested by Gong and Choi (2021) and Feng and Huang (2021). Therefore, conducting empirical research on the effect of ownership type on REM is important within the GCC context.

With this study, we aim to expand the limited knowledge on earnings management on GCC countries. Specifically, the existing few studies on the use of earnings management on GCC region either focus on single industry – oil and gas industry use of accruals earnings management (Mnif and Hamouda, 2021); or on the use of REM for two types of firms public vs private firms (Al- Amri, 2017) or on specific firm auditing committee characteristics on the trade-off between real and accrual earnings management (Ali, 2022) Our study provides a more in depth analysis for several reasons. First, in this study, the analysis on earnings management is undertaken for all companies listed in GCC countries, and not limited to a single industry like Mnif and Hamouda, (2021). Second, in our study we extend the existing knowledge on the ownership effect on real earnings management (Al-Amri, 2017), by looking at three types of ownership: institutional, state and foreign ownership. Thirdly, our study is the first study to investigate whether there is a difference in the use of real earnings management between acquiring and non-acquiring firms in the GCC region. By empirically examining whether acquiring firms engage in REM, we aim to offer valuable insights for target firms in GCC region to be aware of before the acquisition takes place. Fourth, our study expands on Ali (2022) work on the trade-off between real and accruals earnings management in GCC region, by looking at whether the association between AEM and REM is dependent on ownership type and whether the firm is an acquiring firm. This is significant as AEM and REM are two forms of earnings management that differ in their impact on the cash flow of the firm and understanding the relationship between the two can provide further insights into the behaviour of firms within the GCC context.

Therefore, understanding the factors that REM in the GCC context can help identify the specific mechanisms that GCC firms use to manipulate their financial statements. Overall, we provide key academic and practical contributions in shedding light on the use of REM in the GCC context and its relationship with ownership structure and whether the GCC firm is involved in an acquisition process. The findings can help investors, regulators, and other stakeholders in the region to better understand the behaviour of firms and make more informed decisions.

This study, hence, aims to investigate different aspects related to real earnings management including i) if acquisition decisions have any impact on real earnings management; ii) if ownership structure has any impact on real earnings management; finally iii) whether the GCC companies use real and accruals earnings managements simultaneously as complements or as substitutes

This paper is organised as follows: Section 2 demonstrates theoretical framework and hypotheses development. Section 3 presents data sources and collection, sample selection, methodology and the descriptive statistics. Section 4 presents empirical results, robustness check, and Section 5 provides the conclusion.

2. Overview of the GCC context

GCC region is a key player in the global economy due to rich natural resources, with its oil reserves accounting for 40% of the world's total reserves. This makes the region a key contributor to the global economy (Amar et al., 2022). Three states of the GCC region, namely Saudi Arabia, Kuwait, and the UAE, are among the top ten countries with the largest oil reserves worldwide. However, the institutional characteristics of the GCC region are unique, as the state and upper-class families control firms (Soural, 2004). This might offer an excellent opportunity to investigate the impact of earnings management practices in this context. It is worth noting that the importance of the GCC region is extended beyond its oil reserves since the region serves as the financial and commercial centre of the Middle East and North Africa (MENA) (Baydoun et al., 2012). The adoption of International Financial Reporting Standards (IFRSs) by the GCC states between 2001 and 2008 is another important development. The rapid growth of the markets alongside the pressure from international firms to meet the requirements of shareholders and investors have motivated the adoption of IFRSs (Hussain et al., 2012).

Compared to other developing countries, the GCC financial markets have fewer listed companies, high association with international markets, and high diversification (Yu and Hassan, 2008). However, there is a lack of independent directors on the board (Ferrarini and Filippelli, 2015), and the concentration of ownership is primarily in the state hands and the upper-class families (Soural, 2004). Public companies in the region depend on debt funding from banks due to this concentrated ownership (Alresheedi, 2015)., which leads to inefficient markets and weakened corporate governance performance (Held and Ulrichsen, 2013). Consequently, understanding the corporate governance practices and their impact on earnings management is crucial for promoting investor prospects, especially for foreign and minority investors, in the GCC's financial and commercial center.

The GCC market model of corporate governance is a one-tier system where shareholders select the board of directors, and individual shareholders do not interfere with the firm's directors (Keasey et al., 1993). This also means that the controlling shareholders can influence the firm's directors (Eulaiwi et al., 2016). Thus, the power of individual shareholders is weakened and controlling shareholders have substantial power over the firm's affairs. All these aspects motivate us to examine the GCC context. The unique institutional characteristics increase the need to examine the extent to which firms in the region engage in earnings management. Our paper can help provide further insights into the potential impact on stakeholders, such as shareholders and investors. Moreover, it can offer recommendations for designing effective governance mechanisms that align the interests of managers with those of shareholders and reduce the risk of earnings manipulation in the region.

3. Theoretical Framework

Agency theory is a key framework for understanding the association between managers and shareholders. One area where agency theory has made a important contribution is in the understanding of earnings management, which involves managers manipulating financial statements to meet or exceed earnings expectations (Jensen, 1986; Jensen and Mecling, 1976). From an agency theory perspective, managers may engage in earnings management to achieve their own goals, which may not necessarily align to those of shareholders. Leading to potential agency costs, including reduced trust in management, increased monitoring costs, and potential legal and reputational risks (Jensen, 1986; Jensen and Mecling, 1976). Agency theory can help in informing the design of governance mechanisms, such as board structure and ownership

structure, to align the interests of managers with those of shareholders and reduce the risk of earnings management. Also, this theory provides a basis for evaluating the effectiveness of these governance mechanisms in minimizing earnings manipulation (Jensen, 1986; Jensen and Mecling, 1976).

Mergers and Acquisition (M&A) are one of the event settings where the use of earnings management has drawn attention to both practitioners and academic scholars. There is an established market anomaly where acquiring firms underperforms post-acquisition (Aggraval, 1992), which has been attributed to a range of theoretical arguments, such as Jensen (1986) free cash flow theory where managers prefer to engage in value reduction projects, Roll (1986) hubris hypothesis where managers are driven by their pride to engage in unworthy investments, or Jensen and Mecling (1976) agency theory where a conflict of interest between shareholders and managers (agent), lead managers to engage in activities that are not of shareholders' interests.

According to Davidson et al. (2005), earnings management is a type of agency cost when the managers provide financial information that differs from the genuine information of the company. In fact, Erickson et al. (1999) argue that managers of acquiring firms would be incentivised to engage in earnings management to affect the value of their company stock. This is prevalent when the target company has a higher purchasing price to what the acquiring company is offering. In this instance, the managers of the acquiring firm seek to decrease the cost of the acquisition by increasing acquiring company's stock price, so that exchange ratio to purchase target firm becomes more favorable and less costly to its shareholders (Erickson and Wang, 1999). However, Erickson and Wang (1999) argue that acquiring companies would only engage in earnings management preceding acquisition when the costs of affecting exchange ratio are low, in the sense that they are not detected by the target companies, otherwise target companies would seek a higher exchange rate or threaten to terminate the deal.

As a result, companies that have growing opportunities publish their financial statements and engage in earnings management to boost investor trust. Once the costs of undoing EM surpass the costs of controlling earnings, EM can be achieved (e.g., Watts and Zimmerman, 1990). It is argued that acquiring companies have a planned purchase strategy in place as well as adequate time, so they can participate in EM (Erickson and Wang, 1999). They are more likely to engage in earnings management whenever the detecting earnings cost is minimal (Louis, 2004). Furthermore, an overvalued company could lead to investors

developing a false sense of security and low risk of the proposed strategy influencing its financing options (Spence, 1973).

4. Empirical Literature Review and hypotheses development

4.1. Empirical Literature- Real Earnings Management.

Real earnings management (REM) is when managers structure transactions through real operational activities to achieve a certain financial goal. The real operational activities that managers undertake has direct effect on cash flow of the firm as opposed to accruals, the latter referred to accruals earnings management (AEM). Real earnings management (REM) can be achieved by engaging in three legal activities: (1) sales discounts to increase sales, (2) expenses reduction to increase income, and (3) overproduction to minimize goods sold cost. Previous literature (Kim et al., 2012, Cohen et al., 2008b) found evidence that companies give a big sales discount, or they are more tolerant of credit conditions to increase their sales. Consequently, this mechanism of REM increases the income of a company in the current year, while it decreases the operational cash flows in the current year (Roychowdhury, 2006). In addition, this mechanism increases production costs while decreasing the income reported in the subsequent year (Roychowdhury, 2006). Discretionary expenses associated with REM donate to the aggregate of administrative expenses, selling expenses, R&D expenses, and advertising expenses. Companies reduce discretionary expenses to report a higher income. Prior studies (Gunny, 2010; Bushee and Noe, 2000) suggested that abnormal discretionary expenses can be estimated through each type of these expenses separately. Alternatively, abnormal discretionary expenses can be estimated through the aggregate of all these expenses (Cohen et al., 2008; Zang, 2012; Roychowdhury, 2006).

The third method of REM is overproduction of stock to minimise the cost of good sold, resulting in increase in the operational income of the current year. As per Dechow et al. (1998) increasing the produced units' numbers leads to a reduction of the fixed cost per unit which in turn increase the unit profit. Roychowdhury (2006) defined abnormal production costs as the cost of goods sold and inventory change during the current year. Roychowdhury (2006) estimated abnormal production costs using a linear regression of current sales. To estimate real earnings management through overproduction activities, this study follows Roychowdhury (2006) as suggested by (Al-Haddad and Whittington, 2019; Chen et al., 2012).Thus, our study estimates real earnings management through estimating abnormal discretionary expenses (ADE), abnormal cash flows from operations (ACFO); and abnormal production costs (APC)

(Roychowdhury, 2006), followed by combining these three estimators to capture the total effect of real earnings management as suggested by different studies (Cohen et al., 2008, Cohen and Zarowin, 2010, Zang, 2012).

4.2. Acquisitions and earnings management:

Several empirical studies have reported acquiring firm's use of earnings management before purchasing a company. Kassamany et al. (2017) examined 197 UK acquiring companies and found that before the acquisition, acquiring firms engage in earnings management, which they ascribe to courting and obtaining authorization from the target's shareholders. Tutuncu (2019) examined the effect of pre-acquisition EM on the success of businesses purchased by their managers in the same region. He surveyed 291 private companies in the United Kingdom and argued that managers cannot fund all purchases with their resources as a result these companies engage in earnings management before acquisition to attract investors. Furthermore, the empirical evidence on the choice between real vs accrual earnings management indicate that it is dependent on type of the acquisition whether it is stock vs cash financed (Erickson and Wang 1999 and Louis 2004). If it is the latter, then real earnings management which influence the firm cash flow are more prevalent. Furthermore, country regulatory restrictions would influence on the type of earnings management. For example, Zhang (2015) demonstrated that acquiring corporations in China engage in real earnings management before the acquisition because of the restrictions imposed on accruals earnings management.

Regarding the GCC region, there is no research on whether acquiring companies in this region engage in earnings management. The few existing studies on GCC region (Al-Amri, 2017) documented that real earnings management is prevalent in both private and public firms and argue that this is attributed to weak corporate governance standards, where reporting standards and supervisory rules are not strictly enforced which leads to opportunistic behaviour. Furthermore, the limited analyst earnings forecast and the lack of reliable sources for financial information (Al-Amri, 2017) along with the high level of ownership concentration in the region (Al-Sehali and Spear, 2004) could lead to higher levels of insider trading (Al-Amri et al, 2012) which would then translate in using earnings management.

However, the cost versus the benefit of engaging in earnings management is subject to the cost associated with the risk of being detected (Erickson and Wang, 1999; Louis 2004). During

an acquisition, acquiring firms are subject to higher scrutiny of their reported financial earnings, which would increase the risk of being detected. This would create a cost for acquiring companies minimizing any benefit from engaging in real earnings management. Hence, we argue that the use of real earnings management in acquiring companies is lower than non-acquiring companies due to higher risk of being detected in the acquisition event. If acquiring firms were to use earnings management, they will more likely use accruals earnings management as opposed to real earnings management. as the latter is a more costly technique due to directly effecting the real cash flow (Zang, 2012; Barton, 2001). This is even more plausible for acquiring firms in the GCC region as the region is characterised by low regulatory scrutiny (Al-Amri 2017), which reduces even further the likelihood of detecting accruals earnings management. Therefore, we hypothesize the following:

H1: GCC-listed companies with acquisition engage less in real earnings management than GCC-listed companies with no acquisition.

4.3. Earnings management and ownership structure:

According to agency theory, the separation of ownership and control can lead to conflict of interests between owner's interests and manager's (agent) interests (Jensen and Meckling, 1976). Managers influenced by their self-interest can move away from activities that would benefit shareholders (Fama, 1980; Jensen and Meckling, 1979). Managers can justify their actions by engaging in earnings management activities. The agency cost created to the firm by manager's opportunistic behaviour can be mitigated by contractual corporate governance monitoring mechanisms (Fama and Jensen, 1983; Shleifer and Vishny, 1997). The ownership structure of a company can be an influential corporate governance mechanism in monitoring management engagement in earnings management.

For GCC countries, where the concentrated ownership is a dominant feature, GCC companies rely on ownership concentration as a corporate governance mechanism to control manager's opportunistic behavior (Soural, 2004). The efficient monitoring hypothesis argue that large shareholders would be more incentivised to monitor managers due to the larger impact it would have in their welfare as opposed to small shareholders, whose effect is relatively lower due to smaller investment value (Fama, 1980; Fama and Jensen, 1983; Shleifer and Vishny, 1997). However, under the entrenchment hypothesis, a principal-principal agency conflict can arise where controlling shareholders due to their larger influence

on managers could impose managers to engage in activities that benefits controlling shareholders at the expense of small shareholders (Shleifer and Vishny, 1997). Hence, large shareholders can cause managers to engage in earnings management, for their private benefits and welfare (Zhong et al. 2007; Jaggi and Tsui, 2007).

Given the prevalence of concentrated ownership in GCC region, our study will focus on the three types of ownership: institutional ownership, state-ownership and foreign ownership. Under the efficient monitoring hypothesis, the institutional ownership in a company introduces additional expertise because it has access to resources, specialised knowledge, and thorough research that other types of investors lack (Ferreira and Matos, 2008, Koh, 2003). The controlling mechanism in which institutional ownership operates may encourage managers to concentrate more on the performance of the companies yet restrict the number of opportunistic managers (Arouri et al., 2014). ELghuweel et al., (2017) state that better-governed corporations tend to engage significantly less in EM than their poorly-governed counterparts. Consequently, institutional ownership can supervise management more effectively than individual shareholders and minimize manager's engagement in earnings management (Roychoudhury, 2006). In instances where institutional owners are long-term oriented they would be even more committed to minimise the opportunistic behaviour of managers (Dalwai et al., 2015). However, according to Duggal and Millar (1999), institutional shareholders are passive shareholders; instead of investing their resources in monitoring managers' behaviour, when companies underperform, they sell their shares. Bushee (1998) and Porter (1992) argue that institutional shareholders are concerned with the short-term financial outcome. As a result, they 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 empirical literature exploring the institutional effect on GCC countries is rather limited and reports mixed results. Al-Duais et al., (2022); Al-Haddad and Whittington (2019) and Alzoubi (2016), find that institutional ownership decreases Jordan companies' engagement in both types of earnings management: AEM and REM. On the other hand, Lassoued et al (2018) found that institutional ownership encourages the use of earnings management only in Islamic banks as opposed to conventional banks operating in Middle East (GCC region) and North Africa. Specific studies on real earnings management, report institutional ownership reduces firm's involvement in this type of earnings management technique. For example, for companies in Poland and Latin America, institutional ownership is an efficient governance mechanism for

mitigating the engagement in real earnings management (Melladoa and Saonab, 2018). This is attributed to institutional investors being more skilled, and more able to reduce information asymmetry between management and shareholders. Within the same context, Kim et al. (2018; Korea) and Hsu and Wen (2015; China) report that institutional investors to constrain real earnings management operations in emerging countries and attribute this effect to institutional investors having more resources to supervise managerial behaviour. We follow the same line of thoughts for GCC region composed of emerging countries that lack monitoring enforcements due to low corporate governance standards (Al-Almri, 2017). As such, we argue that GCC companies with institutional investors will have higher monitoring expertise constraining management engagement in real earnings management. However, if institutional investor were to choose between real earnings management and accruals earnings management, they would more likely use accruals earnings management as it is less costly compared to real earnings management which has direct impact on cash flows.

Given the unique context of GCC region where state ownership is highly prevalent, our second variable of interest is State Ownership and its effect on real earnings management. The available literature offers several theoretical arguments and contradictory empirical evidence on the relationship between state ownership and earnings management (Capalbo et al. 2018). Several studies reporting a positive relationship between state ownership and earnings management argue that firms with state ownership suffer from poor level of governance due to low accountability, lengthy bureaucracy (Shleifer, 1998) and the presence of a range of stakeholders, which can create numerous conflicting interests (Ghosh & Walley, 2008; Bruton et al. 2015) easing managers engagement in earnings management activities Smith (1976). In contrast, studies (Wang and Yung, 2011, Dong et al, 2020) reporting a negative relation between state ownership and earnings management relation argue that state ownership prioritises social stability and employment creation (Li and Zhang 2010) and political benefits over profit maximisation, minimizing agency costs by aligning the principals (owners) and agents (managers) objectives. According to Pan et al. (2014), state ownership can affect a company's performance in several ways. State-owned businesses are thought to have better access to resources such as government support than other ownership types. In fact, state-owned firms rarely use debt financing (Wang and Mao, 2021). 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. Furthermore, remuneration schemes differ in state-owned enterprises from those in other types of businesses, reducing the

incentive for managers to engage in opportunistic behaviour for their private interests (Wang 2022). Due to financial resources and public scrutiny, several studies argued that firms with state ownership have less incentives to engage in earnings management (Wang, 2022; Komal et al., 2021; Hoang et al., 2019; Ding et al., 2007; Shleifer and Vishny, 1986).

In terms of GCC region, characterised by large sovereign wealth funds, we argue that firms with state ownership, will have easy access to financial resources, and as such managers will be less incentivised to manipulate their earnings financial reports for funding purposes. Furthermore, as firms with state ownership are subject to public scrutiny influencing incumbent government reputation, we argue that state ownership will act as a monitoring device in constraining managers in these firms to engage in real earnings management. Based on the two arguments: (i) easy access of state funding and (ii) state reputation. Similarly, firms with state ownership will be less incentivized to engage in accruals earnings management too.

Finally, the existing literature on foreign ownership has extensively debated whether foreign shareholders can actively monitor management. A stream of literature argued that foreign investors increase monitoring over management, as they are more independent than domestic investors who have ties with the incumbent management (Giannetti and Laeven, 2009) easing management engagement in opportunistic behaviours to benefit themselves and their domestic investors. Furthermore, foreign investors are subject to both home and host country regulations, as such they will be more strictly monitors (Giannetti and Laeven, 2019), and produce high quality financial reporting (Beuselick et al, 2017). Furthermore, foreign investors bring additional skills and resources (knowledge spillover hypothesis) such as new technology into local enterprises, aiding in monitoring and oversight of everyday operations (De Clercq et al. 2010; Alzoubi, 2016). Furthermore, attracting foreign ownership requires stricter disclosure regulations (Porta et al., 1999), reducing the incentive for managements to involve in misleading data. Also, as foreign investors are usually substantial block holders, they are significantly motivated to actively participate in operations to increase the value of the enterprises in which they have invested (Ahmed and Iwasaki, 2021).

Empirical literature provided evidence that foreign investors reduce opportunistic real earnings management activities. For example, Pan et al. (2022) reported that foreign ownership to mitigate the engagement in REM in China due to the disciplinary and monitoring roles of foreign investors. Adhikary et al., (2021) found that foreign ownership is an efficient governance mechanism for mitigating the engagement in REM in Bangladesh. Likewise,

Ahmed and Iwasaki, (2021), found that foreign ownership plays a critical role in mitigating the engagement in REM in Japan. This is attributed to the ability of foreign investors in monitoring management via new technology.

However, another stream of literature argued that foreign investors cannot monitor or constrain management opportunistic behaviour in earnings management activities, due to information disadvantage - also referred as information asymmetry hypothesis - on the host country different economic, cultural, language, and regulatory environment (Chan et al, 2005; Kang and Kim, 2010). The high cost associated with acquiring information in a different country would deter foreign investors to monitor manager's financial reporting (Ayers et al. 2011) and their engagement in earnings management activities. Several studies (eg. Sarkar et al, 2008; Lai and Tam 2017) provided evidence of foreign investors being ineffective in restraining earnings management.

In terms of GCC context, we argue that foreign investors would be active monitors as they provide new resources to the company and hence protect their investment value by requesting high quality financial reporting from management. By doing so, they would discourage management engagement in real earnings management activities. However, if foreign investors were to use earnings management they are more likely to use accruals earnings management as it is costly and it does not affect firms cash flows as it would be the case with real earnings management.

Therefore, based on the GCC context, theory and related literature, our main hypotheses regarding ownership structure are:

H2a: GCC-listed companies with institutional ownership engage less in real earnings management than GCC-listed companies with no institutional ownership.

H2b: GCC-listed companies with state ownership engage less in real earnings management than GCC-listed companies with no state ownership.

H2c: GCC-listed companies with foreign ownership engage less in real earnings management than GCC-listed companies with no foreign ownership.

4.4. Real earnings management and accruals earnings management:

Existing literature on real earnings management provides two contrasting views on its relationship with accruals earnings management: complements versus substitutes hypotheses. The substitute hypothesis argued that managers would choose one technique over the other based on the cost-benefit and regulatory scrutiny associated with each technique (Chen et al, 2012). As AEM is less costly to use then REM, managers would prefer to use AEM over REM (Zang, 2012), Barton, 2001). However, if there is high supervisory and regulatory scrutiny, managers would use REM over AEM (Piosik and Genge, 2020), because the latter is more easily detected by auditors and regulators. For instance after Sarbanes–Oxley Act (SOX), managers shifted from engaging AEM to REM due to the former being more likely to attract auditor and regulatory scrutiny than REM (e.g., Cohen et al., 2008, Ho et al., 2015). Several empirical studies have found evidence of the substitute effect (example: Cohen and Zarowin (2010) and Zang (2012) for USA companies and Habbash and Alghamdi (2017) for oil and gas firms in GCC region.

Under the complement hypothesis companies engage in both types of earnings management techniques simultaneously and in a coordinated approach to maximise their desired earnings reporting (Mizik and Jacobson, 2007 and Chen et al. 2012). In fact, the coordinated approach of using both techniques simultaneously achieve the highest effect on inflating firm's earnings (Mizik and Jacobson, 2007). Furthermore, the two types of earnings management techniques are used at different times in the financial reporting year, drawing less attention from regulators in comparison when the company uses a single technique on a specific point in time, as in the case of accruals earnings management (Matsuura, 2008; Mizik and Jacobson, 2007; Roychowdhury, 2006; Chen et al, 2012). Moreover, benefits of adopting both techniques are relatively higher in countries with poor supervisory and reporting standards leading to low litigation costs if being detected (Chen et al, 2012, Al- Amri et al. 2017). Several empirical studies observe the complement hypothesis in emerging markets. For instance, Al-Haddad and Whittington (2019) reported that Jordanian companies use AEM and REM as complements which is facilitated by the weak regulatory scrutiny in Jordan. In the same line, Chen et al. (2012) reported that Taiwanese companies use AEM and REM as complements and attributes to the low reporting requirement setting in Taiwan.

The GCC region is identified as a region with low reporting quality and regulatory supervision (Al-Amri, 2017, Abdallah and Ismail, 2017). This feature eases GCC listed companies simultaneous use of REM and AEM as complements, so that they can achieve the

highest effect on inflating firm's earnings and maximizing their desired earnings reporting. As such we hypothesize the following:

H3: There is a positive association between accruals earnings management and real earnings management for GCC listed companies.

5. DATA AND METHODOLOGY

5.1 Data and sample construction

Our data collection methods varied: for actual earnings management, OSIRIS database was used, yet for control variables, the data was collected manually. OSIRIS database was used to collect information on GCC enterprises' comprehensive financial data. On the other hand, data on acquisition and ownership structure were collected from Thomson database. Data on external audit quality was manually collected from public yearly financial reports. The World Bank database, being the most comprehensive and accurate source available, was used to collect national corporate governance (NCG) data. Banks and insurance businesses have been removed from the collected dataset because of their differing financial statement features (Klein, 2002; Arun et al., 2014). Still, unlike other companies, banks and insurance companies are subject to a different set of regulations and corporate governance codes. Since non-financial organisations and financial corporations (banks and insurance companies) have various means of analysing earnings management, rules, and corporate governance codes, banks and insurance companies were omitted from this study to ensure a consistent and appropriate observation (Alqatamin et al., 2017).

Our research employs non-financial firms listed on the six GCC stock markets for the period between 2007 to 2017. It is worth noting that the sample period coincided with the significant growth in oil prices in 2007. Furthermore, in 2010, the stock market began to recover from the global financial crisis of 2008 (Dalwai et al., 2015). Our sample data includes all publicly traded companies, regardless of size (Wintoki et al., 2012). Only GCC is included in the initial sample to ensure data consistency, including common disclosure and accounting standards. To ensure a representative sample of mergers and acquisitions across the GCC, no restrictions on the type of consideration were used. To sum up, within the financial years 2007-2017, the final sample contains 255 companies (153 non-acquiring companies and 102 acquiring corporations) and 1,892 firm-year observations.

5.2 Methodology

This study adopts the following model to investigate the relationships between REM and our main independent variables: acquisition, ownership structures (institutional ownership, state ownership, and foreign ownership) and accruals earnings management:

$$REM_{i,t-1} = \beta 0 + \beta 1 ACQ_{i,t} + \beta 2 INSTOWN_{i,t-1} + \beta 3 STOWN_{i,t-1} + \beta 4 FOWN_{i,t-1} + \beta 5 AEM_{i,t-1} + \beta 6 NGQ_{i,t-1} + \beta 7 EAUDQ_{i,t-1} + \beta 8 FSIZE_{i,t-1} + \beta 9 LEV_{i,t-1} + \beta 10 GROW_{i,t-1} + \beta 11 MTB_{i,t-1} + \beta 12 ROA_{i,t-1} + Countrydummy_{i,t} + Industrydummy_{i,t} + \varepsilon_{i,t-1} (1).$$

$$REM_{i,t-1} = \beta 0 + \beta 1 AEM_{i,t-1} + \beta 2 ACQ_{i,t} + \beta 3 AEM_{i,t-1} * ACQ_{i,t} + \beta 4 INSTOWN_{i,t-1} + \beta 5 AEM_{i,t-1} * INSTOWN_{i,t-1} + \beta 6 AEM_{i,t-1} * STOWN_{i,t-1} + \beta 7 AEM_{i,t-1} * FOWN_{i,t-1} + \beta 8 NGQ_{i,t-1} + \beta 9 EAUDQ_{i,t-1} + \beta 10 FSIZE_{i,t-1} + \beta 11 LEV_{i,t-1} + \beta 12 GROW_{i,t-1} + \beta 13 MTB_{i,t-1} + \beta 14 ROA_{i,t-1} + Countrydummy_{i,t} + Industrydummy_{i,t} + \varepsilon_{i,t-1} (2).$$

We employ various control variables that have already been widely employed in previous studies (Lennox et al., 2018; Lehmann, 2016; Klein, 2002) to observe the anticipated effect on both dependent and independent variables. Specifically, there are seven control variables used in this study: NGQ, Big 4, Firm size, Leverage, Growth, Profitability (ROA), and Market to Book value (MTB). According to Jensen and Meckling (1976), auditors who serve one of the "Big 4" auditing firms could reduce agency costs between shareholders and management by minimizing financial statement inaccuracies. The Big4 audit firms (Deloitte, PricewaterhouseCoopers (PWC), Ernst & Young, KPMG) have a notable reputation for high-quality auditing (Guna and Herawaty, 2010). Furthermore, Jensen and Meckling (1976) claimed that business size strongly impacts agency costs due to an increase in managers' opportunistic conduct. Spence (2002) claimed that debt is a motive for management to engage in EM in order to send a signal of financial health (Spence, 2002). For instance, growth is more likely to be favourably related to EM because favourable economic conditions tend to be reflected in a company's income (Alzoubi, 2018). The market-to-book ratio (MTB), which measures the association between a company's book value (internal context) and the market value (external context -investors' perspective), is regarded as an indicator of the company's future growth prospects. According to Alzoubi (2018), lower-profitability organisations are

more likely to engage in EM to fulfil the requirements of shareholders who seek large profits. We define our variables in Table 4:

Insert Table 4 here

As a robust check, we followed previous studies' models (Roychowdhury, 2006, Zang, 2012) to estimate the total real earnings management (real earnings management occurs through combining abnormal production costs, the aggregate inverse of ACFO and the aggregate inverse of abnormal discretionary expenses). To check for more robustness of this research findings and to avoid a double discounting issue that may be obtained from aggregating the three real earnings management techniques, this section examines the effect of the same independent variables on five alternative real earnings management measures. The five alternative real earnings measures are: (1) abnormal discretionary expenses (ADE); (2) abnormal cash flows from operations (ACFO); (3) abnormal production costs (APC) (Roychowdhury, 2006); (4) aggregate real earnings management (SubREM1$_{APC-ACFO}$) model; and (5) aggregate real earnings management (SubREM2 $_{-ADE-ACFO}$) (Zang, 2012 ; Wasan and Mulchandani, 2020; El Diri et al., 2020; Al-Haddad and Whittington, 2019; Piosik and Genge, 2019). We provide the following discussion regarding each of these measurements:

ACFO occur via increasing price discounts or offering more lenient credit terms in the current period, resulting in the increase of production costs, the reduction of income, and a retreat in sales ratios in the coming year. Thus, a reduction of abnormal operating cash flow in the current year is anticipated due to sales activities. This study follows Roychowdhury (2006) when estimating real earnings management through sales activities, and adopts the following equation:

$$\frac{CFO_{it-1}}{A_{it-2}} = \beta 0 + \beta 1 \frac{1}{A_{it-2}} + \beta 2 \frac{S_{it-1}}{A_{it-2}} + \beta 3 \frac{\Delta S_{it-1}}{A_{it-2}} + \varepsilon_{it-1} (3)$$

Where:

$CFO_{i,t-1}$: cash flow from operation of a company *i* for a period *t- i*.

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

$S_{i,t-1}$: the net sales of a company *i* for a period *t- i*.

$\Delta S_{i,t-1}$: the changes in the net sales of a company *i* for a *period t- 1*.

$\varepsilon_{i,t-1}$: Residuals in year *t- i*.

APC: Managers could overproduce stock to reduce the cost of goods sold which increases the income of the company. This study follows Roychowdhury (2006), when estimating real earnings management through overproduction activities, and adopts the following equation:

$$\frac{PROD_{it-1}}{A_{it-2}} = \beta 0 + \beta 1 \frac{1}{A_{it-2}} + \beta 2 \frac{S_{it-1}}{A_{it-2}} + \beta 3 \frac{\Delta S_{it-1}}{A_{it-2}} + \beta 4 \frac{\Delta S_{it-2}}{A_{it-2}} + \varepsilon_{it-1} (4)$$

Where:

$PROD_{i,t-1}$: production cost of a company *i* for a period t-1.

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

$S_{i,t-1}$: the net sales of a company *i* for a period t-1.

$\Delta S_{i,t-1}$: the changes in the net sales of a company *i* for a period t-1.

$\Delta S_{i,t-2}$: the changes in the net sales of a company *i* for a period t-2.

$\varepsilon_{i,t-1}$: Residuals in year t-1.

ADE: Managers can report a high income, by reducing discretionary expenditures such as selling and administrating, R&D, and advertising expenses. To estimate real earnings management through discretionary expenditures activities, this study follows Roychowdhury (2006), and adopts the following equation:

$$(\text{ADE}_{It-1}) \frac{DISXP_{it-1}}{A_{it-2}} = \beta 0 + \beta 1 \frac{1}{A_{it-2}} + \beta 2 \frac{S_{it-2}}{A_{it-2}} + \varepsilon_{it-1} (5)$$

Where:

$DISXP_{i,t-1}$: the discretionary expenses of a company *i* for a period t-1.

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

$\Delta S_{i,t-2}$: the changes in the net sales of a company *i* for a period t-2.

$\varepsilon_{i,t-1}$: Residuals in year t-1.

Aggregate real earnings management ($\mathbf{SubREM1_{APC-1-ACFO-1}}$): This model tests whether real earnings management occurs through APC and the aggregate inverse of ACFO. AFCO is as a reduction of sales discounts prices resulting in an increase of the income of the company, whereas overproduction leads to lower cost of goods sold leading also to the increase of company income. We follow (Zang, 2012) and Cohen and Zarowin (2010) and adopt the following equation**:**

$$SubREM_1 = \mathrm{APC}_{I,t-1} + (-\mathrm{ACFO}_{I,t-1}) \quad (6)$$

Aggregate real earnings management ($\mathrm{SubREM2}_{-ADE-1-ACFO-1}$): This model estimates real earnings management through combining the aggregate inverse of ACFO and the aggregate inverse of abnormal discretionary expenses. The explanation behind the inverse of both ACFO and APC is the reduction of expenses leads to the increase of the company income, thus the increase of real earnings management (Zang, 2012). We continue to follow (Zang, 2012); and Cohen and Zarowin, 2010) and adopt the following equation:

$$SubREM_2 = (-\mathrm{ADE}_{I,t-1}) + (-\mathrm{ACFO}_{I,t-1}) \quad (7)$$

Aggregate real earnings management ($\mathrm{REM}_{APC-1-ACFO-1-ADE-1}$): This model tests whether real earnings management occurs through combining abnormal production costs, the aggregate inverse of ACFO and the aggregate inverse of abnormal discretionary expenses. We follow (Zang, 2012), and adopt the following equation:

$$TotalREM_{i,t-1} = (-\mathrm{ADE}_{I,t-1}) + (-\mathrm{ACFO}_{I,t-1}) + \mathrm{APC}_{I,t-1} \quad (8)$$

We employ the last model ($\mathrm{REM}_{APC-ACFO-ADE}$) as a proxy for real earnings management in our main models, due to this model concludes all real earnings management techniques. Finally, the study provides different robust checks including interaction effects between accrual earnings management with acquisition and accruals earnings management with ownership structure. This will provide us with further evidence about any moderation effect of these variables in our models. In addition, we re-estimated our models using 2SLS to control for any possible endogeneity issues. We discuss these models in the results section.

6. Empirical Results

The total number of listed companies in the GCC is 714, as shown in Table 1. 223 companies among the 714 listed companies are categorised as banks or insurance companies. There are 491 non-financial companies after removing these financial services companies from the main sample. Due to incomplete data, 236 companies are removed from the 491 non-financial companies. As a result, there are now 255 companies in the sample, all of which are GCC non-financial listed companies. To sum up, there are 102 acquiring companies and 153 non-acquiring companies within the final sample.

Insert Table 1 here

The descriptive statistics of our sample are shown in Table 2. The REM scale varies from (-0.394) to 1.493, with a mean and median of 0.022 and 0.46, respectively. The average real earnings management (-0.088) presented by Elkalla, (2017) on GCC listed companies is lower than the average of real earnings management of 0.022 presented in this research results due to the difference in the time horizon of collected data: 2007-2017 vs 1996-2014 in Elkalla (2007). Al-Haddad and Whittington (2019) who investigated Jordan listed companies reported an average REM of zero suggesting that Jordanian listed companies do not engage in real earnings management. In terms of independent variables, acquiring firms account for only 7.7% of the sample. In addition, institutional investors possess 18.6% of the shares in the sample companies, while state ownership owns 5.8%. On average, foreign investors own 6.3% of a company's shares. Regarding our control variables, we found that 67% of companies in our sample are audited by Big 4 auditors, that national governance quality in the GCC is 0.319, and that the company's profitability represented by (ROA) has a mean value of 0.061, which is poor[1].

Insert Table 2 here

Table 3 provides the correlation matrix. All the independent variables have low correlation coefficients (lower than 0.80). Therefore, our models have no multi-collinearity problems as

[1]We followed previous studies (e.g., Lennox et al., 2018; Lehmann, 2016) and controlled for the following variables: national corporate governance, Big 4, firm size, Leverage, growth, Profitability, and Market to Book value.

correlation coefficients are lower than 0.80 (Wooldridge, 2010). Furthermore, the Variance Inflation Factors (VIF) is less than 10 confirming no multicollinearity issue.

Insert Table 3 here

Figure 1 shows the levels of national governance quality across the GCC countries, whereas Figure 2 presents the levels of engagement in real and accruals earnings management. As can be seen in Figure 2 the highest levels of engagement in real earnings management in the GCC is in Bahrain, Qatar, and UAE. However, these countries experienced the lowest engagement in accruals earnings management. This implies that these countries engage in both accruals and real earnings management, but the engagement level in real earnings management is more than the engagement level in accruals earnings management, as it is difficult for it to be detected by auditors when national governance is high (Graham et al., 2005) (see Figure 1). Although some countries in the GCC experienced high levels of governance, these countries are described as developing countries, and therefore Figures 1 and 2 confirm the argument that companies in developing countries use real earnings management and accruals earnings management simultaneously (Al-Haddad and Whittington, 2019; Chen et al., 2012). Saudi Arabia experienced the lowest level of real earnings management, whereas it has the highest level of accruals earnings management. This is due to Saudi Arabia having the lowest level of national governance quality among the six GCC countries. This supports the argument that companies in countries with low governance quality levels are more likely to use accruals earnings management than real earnings management because the former is less costly (Graham et al., 2005). It is hence strongly recommended that policymakers in the GCC especially in Saudi Arabia should concentrate more on developing the national governance system to mitigate firms' engagement in accruals earnings management.

Insert Figure 1 here

Insert Figure 2 here

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 errors should be used. According to Model 1 in Table 5, the acquisition

variable has a statistically significant negative association with real earnings management, implying the GCC acquiring companies engage less in real earnings management techniques (H1). This negative relation can be attributed to the higher cost associated when engaging in real earnings management (Zang, 2012). In addition, real earnings management does not keep perfect performance forever, but it has a negative impact on the company' cash flow in the future (Zhang, 2015). The result seen in Table 5 in GCC listed companies supports the findings reported from studies investigating the effect of acquisition in the UK market ((Kassamany et al., 2017); (Zhang 2015); and (Botsari and Meeks, 2008)).

The economic related benefits to manager-shareholders from earnings management are important as the stock issuance related to stock for stock merger would dilute managers controls abilities. Also, firms' managers would be able to involve in EM, and hence this might directly or positively affect ownership levels. Thus, it can be expected that EM should be positively associated to the acquiring stocks owned by managers (Erickson and Wang, 1999). There is evidence that acquiring firms do overstate firms' earnings in the quarter before the stock swap is announced. Thus, firms will discount their stock price when they announce any stock swaps whether, or not, such firms manage their earnings, leading to the acquirer to manage their earnings as a response.

However, this finding does not support agency theory suggesting that acquirers engage in earnings management before the acquisition to boost their company's stock price before acquisition so that they can influence the exchange ratio. This result therefore can help investors to be aware of the consequences of earnings management employed before the acquisition by acquiring companies. One of the main consequences is that acquiring companies experience underperformance after acquisition (Louis, 2004). This is attributable to earnings management masking the genuine information of the company (Parfet, 2000).

Insert Table 5 here

Table 5 also shows that institutional ownership variable has a statistically significant negative association with real earnings management, indicating that there is an negative association between companies with institutional ownership and the level of real earnings management before the acquisition (H2a). This finding supports the agency theory argument, agency problems in companies are closely associated with the quality of corporate governance

mechanisms. Institutional owners as one of the main corporate governance mechanisms tend to monitor managers' behaviour to mitigate agency problems. Institutional owners have vast expertise in monitoring managers, and this creates a resource for the company where institutional owners are present (Wernerfelt, 1984). Moreover, being long-term shareholders (Dalwai et al. 2015), institutional owners are more committed to monitoring managers' behaviour. The negative effect seen in Table 5 in GCC listed companies supports the findings reported from studies investigating developed countries (Kałdoński et al., 2019; Melladoa and Saonab, 2019). It is also in line with findings from studies analysing developing countries (Al-Haddad and Whittington, 2019 - Jordan; Kim et al., 2018- Korea; and Hsu and Wen, 2015- China). It is strongly recommended that the GCC companies should increase institutional ownership as it is an efficient tool in restraining engagement in real earnings management.

The state ownership variable in Table 5 has a statistically significant negative impact on real earnings management, suggesting that there is evidence of a negative association between state owners and real earnings management before the acquisition (H2b). This finding supports the argument of agency theory, state owners pay attention to political benefits and employment more than maximizing and reporting higher profits (Shleifer and Vishny, 1994). The engagement in real earnings management not only negatively impacts the current cash flow, but it negatively impacts future cash flow (Zhang, 2015). State owners often give advantages to the companies such as credit liquidity, thus there is less needed to engage in real earnings management. Moreover, State owners seek to build credibility in international markets, therefore they mitigate engagement in earnings management (Eljelly, 2009). The negative effect seen in Table 5 in GCC listed companies supports the findings reported from studies investigating developing countries-China ((He et al., 2017; Chen et al., 2013). It is strongly recommended that individual investors should invest in state owned companies as it is an efficient tool in restraining engaging in real earnings management.

The fourth and last firm level governance variable, foreign ownership has an insignificant association with real earnings management. This finding does not support the researcher's sub-fifth hypothesis: There is a negative association between companies with foreign ownership and level of real earnings management before acquisition. It also does not support the argument of the agency theory, large foreign shareholders actively monitor managers and likely alleviate a free-ride problem, thus reducing agency costs (Shleifer and Vishny, 1986). As foreign ownership has different characteristics such as culture and religion, it makes them unable to monitor accurately (Dvorak, 2005). The insignificant association reported in Table 5 support

the findings of Al-Haddad and Whittington (2019) who found that foreign ownership in Jordan is unable to monitor managers behaviours due distance which mitigates effectiveness. While GCC countries have been attracting more foreign investors, policymaker should be aware that foreign ownership does not mitigate real earnings management. In summary, institutional ownership and state ownership are the firm-level governance mechanisms that reduces GCC companies' engagement in real earnings management.

The Fixed effect regression results (Model 1) in Table 5 shows accruals earnings management has a statistically significant positive association with total real earnings management (Total-REM) at the 1% level. The positive coefficient suggests that GCC companies employ real and accruals earrings management mechanisms as complements (H3). This result supports the argument that companies cannot engage in accruals earnings management alone regardless the cost related to engaging in real earnings management due to accruals earnings management occurs at the end of the financial year and companies have limited time to for preparing the financial statements (Roychowdhury, 2006). In addition, in countries with weak investor protection, accruals earnings management will be more largely used; therefore real earnings management will only be used as a complement when it is needed given the high cost associated with its use ((Al-Haddad and Whittington, 2019).

This result is in line with similar findings reported from studies on developing countries such as Al-Haddad and Whittington (2019) who reported that managers use real earnings management as a complement for accruals earnings management and attributed that to countries with weak investor protection, accruals earnings management will more largely used, and therefore real earnings management will only be used as a complement when it is needed.

In terms of the control variables, Table 5 shows insignificant relationship between the country level national governance quality and engagement in real earnings management in GCC listed companies. The GCC is described by weak rules compared to the developed countries, thus companies could be more able of engaging in real earnings management to achieve their aims. Furthermore, Figures 1 and 2 show that countries with high national quality levels in the GCC (UAE, Qatar, and Bahrain) are more involved in real earnings management, whereas these countries less engage in accruals earnings management. This implies that these countries shift from the engagement in accruals earnings management to the engagement in real earnings management due to the quality of rule of law. Real earnings management techniques are difficult to be detected by external monitoring and scrutiny as it occurs during the financial year and these techniques are considered legal business activities (Graham et al.,

2005). However, countries with low national quality levels in the GCC (Saudi Arabia, Oman, and Kuwait) engage less in real earnings management, whereas these countries engage more in accruals earnings management. The insignificance coefficient is consistent with the findings reported in Al-Haddad and Whittington (2019)'s study on Jordan, and Doukakis (2014)'s study on 22 European countries. This result confirms the argument of (Habbash and Alghamdi, 2017).

External audit quality has a statistically insignificant association with real earnings management. This finding can be a result of Big4 auditing firms are not familiar with the local business environment compared to non- Big4 auditing firms (Sani et al., 2018). In addition, real earnings management techniques are difficult be detected by external monitoring and scrutiny as it occurs during the financial year and these techniques are considered legal business activities (Graham et al., 2005). The insignificance coefficient is in line with findings reported in (Al-Haddad and Whittington, 2019)'s study on Jordan, and (Doukakis, 2014)'s study on 22 European countries. This result confirms the argument of (Habbash and Alghamdi, 2017) who argue that the Big 4 auditing firms do not have a right to stop opportunistic behaviour by managers. This due to our study found that Big 4 auditing firms do not mitigate both accruals and real earnings management. Consequently, policymakers should concentrate more on developing external audit quality for Big 4 auditing firms and local auditing firms to enhance the quality of financial reports as financial decision makers depend on the audited financial statements.

Growth represented by the change in net sale over total assets is noted to have a statistically significant positive impact on real earnings management, which shows that firms with high growth have a high likelihood to engage in real earnings management. High growth companies are in constant need of funding to finance their growth. They need to maintain the reputation of a profitable company and a company that meets the financial analysts' expectations to attract investors to finance their growth (Burgstahler and Dichev's, 1997). This positive result support the finding of Cohen et al. (2008) who argued that high growth companies tend to engage in real earnings management.

Table 5 also shows a significant negative relationship between ROA and real earnings management practices. A possible explanation is that when firms report high profitability to their shareholders, there is less needed to engage in earnings management (Alzoubi 2018). This negative result supports the finding of previous studies (Anagnostopoulou and Tsekrekos 2017; and Alzoubi 2018). A statistically significant negative relationship is also observed between

market to book value (MTB) and real earnings management practices. A possible explanation is that companies with low market to book ratios engage more in earnings management to show less variation in profitability so that it can boost confidence among the financiers to obtain more fund (AlNajjar and Riahi-Belkaoui, 2001). This negative association is in line with the findings reported in An et al. (2016) and AlNajjar and Riahi-Belkaoui (2001). Firm size and leverage have insignificant effects on real earnings management. This result is contrary to Al-Haddad and Whittington, (2019) from Jordan who found firm size mitigates engaging in real earnings management due to improved financial monitoring sets in these large companies, and they found that Leverage increases engaging in real earnings management due to avoid debt covenant violation.

To sum up, the main finding in Table 5 shows the existence of a complementary effect between accruals earnings management and real earnings management. It also indicates that acquisition, institutional ownership, and state ownership, mitigate engaging in real earnings management. To check the robustness of the results reported in Table 5, we rerun the regression excluding accruals earnings management as independent variable. It is worth noting that while we focus our discussion on the fixed effects model, but the results of the other models reported in Table 5 are to high extant similar to the findings of the fixed effects model.

In the key analyses reported in Table 5, this study followed previous literature (Roychowdhury, 2006, Zang, 2012) models to estimate the total real earnings management. To check further this research findings and avoiding a double discounting issue that may be obtained from aggregating the three real earnings management techniques, this part of the study examines the effect of the same independent variables on five alternative real earnings management measures. The five alternative real earnings measures are: (1) abnormal discretionary expenses (ADE); (2) abnormal cash flows from operations (ACFO); (3) abnormal production costs (APC) (Roychowdhury, 2006); (4) aggregate real earnings management ($\text{SubREM1}_{APC-ACFO}$) model; and (5) aggregate real earnings management ($\text{SubREM2}_{-ADE-ACFO}$) (Zang, 2012). Based on the results of the Hausman test, the fixed effect model was used in all five earnings management techniques models in Table 6.

Insert Table 6 here

First, the acquisition variable has a statistically negative association only when real earnings management technique is measured as abnormal production costs technique in Model 3 attributing to the higher cost associated when engaging in real earnings management through

overproduction technique leads to the increase of storage cost, and the reduction of the cash flow in companies, which it impacts on the company' growth in the future (Roychowdhury, 2006).

Second, institutional ownership is observed to have a significant negative association with three models: Abnormal cash flows from operations technique (model 2); The aggregate abnormal production costs technique with the Inverse of abnormal cash flows from operations (model 4). Third, state ownership variable has a statistically negative association with real earnings management in three out of five models: abnormal discretionary expenses (ADE); abnormal cash flows from operations (ACFO); and aggregate real earnings management (SubREM2 $_{-ADE-ACFO}$). The negative relation is consistent with the main results reported in Table 5.

Forth, foreign ownership variable has a significant positive association with abnormal production costs technique (Model 3). This suggests that GCC listed companies with foreign ownership engage at a higher level in abnormal production costs technique than GCC listed companies with non-foreign ownership. Foreign ownership' influence in controlling could be less than domestic ownership due to distance and cultural characteristics making foreign investors unable to access to local information accurately (Dvorak, 2005). Moreover, accruals earnings management has a significant positive impact on all real earnings management techniques at the 1% level. A similar association was reported in Table 5. Finally, as regards our control variables, we report that national corporate governance is negatively associated with real earnings management while size, growth, and ROA are positively related to real earnings management. Other control variables are not statistically significant.

Furthermore, this study aims to test the effect of the moderating role of accruals earnings management in mitigating the total real earnings management, as well as the power of these anticipated interaction effects in the GCC markets. As seen in Model 1, Table 7, accruals earnings management has a significant positive impact on the total real earnings management at the 1% level. A similar association was reported in Table 5. However, the acquisition has a negative impact on the total real earnings management. Similar associations were reported in Table 5. As for the interaction between accruals earnings management and acquisition, it is not statistically significant, as reported in Table 7. Institutional ownership as firm-level, has an insignificant association with real earnings management. However, the interaction between accruals earnings management and institutional ownership has a significant and negative

association with real earnings management. This indicates that all companies that use accruals earnings management and have institutional owners, they are less likely to engage in real earnings management, suggesting a substitution effect between accruals earnings management and real earnings management for firms with institutional ownership. As it shows that companies in Bahrain employ real earnings management as substitute for accruals earnings management due to Bahrain country has a high national governance level compared to other countries in the GCC such as Saudi Arabia (see figure 1 and 2).

Insert Table 7 here

State ownership variables have statistically negative associations with the total real earnings management. Similar associations were reported in Table 5. However, the interaction between accruals earnings management and state ownership is not statistically significant, as reported in Table 6. Foreign ownership as last firm-level variable, and the interaction between accruals earnings management and foreign ownership have an insignificant association with real earnings management. Policymakers in countries with high national governance levels should be aware that companies use real earnings management as substitute for accruals earnings management, and thus they must develop governance mechanisms that mitigate real earnings management. Finally, as regards our control variables, we report that growth is positively associated with real earnings management while both market to book and ROA are negatively related to real earnings management. Other control variables are not statistically significant. It is worth noting that while we focus our discussion on the fixed effects model, but the results of the other models reported in Table 8 are to high extant similar to the findings of the fixed effects model.

6.1 Robustness Check

We re-estimate our main models in Tables 5, 6 and 8 using 2SLS models to check if our results are robust after controlling for endogeneity. Our instruments are the lag endogenous and profitability position (see for example, Al-Najjar and Salama, 2022). These instruments are valid based on Sargan Test as in all our models, such test is not significant indicating the validity of these instruments. We report our models in Table 8.

Insert Table 8 here

Acquisition is found to be significant and negatively associated with real earning management, supporting our first hypothesis and in line with our previous findings reported previously. We also find some evidence that institutional ownership and state ownership are negatively related to real earning management, confirming our previous findings and to some extant supporting H2a and H2b. Finally, there is evidence to support H3 as we report a positive relationship between accrual earnings management and real earnings management. Thus, our results are consistent with the previous findings and support our main hypotheses after controlling for endogeneity. It is worth noting that, we re-estimated different models using 2SLS and these results were in line with our findings, but for parsimony we do not report these models.

For further robustness, we provide a comparison between the determinants of AEM and REM and reported our results in Table 9 . Model 1, acquisition has an insignificant association with real earnings management. This insignificance contradicts the results for accruals earnings management reported in the same table. In Table 9 (AEM Model 1), we find a significant positive relationship between acquisition and accruals earnings management. This difference of the effect of acquisition on accruals and real earnings management suggests that acquiring firms engage in real earnings management only if they engage in accruals earnings management (based on our results from Table 5). This is attributed to countries with weak investor protection. In these countries accruals earnings management is more likely to be used. Real earnings management will only be used as a complement when it is needed given the higher cost associated with its use than accruals earnings management (Al-Haddad and Whittington, 2019). This result coupled with our findings in Table 5, show further support to H1 where we argue that acquiring firms in the GCC region will rely less on REM if compared to AEM. This result asserts that the consequences of earnings management still exist around the acquisition, as acquiring companies use accruals earnings management more than real earnings management. Our finding therefore can help shareholders in non-acquiring companies, to be aware of the consequences of earnings management used by managers. It is also can help target companies to be aware of the consequences of earnings management employed before the acquisition by acquiring companies. One of the main consequences is that acquiring companies experience underperformance after acquisition (Louis, 2004). This is attributable to earnings management masking the genuine information of the company (Parfet, 2000).

Insert Table 9 here

In terms of ownership structure, institutional ownership has a statistically significant negative association with real earnings management. This finding is consistent with the result of accruals earnings management in Table 9 (Model 1), indicating that GCC listed companies with institutional ownership engage at a lower level in accruals and real earnings management techniques than GCC listed companies with non-institutional ownership. This result can help regulators to concentrate on attracting institutional owners as they bring expertise on monitoring managers' behaviours which reduces management engagement in accruals and real earnings management. Likewise, state ownership has a statistically significant negative association with real earnings management. This result is in the line with the result of accruals earnings management in Table 9 (Model 1). It shows that GCC listed companies with state ownership engage at a lower level in accruals and real earnings management techniques than GCC listed companies with non-state ownership. This result can help policymakers to increase the percentage of state ownership or invest in state companies as state owned companies have easier access to resources and aim maintaining social stability rather than generating profit (Li and Zhang, 2010). In relation to the last ownership variable, foreign ownership has insignificant relationship with accruals and real earnings management. This result is consistent with the main result in Table 5. As regards our control variables, we report that growth is positively associated with real earnings management while both market to book and ROA are negatively related to real earnings management. Other control variables are not statistically significant. It is worth noting that while we focus our discussion on Model 1, but the results of the other models reported in Table 9 are to high extant similar to the findings of Model 1.

7. Conclusion:

This research examines the determinants that impact real earnings management (REM) in companies listed in the GCC region. The factors examined are acquisition, ownership structure, and accruals earnings management. The findings reveal that firms in the GCC region participate in REM. Bahrain, Qatar, and UAE demonstrate the highest levels of REM engagement, whereas they have the lowest level of engagement in accruals earnings management. This suggests that these countries engage in both REM and accruals earnings management, but the involvement in REM is higher as it is challenging to identify by auditors when national governance is robust (Graham et al., 2005).

Through the comparison of our findings on real and accrual earnings management, it is evident that acquiring firms employ accrual earnings management, but not real earnings management. Institutional and state owners are found to be effective in curbing the use of both accruals and real earnings management, while foreign ownership is an ineffective tool in mitigating the use of either type. Additionally, our study indicates that GCC companies tend to engage in more real earnings management when they also engage in accruals earnings management, suggesting that the two techniques have a complementary effect. Our results are robust after controlling for different issues including any endogeneity in our models.

The study has several implications: Shareholders in non-acquiring firms would need to be aware of the consequences related to earnings management employed by acquiring firms. Target firms need be conscious of the costs related to earnings management adopted before the acquisition takes place. A main consequence for acquiring firms is that they underperform after acquisition. This is related to earnings management covering the genuine information related to the firm. This is key in supporting regulatory activities, mainly related to ownership structure. GCC firms need to benefit from their institutional and state investors as they are key monitoring mechanisms. In addition, institutional investors have more expertise to obtain and maintain resources, leading to better monitoring management' opportunistic behaviour and mitigating engagement in REM and AEM. Furthermore, state owners often give advantages to companies such as credit liquidity, thus there is less needed to engage in earnings management. Moreover, state owners seek to build credibility in international markets, therefore they mitigate engagement in earnings management (Eljelly, 2009).

This study has also some limitation as when compared with developed countries the access to corporate governance data in the GCC is challenging due to the lack of reporting in the well-known databases. Furthermore, 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 mechanisms in mitigating EM in acquiring and non-acquiring companies.

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Table 1: Descriptive of Data Deletion of acquisition, ownership structure, and national corporate governance on earnings management

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	236
Final sample	125	42	49	58	21	13	**255**
Acquiring Companies	43	21	25	13	11	3	**102**
Non-Acquiring Companies	82	21	24	45	10	10	**153**

Table 2: Descriptive Statistics of the GCC Firms

Variable	Obs	Mean	Median	Min	Max	Std. Dev.	Skewness	Kurtosis
($REM_{APC-ACFO-ADE}$)	2263	0.022	0.46	-0.394	1.493	0.281	-0.447	8.022
ACQ	2264	0.077	0	0	1	0.267	3.165	11.020
INSTOWN	2264	0.186	0.05	0	0.997	0.258	1.368	3.911
STOWN	2262	0.058	0	0	0.937	0.147	3.261	14.154
FOWN	2264	0.063	0	0	0.996	0.152	3.259	14.618
AEM	2289	0.016	0.011	-0.414	0.753	0.91	0.648	11.020
NGQ	2264	0.319	0.263	-0.093	1.09	0.307	0.739	2.777
EAUDQ	2246	0.670	1	0	1	0.469	-0.727	1.529
FSIZE	2264	16.471	16.706	9.565	24.275	3.478	0.083	1.879
LEV	2262	0.204	0.160	0	1.664	0.195	1.237	6.023
GROW	2254	0.043	0.025	-0.936	0.962	0.157	0.793	11.263
MTB	1918	2.009	1.543	-4.786	32.591	1.941	4.690	48.911
ROA	2264	0.061	0.057	-0.775	0.396	0.089	-0.995	11.896

Where: $REM_{APC-ACFO-ADE}$*= abnormal production costs, the aggregate inverse of ACFO and the aggregate inverse of abnormal discretionary expenses in year t-1. ACQ= acquisition a dummy variable taking the value of 1, if it is an acquiring firm and 0 otherwise in year t. INSTOWN= institutional ownership measured through the proportion of total shares held by institutions in year t-1. STOWN= state ownership measured through the proportion of total shares held by the government in year t-1. FOWN= foreign ownership measured through the proportion of total shares held by foreign investors in year t-1. AEM= accruals earnings management in year t-1. NGQ= national governance quality in year t-1 measured through the average of Government Effectiveness (GE), Regulatory Quality (RQ), and Rule of Law (RL) between -2.5 to 2.5 as per The World Bank indicator. EAUDQ= audit quality measured 1 if Big4 Auditing firms audits the company, and 0 otherwise in year t-1. FSIZE= the firm's size captured as the natural logarithm of total assets in year t-1. LEV= leverage ratio measured through the ratio of total debt to total assets in year t-1. GROW= growth ratio measured through the change of sale over total assets in year t-. MTB= prospective firm's growth through the market to book value in year t-1. ROA = firm's profitability captured through net income over total assets in year t-1.*

Table 3: Pair-wise correlation coefficients and variance inflation factor coefficients of The GCC sample

		Total-REM	AEM	ACQ	EAUDQ	INSTOWN	STOWN	FOWN	NGQ	FSIZE	LEV	GROW	MTB	ROA	VIF
Total-REM	Corr	1													
	Sig.														
AEM	Corr	0.331***	1												1.05
	Sig.	(0.000)													
ACQ	Corr	-0.034*	0.027	1											1.04
	Sig.	(0.104)	(0.202)												
EAUDQ	Corr	-0.044**	-0.007	0.069***	1										1.22
	Sig.	(0.036)	(0.744)	(0.001)											
INSTOWN	Corr	-0.041**	-0.046**	0.032	-0.014	1									1.12
	Sig.	(0.054)	(0.029)	(0.134)	(0.507)										
STOWN	Corr	-0.102***	-0.069***	0.056***	0.067***	-0.036*	1								1.07
	Sig.	(0.000)	(0.001)	(0.007)	(0.001)	(0.091)									
FOWN	Corr	-0.035*	-0.045**	0.141***	0.105***	0.255***	0.097***	1							
	Sig.	(0.097)	(0.032)	(0.000)	(0.000)	(0.000)	(0.000)								1.17
NGQ	Corr	0.064***	-0.123***	0.017	.248***	0.071***	0.108***	0.126***	1						
	Sig.	(0.002)	(0.000)	(0.415)	(0.000)	(0.001)	(0.000)	(0.000)							1.99
FSIZE	Corr	0.006	-0.081***	0.093***	0.367***	0.212***	0.190***	0.222***	0.687***	1					
	Sig.	(0.782)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)						2.45
LEV	Corr	0.135***	0.059***	0.024	0.140***	0.031	-0.019	0.132***	0.004	0.061***	1				
	Sig.	(0.000)	(0.005)	(0.261)	(0.000)	(0.140)	(0.375)	(0.000)	(0.831)	(0.004)					1.20

GROW	Corr	0.077***	0.137***	0.016	0.035	-0.039*	-0.050**	-0.019	-0.015	-0.001	-0.026	1			
	Sig.	(0.000)	(0.000)	(0.438)	(0.096)	*0.061)	(0.018)	(0.363)	(0.488)	(0.977)	(0.212)				1.08
MTB	Corr	-0.172***	0.001	-0.015	-0.067***	-0.055**	-0.019	-0.033	-0.184***	-0.318***	-0.097***	0.144***	1		
	Sig.	(0.000)	(0.978)	(0.508)	(0.003)	(0.016)	(0.395)	(0.147)	(0.000)	(0.000)	(0.000)	(0.000)			1.21
ROA	Corr	-0.351***	0.107***	0.006	0.016	-0.037*	0.044**	-0.007	-0.065***	-0.049**	-0.320***	0.212***	0.216***	1	
	Sig.	(0.000)	(0.000)	(0.762)	(0.451)	(0.081)	(0.035)	(0.737)	(0.002)	(0.020)	(0.000)	(0.000)	(0.000)		1.24

****. Correlation is significant at the 0.01 level*

***. Correlation is significant at the 0.05 level*

**. Correlation is significant at the 0.10 level*

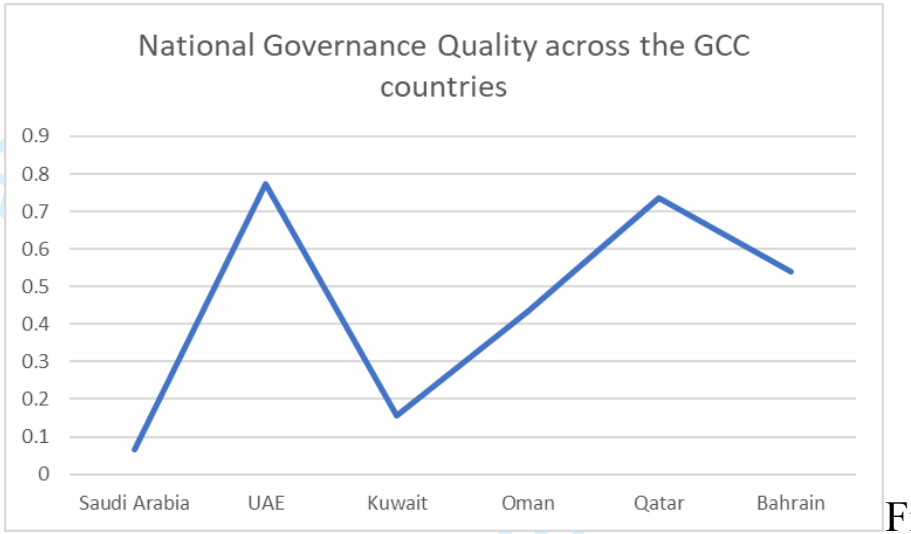

Figure (1)

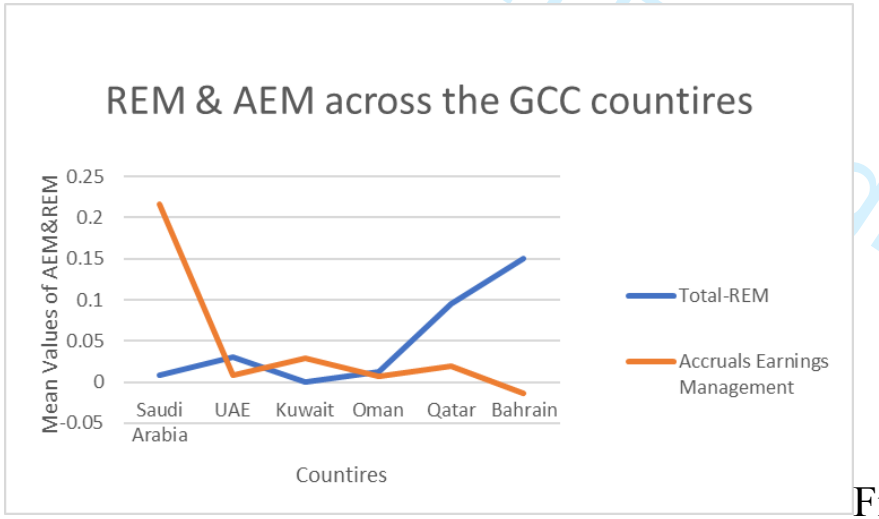

Figure (2)

Table4: variables definition

The variables	The measurement
1. The dependent variable Total REM	$TotalREM_{it-1} = \mathrm{APC}_{It-1} + (-\mathrm{ACFO}_{It-1}) + (-\mathrm{ADE}_{It-1})$ Where: (APC)= abnormal production costs. (ACFO)= abnormal cash flows from operations. (ADE)= abnormal discretionary expenses. $\mathrm{APC}_{It-1} = \frac{PROD_{it-1}}{A_{it-2}} = \beta 0 + \beta 1 \frac{1}{A_{it-2}} + \beta 2 \frac{S_{it-1}}{A_{it-2}} + \beta 3 \frac{\Delta S_{it-1}}{A_{it-2}} + \beta 4 \frac{\Delta S_{it-2}}{A_{it-2}} + \varepsilon_{it-1}(1)$ Where: $PROD_{it-1}$: production cost of a company *I* for a period *t-1*. A_{it-2}: the total assets of a company I for a period t-2. S_{it-1}: the net sales of a company *I* for a period *t-1*. ΔS_{it-1}: the changes in the net sales of a company *I* for a *period t-1*. ΔS_{it-2}: the changes in the net sales of a company *I* for a period *t-2*. ε_{it-1}: Residuals in year *t-1*. $\frac{CFO_{it-1}}{A_{it-2}} = \beta 0 + \beta 1 \frac{1}{A_{it-2}} + \beta 2 \frac{S_{it-1}}{A_{it-2}} + \beta 3 \frac{\Delta S_{it-1}}{A_{it-2}} + \varepsilon_{it-1}(2)$

	Where: $DISXP_{it-1}$: the discretionary expenses of a company *I* for a *period t*-1. A_{it-2}: the total assets of a company *I* for a period *t-2*. ΔS_{it-2}: the changes in the net sales of a company *I* for a period *t-2*. ε_{it-1}: Residuals in year *t-1*. $(\mathrm{ADE}_{It-1)}\frac{DISXP_{it-1}}{A_{it-2}} = \beta 0 + \beta 1\,\frac{1}{A_{it-2}} + \beta 2\,\frac{S_{it-2}}{A_{it-2}} + \varepsilon_{it-1}(3)$ Where: $DISXP_{it-1}$: the discretionary expenses of a company *I* for a *period t*-1. A_{it-2}: the total assets of a company *I* for a period *t-1*. S_{it-2}: the net sales of a company *I* for a period *t-1*. ε_{it-1}: Residuals in year *t-1*. $SubREM_1 = \mathrm{APC}_{It-1} + (-\mathrm{ACFO}_{It-1})$ (4) $SubREM_2 = (-\mathrm{ADE}_{It-1}) + (-\mathrm{ACFO}_{It-1})$ (5)
2. The independent variables:	
2.1. Acquisition:	1 if acquiring firm, otherwise 0.
2.2. Institutional Ownership:	The proportion of total shares held by institutional ownership.

2.3. State Ownership:	The proportion of total shares held by government.
2.4. Foreign Ownership:	The proportion of total shares held by foreign investors.
2.5. AEM	$$\frac{TACC_{it-1}}{A_{it-2}} = \frac{\beta 0}{A_{it-2}} + \frac{\beta 1(\Delta REV_{it-1} - \Delta REC_{it-2})}{A_{it-2}} + \frac{\beta 2(PPE_{it-1})}{A_{it-2}} + \varepsilon_{it-1}\ 2.1$$ h $TACC_{it}$: the total of accruals of a company *I* for a period *t-1*. A_{it-2}: the total of assets of a company *I* for a period *t-1*. $\blacktriangle REV_{it-1}$: the change of revenues of a company *I* for a period *t-1.* $\Delta \mathrm{REC}_{\mathrm{it}-1}$: the change of receivables of a company *i* for a period *t-1*. PPE_{it-1}: the total of plants, properties, and equipment of a company *I* for a period *t-1.* ε_{it-1}: Residuals a company *I* for a period *t-1*.
3. The Control Variables:	
3.1. National Governance Quality:	The average of Government Effectiveness, Regulatory Quality, Rule of Law (-2.5-2.5).
3.2. External Audit Quality:	1 if a firm audited by Big4, otherwise 0.
3.3. Firm Size	The natural logarithm of total assets.
3.4. Growth	The change in sales over the total assets.
3.5. Leverage:	Total debt over total assets
3.6. MTB	Market to book value as indicator of a company's future
3.7. ROA	Net income over total assets.

Table 5: The Robust Regression Results of the relationship between acquisition, ownership structure, and AEM on REM in the GCC Companies.

Total-$REM_{APC-ACFO-ADE}$		**Fixed Effect**	Random Effect	Random Effect	OLS	OLS
		(Model1)	(Model2)	(Model3)	(Model4)	(Model5)
ACQ	Coef	-0.034*	-0.034*	-0.035*	-0.047**	-0.047**
	P-value	(0.072)	(0.073)	(0.062)	(0.023)	(0.020)
INSTOWN	Coef	-0.061*	-0.051*	-0.047	-0.049**	-0.042*
	P-value	(0.067)	(0.70)	(0.114)	(0.022)	(0.063)
STOWN	Coef	-0.104*	-0.108**	-0.104**	-0.100***	-0.074**
	P-value	(0.082)	(0.014)	(0.025)	(0.004)	(0.017)
FOWN	Coef	0.033	0.025	0.036	-0.012	0.036
	P-value	(0.392)	(0.483)	(0.333)	(0.747)	(0.296)
AEM	Coef	0.973***	0.986***	0.989***	1.171***	1.161***
	P-value	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
NGQ	Coef	-0.008	0.020	0.003	0.110***	0.015
	P-value	(0.791)	(0.531)	(0.921)	(0.000)	(0.729)

EAUDQ	Coef	-0.014	-0.013	-0.019	-0.011	-0.024**
	P-value	(0.476)	(0.402)	(0.251)	(0.281)	(0.030)
FSIZE	Coef	0.031	0.000	-0.001	-0.006**	-0.008**
	P-value	(0.127)	(0.842)	(0.894)	(0.012)	(0.048)
LEV	Coef	-0.028	0.006	0.009	-0.064*	-0.071*
	P-value	(0.703)	(0.897)	(0.868)	(0.052)	(0.058)
GROW	Coef	0.164***	0.165***	0.166***	0.259***	-0.261***
	P-value	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
MTB	Coef	-0.012***	-0.014***	-0.014***	-0.018***	-0.014***
	P-value	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
ROA	Coef	-0.794***	-0.838***	-0.861***	-1.176***	-1.316***
	P-value	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Country dummy		No	No	Yes	No	Yes
Industry dummy		No	No	Yes	No	Yes
number of observations		1892	1892	1892	1892	1892
R-squared		0.320	0.317	0.317	0.317	0.401
Rho		0.71				
F statistic (12, 238)		25.95			38.94	24.97
Wald chi2(12)			355.61	531.13		
Prob>F/ Prob>chi2(11)		0.000	0.000	0.000	0.000	0.000

Where: ***The Bold Model is the main model of the results explanations.*** *Model (1)= the robust results of the fixed*

effect regression of the total real earnings management, Model (2)= the robust results of the random effect regression of the total real earnings management without country and industry dummies, Model (3)= the robust results of the random effect regression of the total real earnings management with country and industry dummies, Model (4)= the robust results of the OLS regression of the total real earnings management without country and industry dummies, Model (5)= the robust results of the OLS regression of the total real earnings management with country and industry dummies, Significance at the 0.10 level, ** Significance at the 0.05 level, *** Significance at the 0.01 level.*

Table 6: The Robust Regression Results of the relationship between AEM, acquisition, and CG mechanisms on REM in the GCC Companies by using five alternative real earnings management techniques.

Variables		ADE	ACFO	APC	$\mathbf{SubREM1}_{\mathbf{APC-ACFO}}$	$\mathbf{SubREM2}_{\mathbf{-ADE-ACFO}}$
		(Model1)	(Model2)	(Model3)	(Model4)	(Model5)
ACQ	Coef	-0.004	-0.011	-0.011*	-0.022	-0.015
	P-value	(0.324)	(0.391)	(0.085)	(0.164)	(0.283)
INSTOWN	Coef	0.004	-0.045*	-0.005	-0.050*	-0.040
	P-value	(0.528)	(0.052)	(0.687)	(0.076)	(0.114)
STOWN	Coef	-0.029**	-0.072*	-0.004	-0.077	-0.102**
	P-value	(0.074)	(0.089)	(0.845)	(0.158)	(0.024)
FOWN	Coef	0.003	-0.003	0.030*	0.026	-0.000
	P-value	(0.724)	(0.874)	(0.079)	(0.417)	(0.990)
AEM	Coef	0.040***	0.801***	0.128***	0.929***	0.842***
	P-value	(0.001)	(0.000)	(0.000)	(0.000)	(0.000)
NGQ	Coef	-0.033***	0.041*	-0.021	0.019	0.007
	P-value	(0.003)	(0.066)	(0.233)	(0.495)	(0.743)
EAUDQ	Coef	-0.006	-0.006	-0.001	-0.007	-0.013
	P-value	(0.286)	(0.463)	(0.905)	(0.610)	(0.329)
FSIZE	Coef	0.020***	-0.017	0.027**	0.010	0.003

	P-value	(0.001)	(0.149)	(0.018)	(0.555)	(0.819)
LEV	Coef	0.043**	0.007	0.008	0.016	-0.036
	P-value	(0.025)	(0.874)	(0.775)	(0.806)	(0.492)
GROW	Coef	0.009	0.127***	0.026	0.154***	0.137***
	P-value	(0.290)	(0.000)	(0.222)	(0.000)	(0.000)
MTB	Coef	-0.000	-0.009***	-0.001	-0.011***	-0.010***
	P-value	(0.353)	(0.000)	(0.381)	(0.000)	(0.000)
ROA	Coef	0.038*	-0.523***	-0.323***	-0.847***	-0.485***
	P-value	(0.103)	(0.000)	(0.000)	(0.000)	(0.000)
number of observations		1892	1892	1892	1892	1892
R-squared		0.066	0.383	0.110	0.351	0.370
F statistic (12, 238)		5.24	28.67	8.66	26.73	29.07
Prob>F		0.000	0.000	0.000	0.000	0.000

Where: *Model (1)= the robust results of the abnormal discretionary expenses (ADE), Model (2)= the robust results of the ACFO, Model (3)= the robust results of APC, Model (4)= the robust results of the aggregate APC and the aggregate inverse of ACFO, Model (5)= the robust results of the aggregate inverse of ACFO and the inverse of abnormal discretionary expenses. * Significance at the 0.10 level, ** Significance at the 0.05 level, *** Significance at the 0.01 level.*

Table7: Regression Results of the effect of the interaction of accruals earnings management with acquisition, firm-level, and country-level on real earnings management in the GCC listed companies.

Total-REM		**Fixed Effect**	Random Effect	Random Effect	OLS	OLS
		(Model1)	(Model2)	(Model3)	(Model4)	(Model5)
AEM	Coef	*1.314****	*1.329****	*1.334****	*1.453****	*1.454****
	P-value	*(0.000)*	*(0.000)*	*(0.000)*	*(0.000)*	*(0.000)*
ACQ	Coef	*-0.036**	*-0.036**	*-0.037**	*-0.051***	*-0.049***
	P-value	*(0.068)*	*(0.065)*	*(0.053)*	*(0.023)*	*(0.023)*
AEM* ACQ	Coef	*0.037*	*0.051*	*0.058*	*0.120*	*0.114*
	P-value	*(0.816)*	*(0.754)*	*(0.722)*	*(0.653)*	*(0.669)*
INSTOWN	Coef	*-0.043*	*-0.035*	*-0.031*	*-0.037**	*-0.032*
	P-value	*(0.127)*	*(0.156)*	*(0.229)*	*(0.078)*	*(0.153)*
AEM* INSTOWN	Coef	*-0.828***	*-0.832****	*-0.843****	*-0.779***	*-0.890****
	P-value	*(0.014)*	*(0.010)*	*(0.009)*	*(0.019)*	*(0.008)*
STOWN	Coef	*-0.095**	*-0.102***	*-0.097***	*-0.099****	*-0.072***
	P-value	*(0.098)*	*(0.019)*	*(0.032)*	*(0.005)*	*(0.021)*
AEM* STOWN	Coef	*-0.404*	*-0.329*	*-0.355*	*0.042*	*-0.146*
	P-value	*(0.209)*	*(0.301)*	*(0.266)*	*(0.943)*	*(0.760)*
FOWN	Coef	*0.039*	*0.031*	*0.041*	*-0.004*	*0.039*

	P-value	*(0.303)*	*(0.383)*	*(0.255)*	*(0.906)*	*(0.253)*
AEM* FOWN	Coef	*-0.348*	*-0.437*	*-0.414*	*-0.823*	*-0.524*
	P-value	*(0.391)*	*(0.280)*	*(0.304)*	*(0.185)*	*(0.323)*
NGQ	Coef	*-0.002*	*-0.027*	*0.009*	*0.116****	*0.018*
	P-value	*(0.951)*	*(0.409)*	*(0.780)*	*(0.000)*	*(0.763)*
EAUDQ	Coef	*-0.016*	*-0.016*	*-0.021*	*-0.014*	*-0.026***
	P-value	*(0.417)*	*(0.316)*	*(0.194)*	*(0.148)*	*(0.024)*
FSIZE	Coef	*0.028*	*0.000*	*-0.001*	*-0.006***	*-0.008***
	P-value	*(0.178)*	*(0.881)*	*(0.856)*	*(0.012)*	*(0.049)*
LEV	Coef	*-0.018*	*0.010*	*0.014*	*0.068***	*-0.075***
	P-value	*(0.806)*	*(0.840)*	*(0.814)*	*(0.042)*	*(0.047)*
GROW	Coef	*0.162****	*0.164****	*0.164****	*0.258****	*0.260****
	P-value	*(0.000)*	*(0.000)*	*(0.000)*	*(0.000)*	*(0.000)*
MTB	Coef	*-0.012****	*-0.014****	*-0.014****	*-0.019****	*-0.014****
	P-value	*(0.000)*	*(0.000)*	*(0.000)*	*(0.000)*	*(0.000)*
ROA	Coef	*-0.805****	*-0.848****	*-0.870****	*-1.185****	*-1.327****
	P-value	*(0.000)*	*(0.000)*	*(0.000)*	*(0.000)*	*(0.000)*
Country dummy		No	No	Yes	No	Yes
Industry dummy		No	No	Yes	No	Yes
number of observations		1892	1892	1892	1892	1892

R-squared	0.339	0.337	0.337	0.324	0.409
F statistic (18, 238)	29.61			29.16	22.61
Wald chi2(12)		536.55	684.13		
Prob>F/ Prob>chi2(11)	0.000	0.000	0.000	0.000	0.000

Where: *The Bold Model is the main model of the results explanations. Model (1)= the robust results of the fixed effect regression of the total real earnings management, Model (2)= the robust results of the random effect regression of the total real earnings management without country and industry dummies, Model (3)= the robust results of the random effect regression of the total real earnings management with country and industry dummies, Model (4)= the robust results of the OLS regression of the total real earnings management without country and industry dummies, Model (5)= the robust results of the OLS regression of the total real earnings management with country and industry dummies, Total-REM = total real earnings management techniques in year t-1, AEM =accruals earnings management in year t-1. * Significance at the 0.10 level, ** Significance at the 0.05 level, *** Significance at the 0.01 level.*

Table8: Endogeneity test regression

Variables		**Total-REM With AEM**	**Total-REM Without AEM**	**ADE**	**ACFO**	**APC**	**$SubREM1_{APC-ACFO}$**	**$SubREM2_{-ADE-ACFO}$**	**Total-REM GMM**
		(Model1)	**(Model2)**	**(Model3)**	**(Model4)**	**(Model5)**	**(Model6)**	**(Model7)**	**(Model8)**
Total-REM L1.	Coef	----------	----------	----------	----------	----------	----------	----------	0.058
	P-value	----------	----------	----------	----------	----------	----------	----------	(0.077)
ACQ	Coef	-0.101***	-0.340	-0.189**	0.067	-0.220*	-0.152	-0.114	-0.048**
	P-value	(0.005)	(0.130)	(0.034)	(0.395)	(0.063)	(0.280)	(0.307)	(0.024)

INSTOWN	Coef	-0.003	-0.065	0.013	-0.019*	-0.004	-0.024	-0.034	-0.075*
	P-value	(0.955)	(0.112)	(0.404)	(0.096)	(0.813)	(0.369)	(0.110)	(0.088)
STOWN	Coef	0.051	-0.145***	-0.016	-0.037**	-0.042	-0.080**	-0.055*	-0.211***
	P-value	(0.567)	(0.028)	(0.542)	(0.022)	(0.168)	(0.032)	(0.081)	(0.007)
FOWN	Coef	0.030	0.038	0.034	-0.008	0.033	0.024	0.022	0.133**
	P-value	(0.746)	(0.703)	(0.403)	(0.771)	(0.521)	(0.710)	(0.660)	(0.047)
AEM	Coef	4.298***	----------	0.118**	0.832***	0.298***	1.130***	0.943***	1.097***
	P-value	(0.001)	0.028	(0.021)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
NGQ	Coef	0.220***	(0.627)	-0.015	0.063***	-0.029	0.092**	0.048	0.216***
	P-value	(0.011)	-0.003	(0.527)	(0.000)	(0.395)	(0.024)	(0.111)	(0.000)
EAUDQ	Coef	-0.025	(0.904)	-0.005	0.001	-0.003	-0.002	-0.004	-0.031
	P-value	(0.366)	-0.003	(0.573)	(0.806)	(0.766)	(0.897)	(0.744)	(0.173)
FSIZE	Coef	-0.006	(0.509)	0.000	-0.004***	-0.000	-0.005	-0.003	0.099
	P-value	(0.257)	-0.014	(0.693)	(0.001)	(0.780)	(0.145)	(0.242)	(0.007)
LEV	Coef	-0.200***	(0.829)	-0.009	0.027	-0.035	-0.062	-0.037	-0.101
	P-value	(0.014)	0.354***	(0.766)	(0.146)	(0.254)	(0.108)	(0.251)	(0.405)
GROW	Coef	0.019	(0.000)	0.024	0.147***	0.094***	0.241***	0.171***	0.143***
	P-value	(0.901)	-0.021***	(0.390)	(0.000)	(0.007)	(0.000)	(0.000)	(0.000)
MTB	Coef	-0.011	(0.003)	-0.005*	-0.007***	-0.005	-0.013***	-0.012***	-0.010***

	P-value	(0.250)	-1.035***	(0.104)	(0.000)	(0.116)	(0.005)	(0.001)	(0.001)
ROA	Coef	-1.556***	(0.000)	0.097*	-0.751***	-0.545***	-1.296***	-0.653***	-0.619***
	P-value	(0.000)	0.028	(0.079)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
number of observations		1744	1744	1744	1744	1744	1744	1744	1478
Sargan Test		2.911	2.141	0.430	0.161	0.679	0.251	0.0036	

Where: *Model (1)= the robust results of total- real earnings management with accruals earnings management, Model (2)= the robust results of total- real earnings management without accruals earnings management, Model (3)= the robust results of the abnormal discretionary expenses (ADE), Model (4)= the robust results of the ACFO, Model (5)= the robust results of APC, Model (6)= the robust results of the aggregate APC and the aggregate inverse of ACFO, Model (7)= the robust results of the aggregate inverse of ACFO and the inverse of abnormal discretionary expenses. * Significance at the 0.10 level, ** Significance at the 0.05 level, *** Significance at the 0.01 level.*

Table 9 : The Robust Regression Results of the relationship between acquisition and ownership structure on REM and AEM in the GCC Companies.

		Real Earnings Management			**Accruals Earnings Management**		
		(Model1)	(Model2)	(Model3)	(Model1)	(Model2)	(Model3)
ACQ	Coef	-0.013	-0.012	-0.018	0.009*	0.008	0.010*

	P-value	(0.502)	(0.540)	(0.377)	(0.101)	(0.117)	(0.074)
INSTOWN	Coef	-0.073**	----------	-0.038	-0.022*	----------	-0.034***
	P-value	(0.042)	----------	(0.253)	(0.074)	----------	(0.001)
STOWN	Coef	-0.111*	----------	0.008	-0.042*	----------	-0.054***
	P-value	(0.075)	----------	(0.911)	(0.070)	----------	(0.009)
FOWN	Coef	0.040	----------	-0.003	-0.013	----------	-0.026**
	P-value	(0.324)	----------	(0.961)	(0.352)	----------	(0.039)
NGQ	Coef	----------	-0.044	----------	----------	-0.035***	----------
	P-value	----------	(0.201)	----------	----------	(0.005)	----------
EAUDQ	Coef	0.006	0.006	----------	0.004	0.004	----------
	P-value	(0.790)	(0.789)	----------	(0.635)	(0.691)	----------
FSIZE	Coef	0.010	0.006	----------	-0.012*	-0.012*	----------
	P-value	(0.602)	(0.742)	----------	(0.079)	(0.088)	----------
LEV	Coef	0.113	0.118	----------	0.014	0.017	----------
	P-value	(0.159)	(0.141)	----------	(0.491)	(0.397)	----------
GROW	Coef	0.234***	0.235***	----------	0.046***	0.046***	----------
	P-value	(0.000)	(0.000)	----------	(0.003)	(0.003)	----------
MTB	Coef	-0.013***	-0.012***	----------	0.000	0.000	----------
	P-value	(0.001)	(0.002)	----------	(0.662)	(0.547)	----------
ROA	Coef	-0.563***	-0.570***	----------	0.045	0.044	----------
	P-value	(0.000)	(0.000)	----------	(0.121)	(0.145)	----------
Country dummy		No	No	No	No	No	No

Industry dummy	No	No	No	No	No	No
number of observations	1892	1894	2260	2310	2312	2780
R-squared	0.112	0.117	0.001	0.006	0.004	0.006
F statistic	9.19	11	0.54	4.23	5.13	8.14
Prob>F	0.000	0.000	0.704	0.000	0.000	0.000

*Where: Model (1)= the robust results of the fixed effect regression without country-level. Model (2)= the robust results of the fixed effect regression without firm-level. Model (3)= the robust results of the fixed effect regression without control variables. Total-REM = total real earnings management techniques in year t-1. * Significance at the 0.10 level, ** Significance at the 0.05 level, *** Significance at the 0.01 level.*

What do we know about Real Earnings Management in the GCC?

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