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Khalid Al-Amri Saif Al Shidi Munther Al Busaidi Serkan Akguc

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Real earnings management in public vs. private firms in the GCC countries: a risk perspective

Abstract

Purpose:

The purpose of this paper is to examine the use of real earnings management by private and public firms in a unique institutional setting, which is the Gulf Cooperation Council (*hereafter GCC*) countries. The paper also compares the level of real earnings management between public and private firms in the GCC area.

Design/methodology/approach:

The GCC area is a unique setting to investigate the use of real earnings management because of the low enforcement of reporting standards and supervisory rules, lack of sophisticated financial analysis, specialized media tools and high concentration of capital ownership. We use different models of real earnings management proposed by (Roychowdhury, 2006); cash flow management, production cost management and discretionary expenses management to examine the use of real earnings management.

Findings:

The paper documents evidence consistent with private and public firms using real earnings management to influence their earnings figures. The paper also, shows that the level of real earnings management is higher for private firms compared to public firms when cash flow management and discretionary expenses management models are used. The production cost model results show evidence consistent with public firms only engaging in real earnings management through production cost reduction.

Practical implications:

The findings of this study should promote a general understanding of firms' behaviour in unique environment such as GCC countries. Regulators in the GCC region should be aware that real earnings management techniques have been used by firms and that extra caution is required when auditing or analysing the financial information of private and public firms in the GCC market.

Originality/value:

This paper contributes to the literature in many aspects. First, it provides additional evidence on the use of earnings management in unique market contexts outside the US and Europe. The GCC markets share many common characteristics that make them interesting settings to be investigated. Second, this paper adds more evidence on the use of earnings management between public and private firms. In this regard, the paper adds additional evidence in the discussions proposed by Ball and Shivakumar (2005) and Givoly et al (2010) who use two competing perspectives to investigate earnings quality in public and private firms; the demand hypothesis and the opportunistic behaviour hypothesis.

Keywords: GCC Countries, Real Earnings Management, Risk, Information Asymmetry

JEL Classification: G32, M4, L20

Real Earnings Management in Public vs. Private Firms in the GCC Countries: A Risk Perspective

1. Introduction

Earnings management, both in the context of manipulation of accruals and real activities, has widely been studied in the literature and most studies use data on US publicly traded firms¹. Cross country studies on earnings management also limited their scope to publicly listed firms (e.g. Leuz, Nanda, and Wysocki, 2003). Private firms, however, constitute a significant share of any economy² and with the recent availability of data, several studies examined various corporate policies for listed vs. unlisted firms³. Earnings management for private firms versus public firms has also received scant attention, especially in developing country context. Beatty and Harris (1999) and Beatty, Ke and Petroni (2002) show that U.S. private banks exhibit less evidence for earnings management than U.S. public banks. On the contrary, Burgstahler, Hail and Leuz (2006) show that those results are not generalizable to a broader set of industries and countries. In their sample of private and public non-financial firms in 13 European countries, Burgstahler et al. (2006) find evidence that earnings management is more pervasive in private firms than in public firms.

In this study, we investigate the real earnings management (i.e. manipulation of firm operations to achieve a specific goal) in the distinct institutional setting of Gulf Cooperation Council (GCC) countries, where legal enforcement is weak, by using a unique data-set of public and private firms. We find that both private and public firms engage in real earnings management, however, the direction of real earnings management from one model to another appears to be different. For example, using the (CFO) model, the results suggest that while both types of firms manage their earnings down the level is higher for private firms. Using the (DEXP) model, on the other hand, reveals that while both types of firms manage their earnings up, the level is higher for public firms. Furthermore, the results from the (PROD) model show

¹ See, for example, Dechow (1994), Burgstahler and Dichev (1997), Roychowdhury (2006), Gunny (2010), and for a review of literature on accrual based and for real earnings management, see Healy and Wahlen (1999) and Xu, Taylor and Dugan (2007).

² See, for example, Asker, Farre-Mensa, and Ljungqvist (2015) for U.S., Akguc and Choi (2016) for Europe and Akguc, Choi, and Kim for U.K (2015)

³ See, for example, Asker, Farre Mensa and Ljungqvist (2015) and Badertscher, Shroff and White (2013) for investment, Maksimovic, Phillips and Yang (2013) for merger waves Brav (2009) for capital structure, Michaely and Roberts (2011) for dividend behavior, and Gao, Harford and Li, (2013) for cash holdings.

that private firms manage their earnings up while public firms manage their earnings down. The magnitude of earnings management is higher for private firms. To our knowledge, our study is the first one that investigates real earnings management for public and private firms in a developing cross-country context. Our findings complement those of Burgstahler et al. (2006) who find that earnings management is more common in countries with weak legal enforcement and also that private firms exhibit more earnings management compared to public firms.

Earnings management refers to the manipulation of earnings (profit) figures by companies to achieve some objective. Accounting earnings is comprised of two components; the cash component and the accrual component. Companies can alter their earnings by manipulating either the accruals component, referred to as accruals management, or by manipulating the cash component, referred to as real earnings management. In this paper, our focus is on the use of real earnings management in public versus private firms in the GCC countries.

Several significant economic and institutional features make the GCC market a unique and interesting environment in which to examine the use of real earnings management. First, GCC countries lack high standards of corporate governance. Specifically, the reporting standards and supervisory rules are not strictly enforced, which in turn might give firms an opportunity to manipulate earnings through real activities management. Second, analyst coverage and earnings estimates are much less frequent and in-depth in the GCC countries. This suggests that earnings manipulations might go unnoticed by investors. Third, another unique feature of GCC markets is lack of reliable media to disseminate financial information. Al-Yahyaee et al. (2011) argue that investors in GCC countries lack alternative sources for firm-specific information. Fourth, it is well documented that GCC markets are characterized with high ownership concentration levels (Al-Sehali and Spear, 2004). GCC firms are owned by a small number of investors who have controlling interests. Although these characteristics do not offer a direct indication of private information trading, they are strongly connected with the occurrence of high levels of insider trading (Bhattacharya and Daouk, 2002; Brown and Hillegeist, 2007; Grishchenko et al., 2002; Al-Amri et al., 2012).

This paper contributes to the literature in many aspects. First, it provides unique evidence on the use of earnings management in a distinct financial environment, which does not share too

many commonalities with the US and Europe⁴. By using a unique dataset, our paper also provides evidence on the real earnings management of private firms in GCC countries, which we know little about. Our paper joins Al-Amri, Al-Busaidi, and Akguc (2015) and Al-Amri and Akguc (2015) in using data on private versus public firms in GCC countries. Our paper also adds additional evidence in the discussions proposed by Ball and Shivakumar (2005) and Givoly et al (2010) who use two competing perspectives to investigate earnings quality in public and private firms; the demand hypothesis and the opportunistic behavior hypothesis. The demand hypothesis argues that because public firms are subjected to higher demand for quality accounting information by shareholders and investors, their accounting figures should be of higher quality than those of private firms. The opportunistic behavior hypothesis, on the other hand, argues that because public firms are more prone to agency problems than private firms, their accounting figures should be of lower quality (Givoly et al, 2010). Within the GCC countries context, our paper is the first one to provide additional evidence to this issue.

The paper proceeds as follows. In section 2, we briefly review the literature on earnings management and develop the hypotheses. In section 3, we develop our hypotheses. In section 4, we describe our sample construction and provide summary statistics. We discuss empirical models and estimation results in Section 5 and 6. Section 7 discusses implications of real earnings management. Section 8 concludes the paper.

2. Literature Review

2.1 Real Earnings Management

⁴ The key reason for using all 6 GCC countries in this paper is due to many common elements that are unique to the GCC union. All countries in GCC speak the same language, believe in the same religion and follow the very similar set of law and rules governed by Islamic principles. These features deeply affect firm culture and key firm decisions. Moreover, there is free trade and free movement of labor among GCC countries, which expands input, customer, and investor base of companies in GCC countries. Moreover, all GCC countries are heavily dependent on oil production and therefore their economy is structured similarly. Any change in oil prices can have a dramatic impact on the economy of all GCC countries and therefore on expected growth rate of the GDP. GCC countries also have mostly centralized governments where almost everything is run by the state. The private sector plays a smaller role in the region economy with the exception of some countries (i.e. Dubai in the United Arab Emirates). Given these similarities among firms in 6 GCC countries, we believe a study that focuses on GCC region can provide unique and rich insights.

We follow Roychowdhury (2006) in defining real earnings management such that managers deviate from their normal operational practices to achieve a certain financial goal. The managers' purpose is to mislead some of the stakeholders in such a way that financial goals have been met during normal course of operations while they are not. Real activities management affects cash flow much more than accruals do. As highlighted in Roychowdhury (2006), real earnings management can be detected by examining pattern in cash flow from operations (e.g. sales manipulation by accelerating the recognition of sales, price discounts and adjusting credit terms), discretionary expenses (e.g. advertising expenses and R&D), production costs (e.g. adjusting the level of production to report lower cost of goods sold). Burgstahler and Eames (2006) and Roychowdhury (2006) argue that meeting or beating analysts' earnings forecasts provides a compelling incentive for companies to manage their earnings to achieve that benchmark and that companies manage their earnings up through both accrual and real earnings management. Recent research has also documented the use of real activities management in contexts such as seasoned equity offerings (SEOs) (Li et al, 2011), mergers and acquisitions (Zhu and Lu, 2013), firms with credit rating concerns (Brown, Chen and Kim, 2014), IPO firms (Alhadab, Clacher and Keasey, 2015) and reverse merger firms (Zhu, Lu, Shan and Zhang, 2015).

An implied assumption in these studies is that the market is not able to detect real earnings, which allows firms to gain from using these acts to achieve benchmarks. This assumption has recently been confirmed by survey evidence (Cupertino, Martinez and da Costa, 2015). In addition, some research findings suggest that firms prefer using real earnings management to meet earnings forecasts (Graham et al, 2005). In their explanation to the observed tendency of companies' management to commit real earnings management, Graham et al. (2005) suggest that it is because of (1) the increased market scrutiny over financial reporting process following major accounting scandals in early 2001, and, (2) the inability of auditors to challenge real decisions compared to accounting method choice. Other studies argue that using real earnings management to meet earnings forecasts was significantly higher than using accrual earnings management techniques following the passage of the Sarbanes Oxley Act (Bartov and Cohen, 2009, Cohen et al, 2008).

Furthermore, some research studies argue that companies with cash flow forecasts have more incentive to engage in cash flow management rather than accruals management (Call,

2007) and that meeting or beating cash flow forecasts encourages companies to manage their operating cash flows as well as their real earnings to achieve that target (Zhang, 2008a, Zhang, 2008b). Zhang (2008a) finds that suspect firms that just meet the cash flow hurdle exhibit higher abnormal underproduction than other firms in order to inflate their cash flow figures and avoid missing the cash flow benchmark. Zhang, (2008b) investigates abnormal cash flow activity for firms with different incentives and characteristics. His evidence shows that firms just meeting cash flow forecasts have higher positive abnormal cash flows than other firms and those firms with high levels of accruals and capital intensity and poor financial health have more incentive to manage their cash flows up than other firms.

2.2 Public vs. Private Firms

Research investigating real activities management in private and public firms is very limited. In fact, very limited research has been conducted that compares reporting differences issues between public and private firms. Using a UK sample, Ball and Shivakumar (2005) suggest that accounting figures of UK private firms have lower quality than those of public firms. Their analysis was based on the premise that the nature of demand for accounting information for private firms is different than that for public firms. In the US, Givoly et al (2010) document similar results. However, they also find that private firms have higher quality accounting figures than public firms from an opportunistic behavior hypothesis perspective.

In relation to accruals earnings management, available research evidence from Europe suggests that private firms still engage in accruals earnings management even though they may not have reporting incentives (Coppens and Peek, 2005). Coppens and Peek (2005) argue that taxation incentives can explain that behavior. They argue that private firms tend to use accruals earnings management to lower their earnings figures in order to reduce the amount of tax paid. Other research suggests that the use of accruals earnings management in public banks is higher than that in private banks (Beatty et al, 2002). This is mainly due to the assumption that agency related issues are more in public institutions than in private ones. The evidence documented in Beatty et al (2002) uses financial institutions while the results documented in Coppens and Peek (2005) use European firms. This leaves the question of generalizability to other sectors and contexts open.

As can be seen above, most of the above studies focus on accruals earnings management in their analysis of reporting behavior of private and public firms. Given the lack of research investigating the use of real activities management by public and private firms and the fact that previous studies document, that there is a tradeoff between the use of real earnings management and accruals management (Zang, 2011), the question of whether the results documented above using accruals earnings management can also be observed when firms use real activities management remains valid

In the GCC context, very limited research evidence exists that compares the use of earnings management techniques such as accruals and real earnings management between private and public firms⁵. In fact, there is lack of evidence on the use of accruals or real earnings management in the GCC area. The only available evidence is that documented in Al Gharaballi (2013). Using a Kuwaiti sample, Al Gharaballi (2013) documents weak evidence of accruals management. More specifically, she finds some evidence of accruals earnings management in a sample of firms right before they list on the stock exchange. The evidence is only significant when she used current accruals models but not when total accrual models are used.

In summary, there is lack of research evidence documenting the use of real earnings management by companies. Furthermore, to the best of our knowledge, there has not been any research comparing the use of real earnings management for private and public firms in the GCC area.

Given the interesting nature of the GCC context, this study attempts to fill in this gap in the literature by providing documentary evidence on whether public and private firms in the GCC area engage in real earnings management and whether the behavior is more prevalent in private or public firms.

3. Hypothesis Development

3.1 Real Earnings Management in the GCC Countries

⁵ The institutional and operational differences between publicly listed and privately held firms in the GCC region are mostly similar to those in the U.S. (e.g. Gao et al. 2013) and Europe (e.g. Akguc and Choi, 2015). Public firms have wider and cheaper access to capital, and are subject to closer monitoring due to strict listing requirements; however, they have less dispersed ownership structure with more presence of family firms similar to Europe.

The first set of hypotheses addresses whether private and public firms in the GCC region engage in real earnings management. As detailed in the literature review section, an extensive body of research documents the use of earnings management to achieve specific objectives such as gaining import reliefs (Jones, 1991), avoiding losses and incomes declines (Burgstahler and Dichev, 1997) and meeting analysts' forecasts (Degeorge et al, 1999, 2004, Burgstahler and Eames, 2006). The evidence also shows that both accruals earnings management and real earnings management have been used to achieve these objectives (Jones, 1991, Dechow and Skinner, 2000, Roychowdhury, 2006, Burgstahler and Eames, 2006). Given the fact that the evidence on earnings management in general is not limited to specific geographical areas or markets (Leuz et al, 2003), one would expect that firms in the GCC countries are likely to be engaging in earnings management.

GCC markets are characterized with high levels of information asymmetry, concentrated ownership and low enforceability of regulations. Prior research argues that the use of earnings management is higher in less developed economies where there is low enforcement of regulations, high concentration of ownership and low investor protection (Luez et al, 2003). Given the limited research investigating the use of earnings management in general and real earnings management in particular in the GCC area and consistent with the recent evidence (Al Gharaballi, 2013), though weak, on the use of earnings management in the GCC area, we expect that firms in GCC use real earnings management to manage their earnings. Also, because research evidence worldwide documents the use of earnings management in both private and public firms and because it has been established that firms worldwide use earnings management to influence their earnings figures regardless of their geographical location or economic setting, our first two hypotheses are as follows:

H1a: *Private companies in the GCC area engage in real earnings management*

H1b: *Public companies in the GCC area engage in real earnings management*

3.2 Real Earnings Management in Public vs. Private Firms

Givoly et al (2010) argue that from a demand perspective, public firms are more incited to provide high quality information and less inclined to engage in earnings management than private firms due to market pressure to provide quality accounting information. On the other hand, the agency problem, referred to the opportunistic behavior hypothesis, may cause public firms to have less earnings quality as a result of managers acting in their best interest to manage earnings to achieve market benchmarks.

The GCC area as an institutional setting may aggravate the information asymmetry problem for both private and public firms. Ball and Shivakumar (2005) argue that in systems where companies extensively use private channels and close relationship with financing sources, different parties normally address the information asymmetry issue privately rather than through public disclosures. Hence, the need for high quality information may not be warranted. This means that both private and public firms operating in the GCC area may have similar incentives to engage in earnings management from an institutional perspective. What makes this argument more appealing to the GCC area is the fact that there is limited enforceability of disclosure requirements for public firms which might indicate that public firms are effectively in similar position compared to private firms. However, despite the limited enforceability of disclosure requirements, public firms are still subjected to more scrutiny in terms of monitoring, which might suggest that public firms would be more concerned about the quality of their financial information than private firms.

Although private firms are less prone to agency problems (Coppens and Peek, 2005), several incentives still exist for them to engage in earnings management in general and real earnings management in particular⁶. From an information usefulness perspective, the cost to private firms to manage their earnings down to avoid high tax payments is less than that to public firms (Ball and Shivakumar, 2005). This means that private firms can sacrifice the usefulness of accounting reports to manage their earnings down and consequently pay less tax. This implies that the way they communicate their information to various interested parties does not require extended effort to ensure high quality (Ball and Shivakumar, 2005). Coppens and Peek (2005) argued, however, that tax incentives as a major driver of reporting behavior in private firms is

⁶ We acknowledge that private firms may also have incentives to engage in accruals managements, however, this topic is outside the scope of current paper.

affected by the existence of other reporting incentives that might have contradictory effects such as contracting incentives. Also, there is the extent to which tax and financial reporting are aligned. Given the fact that private firms in the GCC area are subject to income tax, and that there is lack of incentive for private firms to ensure quality accounting information, one would argue that that private firms engage more extensively in earnings management practices including real earnings management than public firms.

Another reason why private firms would want to manage real earnings stem from potential creditor intervention. Private firms rely highly on debt in absence of access to public equity markets and financial statements are the only way to communicate their performance to creditors, which in turn motivate them to manage earnings in order to avoid creditor intervention (Burgstahler et. al. (2006)).

On the other hand, in relation to public firms, research shows that capital market pressures lead public firms to manage their earnings despite the fact these firms have more incentive to report high quality information. Public firms have been documented to use real earnings management to achieve benchmarks (Burgstahler and Eames, 2006, Zhang, 2008, Roychowdhury, 2006).

This is mainly due to high information asymmetry between firms' management and outside investors and users of financial information as a result of agency problems. In the GCC area, public firms face similar market pressures to those in developed economies. The lack of enforceability of reporting requirements coupled with the fact that the GCC region's institutional setting gives GCC public companies more room to engage in earnings management including real earnings management. As a result, one would predict that public companies in the GCC area may engage in earnings management as represented by real earnings management more than private firms.

Taken together, the arguments presented above show that both private and public firms have their own incentives to engage in real activities management. We predict, however, that public firms are likely to engage in real activities management more than private firms. The lack of enforceability of market regulations puts public firms at the same position as private firms in terms of market pressure and reporting quality requirements. The severity of the agency problem

in public firms, however, gives them an edge over private firms in terms opportunistic behavior. Hence our second hypothesis is as follows:

H2: The level of real earnings management for public firms is higher than that to private firms.

4. Data Description and Univariate Analysis

4.1 Sample construction

We obtain the data Standard and Poor's Capital IQ (CIQ) database⁷. CIQ provides firm-specific data for a large sample of international and domestic public as well as private firms. Private firms in the CIQ database are generally larger with some level of public exposure due to issuing public debt, and hence publish audited statements. One key feature of private firms is that their access to capital markets is more limited and hence they are more financially constrained compared to publicly listed firms.

To construct our dataset, we start with all firms in the 6 GCC countries in the database with non-missing asset values from 2003 to 2012. We exclude financial (SIC Codes between 6000 and 6999) and regulated utilities companies (SIC Codes between 4900 and 4949). We require firms to have at least two years of non-missing data to be able to calculate sales growth as well as other changes in some key variables. We also exclude firm-year observations with inconsistent financial information such as negative assets, revenue, debt, etc.

One important feature of the Capital IQ database is that it classifies a firm as public or private based on the firm's latest status. In order to correctly classify a firm as public or private, we search for all key event dates and identify initial public offerings and delistings from the stock market. We then reclassify a firm as public or private based on these key dates⁸.

The initial raw sample of firms in GCC countries included 7960 firm-year observations and 796 distinct firms. After applying the above screening criteria, the final sample has 3330

⁷ We join Gao et. al. (2013) and Akguc and Choi (2015) which uses CIQ public and private firm data for U.S. and 33 European companies, respectively. Our data processing and screening criteria closely follow these two papers.

⁸ For example, if a firm conducted IPO in 2009, and it has financial information from 2003 to 2012, CIQ classifies this firm as public in all years. We correct for this grouping error and reclassify the firm as private from 2003 to 2008 and as public from 2009 to 2012.

firm-year observations and 442 unique firms, of which are 635 firm-year observations representing 139 distinct private firms and 2695 firm-year observations representing 353 distinct public firms⁹.

4.2. Data Description and Univariate Analysis

Table 1 provides the number of firm-year observations for public versus private firms by country, or by Fama and French 12 industry breakdown (panel B). In panel A, it is remarkable to note that 81% of all observations represent public firms and 19% represent private firms, indicating the dominance of public firm observations in GCC region¹⁰. Two countries with most frequency of observations are Saudi Arabia, and Oman. In panel B, as is typical in broad firm samples, most areas of transportation, manufacturing, consumer Non-Durables, as well as wholesale and retail industries are well represented.

[Insert table 1 (A, B) here]

Table 2A presents descriptive summary statistics for firm-specific variables used in the paper (detailed definitions are provided in Appendix A2 and table narrative). All monetary accounts are expressed in 2012 U.S. dollars using the Consumer Prices Indices from the U.S. Bureau of Labor Statistics. All continuous variables are winsorized at the bottom and top 1% level, within each county and public and private firms separately, to reduce the effect of outliers. Panel 2B presents pairwise correlations among the variables.

The average (median) private firm in our sample is larger (smaller) than public firms with mean (median) asset size of \$ 2,443.81 million (\$138.31 million) compared to \$927.33 million (\$171.70 million) for public firms. Private firms, on average, also have larger sales revenues (\$1,214.81 million) and sales growth (48.38%) than public firms (\$423.96 million and 26.18%, respectively). The mean (median) leverage as a percentage of assets is 21.81% (13.75%) for private firms whereas it is 18.77% (10.86%) for public firms. This is consistent with the fact that private firms do not have access to public equity markets and therefore rely more on debt as a

⁹ Numbers do not exactly add up due to the firms that changed ownership status by IPOs and delistings. That is, if a firm conducted IPO (or delisted) during our sample period, then it is classified as private (public) up to IPO (delisting) date and public (private) thereafter.

¹⁰ The extent to which the data sample is representative of the overall population of firms in GCC countries will determine the validity of this statement.

form of financing their assets. Private firms are more profitable with a mean (median) ROA of 11.44% (8.20%) compared to 9.07% (7.20%) for public firms. Private and public firms are similar in average age with 23.82 and 23.98 years old, respectively.

When it comes to key real earnings management proxies we use in our analysis, we see that private firms have higher cash flow from operations (16.28% versus 11.53% for public firms), higher production costs calculated as cost of goods sold plus change in inventory (63.17% versus 54.39% for public firms) but lower discretionary expenses, proxied by R&D expenses (0.16% versus 3.19% for public firms).

5. Empirical Estimation of the Baseline Models

5.1. The Baseline Model

To measure real earnings management for firms meeting or beating cash flow forecasts, we use the model developed in Dechow et al. (1998) and implemented in Roychowdhury (2006), Cohen *et al* (2008) and Zhang (2008b). Specifically, we estimate normal cash flows, production and discretionary expenses using the following equations:

$$\frac{CFO}{A_{iq-1}} = \beta_0 + \beta_1 \left(\frac{1}{A_{iq-1}} \right) + \beta_2 \left(\frac{S}{A_{iq-1}} \right) + \beta_3 \left(\frac{\Delta S}{A_{iq-1}} \right) + e \quad (1)$$

$$\frac{PROD}{A_{iq-1}} = \beta_0 + \beta_1 \left(\frac{1}{A_{iq-1}} \right) + \beta_2 \left(\frac{S}{A_{iq-1}} \right) + \beta_3 \left(\frac{\Delta S}{A_{iq-1}} \right) + \beta_4 \left(\frac{\Delta S_{iq-1}}{A_{iq-1}} \right) + \varepsilon \quad (2)$$

$$\frac{DEXP}{A_{iq-1}} = \beta_0 + \beta_1 \left(\frac{1}{A_{iq-1}} \right) + \beta_2 \left(\frac{S_{iq-1}}{A_{iq-1}} \right) + \delta \quad (3)$$

Where:

CFO is operating cash flows;

A is total assets;

S is sales revenue;

ΔS is change in sales from the prior period;

PROD is the sum of cost of goods sold and change in inventory;

DEXP is research and development expenses¹¹.

We estimate the equations for each year-industry group.¹² Industry groups are identified using the Fama and French (1997) twelve industry classification scheme.¹³ Following Gunny (2010) we eliminate year-industry groups with less than 15 observations. This procedure ensures an adequate number of observations to estimate the above models. Consistent with Cohen *et al* (2008), if observations have missing research and development figures, we attach a value of zero to these observations. Similar to Gunny (2010) and Cohen *et al* (2008), we consider the residuals from these equations to be proxies for abnormal cash flows (CFO), production costs, (PROD) and discretionary expenses (DEXP) respectively¹⁴.

In investigating hypothesis 1, we test the significance of mean residuals from the above models for public and private firms. Hypothesis 2 is investigated by testing the significance of the difference between mean residuals for private firms and mean residuals for public firms.

6. Results and Discussion

Table 3 shows the estimation results for the cash flow (CFO), the production (PROD) and the discretionary expenses (DEXP) models. Almost all of the significant coefficients are consistent with those in Roychowdhury (2006). For example, in the (PROD) model, the coefficient on the reciprocal of assets ($1/A$) is negative while the coefficient on sales (S/A) is positive. In the (CFO) model, the coefficient on (S/A) is positive. The adjusted R^2 are 46%, 10% and 0.6% for the (CFO), (PROD), and (DEXP) models respectively. The number of observations

¹¹ Roychowdhury (2006) and Cohen *et al* (2008) define discretionary expenses as the sum of research and development, advertising and selling, general and administrative expenses. Gunny (2010) on the other hand focuses exclusively on research and development expenses similar to this thesis. Nonetheless, calculating discretionary expenses by adding research and development, advertising and selling, general and administrative expenses produces qualitatively similar results.

¹² Given data limitations, the models are estimated using pooled regression to obtain enough power of tests. Nonetheless, we control for industry fixed effects when estimating the models.

¹³ We also repeat the analysis using 2-digit SIC industry classification. Results are qualitatively the same.

¹⁴ The existence of this abnormal activity may possibly indicate corporate efficiency and hard work. In other words, companies may regard the cash component as an important measure and hence will attempt to achieve it through hard work, careful selection of projects and sales incentives. One approach to differentiate these explanations is by investigating the future performance of these companies. If the abnormal behavior is a result of real earnings management, then future performance indicators should exhibit a decline. Research findings are consistent with this prediction (Gunny, 2010)

used to estimate the three models are 2376, 1857 and 3168 observations for the (CFO), (PROD) and (DEXP) models respectively.

Table 4, shows the results for testing hypotheses 1 and 2 using the mean residuals from the (CFO), (PROD), and the (DEXP) models.

As can be seen in Table 4, the mean residuals from the (CFO) model for public firms positive and significantly different from zero, which supports hypothesis 1b. The mean residuals from the same model for private firms are positive and significant, which lends support to Hypothesis 1a. These results indicate that operating cash flow for both public and private firms tend to be higher than average, which might be indicative of cash flow management.

The test results for the difference between the mean residuals from the (CFO) model for public and private firms show that abnormal operating cash flows for private firms are significantly higher than those for public firms, which indicates that private firms use cash flow management more than public firms. Specifically, this suggests that private firms engage more in downward earnings management through cash flows compared to public firms. In other words, both public and private firms use cash flow management technique to manage their earnings down, however, the technique is more pronounced in private firms compared to public firms. This result is not consistent with H2.

The test results using the residuals from the (PROD) model are telling a slightly different story. As can be seen in Table 4, the mean residuals from the (PROD) model for public firms are negative and significant, which, again, supports hypothesis 1b. The mean residuals from the same model for private firms are positive and significantly different from zero, which is consistent with hypothesis 1a. These results indicate that production costs for public firms are lower than average, while production costs for private firms are higher than average. This also implies that public firms engage more in downward earnings management through reduction in production costs, while private firms engage in upward earnings management through overproduction.

The test results for the difference between the mean residuals from the (PROD) model for public and private firms show that abnormal production costs for public firms are significantly lower than those for private firms. This suggests that while both types of firms uses real earnings

management through production, private firms use it to manage earnings up, while public firms use to manage earnings down. While the direction of earnings management using the (PROD) model is different for both types of firms, the absolute magnitude of earnings management is higher for private firms, which is not consistent with H2.

One possible explanation to the above results' apparent contradiction with the difference test results between the (CFO) and the (PROD) models is that it might be possible that public and private firms are different in selecting real earnings management techniques.

Another explanation might be that financial reporting for private firms is more driven by tax reduction (Burgstahler et al, 2006, Ball and Shivakumar, 2005, Coppens and Peek, 2005). For example, Burgstahler et al (2006) argue that the role of accounting earnings for private firms is more likely to assume tax minimization rather than performance reporting. Similar to that, Ball and Shivakumar (2005) suggest that taxation, dividend and other reporting policies are considered to be the main driver of private firms' financial reporting choice. As a result, one would expect private firms to focus less on reducing costs, which might explain the higher abnormal production costs for private firms than for public firms.

The test results for the (DEXP) model are also different. The mean residuals of the (DEXP) model for both public and private firms are negative and significant, which is consistent with hypotheses H1a and H1b. This suggests that public and private firms have abnormally low discretionary expenses, which might be indicative of upward real earnings management through manipulation of discretionary expenses.

The test results for the difference between the mean residuals from the (DEXP) model for public firms and the mean residuals from the (DEXP) model for private firms are positive and significant, which indicates that abnormal discretionary expenses of private firms are significantly lower than those of public firms. This suggests that public firms are using upward real earnings management through manipulation of discretionary expenses more than private firms, which is consistent with H2.¹⁵ One explanation for the results from the (DEXP) model is the fact that private firms in the GCC area tend to be larger than public firms. Hence, it is

¹⁵ Caution should be used when interpreting the results from the (DEXP) model due the fact that a significant number of observations have missing research and development and adverting expenses data. As has been discussed before, these missing date have been replaced with zero figures.

expected that bigger firms have more latitude in controlling their discretionary expenses compared to smaller firms.¹⁶

Our discussion above focused on the mean (or the average) residuals. For robustness, we also report the medians in Table 4. The median values for residuals confirm and support our findings using mean residuals in model 1 (CFO) and model 2 (PROD) for both public and private firms and the difference between the two types of firms as well as for private firms in model 3 (DEXP).

7. Additional Analysis

In this section, we estimate the following model (4) to show in a multivariate setting how real earning management proxies we used in this paper (i.e. CFO, PROD, and DEXP) are different between public and private firms. We use pooled OLS method for estimation and industry, year and country dummies are included in all regressions.

$$\frac{Y}{A_{it-1}} = \beta_0 + \beta_1(Private_i) + \beta_2 \ln(Asset_{it}) + \beta_3(ROA_{it}) + \beta_4(RLeverage_{it}) + \beta_5(Firm\ Age_{it}) + \beta_6(Sales\ Growth_{it}) + e_{it} \quad (4)$$

where Y is CFO, PROD, and DEXP. Private is a dummy variable that takes the value of 1 for privately held firms and 0 otherwise. Ln(Asset) is natural logarithm of total assets. ROA is Net Income scaled by assets. Leverage is total debt (short-term debt plus long-term debt) scaled by assets. Firm age is number of years since firm's establishment. Sales growth is revenue growth from time t to t+1¹⁷. CFO is cash flow from operations

Estimation results are presented in Table 5. The key variable of interest is Private dummy, which is positive and significant in all specifications, meaning that private firms have higher cash flow from operations, higher production costs and higher discretionary expenses than do public firms, controlling for firm specific variables. The results also establish a positive

¹⁶ Table 2C shows positive and significant correlation between firm size as represented by total assets and R&D.

¹⁷ Control variables include mainstream firm-specific variables that are hypothesized to affect the proxies used as dependent variables in our analysis. Firm size is proxied by asset size, profitability is proxied by ROA, capital structure is proxied by total debt, and growth opportunities are proxied by sales growth (a better measure for growth opportunities would be market to book ratio but it is not available for private firms since there is no stock price. We follow Asker, Farre-Mensa, and Ljungqvist (2015) and use sales growth instead.

relationship between abnormal cash flows and abnormal discretionary expenses and firm age. This suggests that as firms get older, their ability to generate abnormal cash flows becomes higher. This is expected since older firms tend to be also bigger in size, which gives them more latitude to make cash increasing real decisions.

8. Implications for research, practice and society

The findings of the paper can have several implications. First, for regulatory bodies in the GCC, the evidence in this paper can help them take into consideration real activities management decisions when formulating disclosure and reporting requirements. Prior research suggests that these decisions can have negative effects on the future performance of companies (Gunny, 2010) and therefore, they may have negative implications on the well-being of different stakeholders associated with the firm. Given the importance of regulation in ensuring that sound and quality reporting is provided by organizations, one would suggest that regulatory bodies may need to consider disclosure requirements related to these decisions. For example, as one of the models used to assess the possibility of real earnings management is the production cost model, regulatory bodies can suggest disclosing information about comparative production levels and costs. Sudden spikes in levels and/or costs are a red flag to be investigated further. Second, for investors and shareholders in the GCC countries, the evidence documented in this paper can enhance their understanding of the reporting environment of companies in the GCC region. This understanding will ultimately allow them to exert more scrutiny on the financial figures published by firms, which is expected to enhance the quality of their analysis and investment decisions. It would also help shareholders focus their attention on specific items that are likely to be targeted by firms' management to achieve reporting objectives. Third, the evidence in this paper can also be of relevance with regard to corporate social responsibility evaluation. Many regulatory bodies in the GCC area are now developing comprehensive regulations that address corporate social responsibility issues. Hence, the results of this paper suggest that real activities management should be one the dimensions that need to be taken into consideration given its documented negative implications to firms' future.

9. Conclusion

The purpose of this study is to investigate the use of real earnings management techniques by firms in GCC countries. Specifically, we investigate and compare the use of real earnings management in public and private firms in GCC countries.

The study is motivated by the fact that GCC countries constitute an interesting setting to test the implications of financial reporting choices for various types of firms. On one hand, research investigating real earnings management practices in developing economies including the GCC region is limited or missing. Given the fact that a significant part of global oil supply is coming from the GCC countries, the importance of these economies to the world should not be overlooked. As a result, research investigating the nature and the implications of financial reporting choices by firms in the GCC area is highly needed. Also, GCC countries possess high amounts of surplus liquidity of which some part is reinvested into the economies in the form of capital ownership in publicly listed firms by governments. As a result, firms in these countries are characterized by concentrated ownership. Furthermore, lack of high standards of corporate governance and sophisticated financial analysts and forecasts coupled with limited enforceability of corporate disclosure and regulations makes the markets in these countries more prone to information asymmetry problems. Finally, research evidence from some GCC markets reveals an intriguing feature in these markets; namely, the negative association between leverage and firm performance, which is contrary to traditional finance theory.

The above mentioned attributes have been shown by prior research to have an effect on corporate reporting choices by firms. As a result, contributing evidence from an additional setting such as the GCC market is expected to add more insight on the corporate reporting behaviour of firms operating in this market.

Using a unique data of GCC countries for the period of 2003-2012 and employing different models that represent different techniques of real earnings management, the results show that both public and private firms in the GCC countries engage in real earnings management. However, the nature and the level of real earnings management techniques is different between private and public firms. Specifically, the results show that both public and private firms are engaging in real earnings management by using all three techniques mentioned in this paper; namely cash flow management, production cost management and discretionary expenses management. The direction of the effect of earnings, however, seems to be not

consistent. Specifically, public firms use both production costs and cash flow management methods to manage earnings down, but use discretionary expenses management to manage earnings up. Private firms, however, use both production cost and discretionary expenses management methods to manage earnings up, but use cash flow management to manage earnings down. Furthermore, the difference test results suggest that private firms use cash flow management more than public firms, while public firms use discretionary expenses management more than private firms.

The findings of this study should promote a general understanding of firms' behaviour in unique environment such GCC countries. Regulators in the GCC region should be aware that real earnings management techniques have been used by firms and that extra caution is required when auditing or analysing the financial information of private and public firms in the GCC market.

Appendix

Appendix A1 presents definitions of variables used in this paper.

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Table 1A Number of Observations by Country and Firm Type

	Private Firms	%	Public Firms	%	Total
GCC Countries					
Bahrain	32	20%	130	80%	162
Kuwait	56	8%	635	92%	691
Oman	132	16%	700	84%	832
Qatar	30	16%	153	84%	183
Saudi Arabia	117	14%	731	86%	848
United Arab Emirates	268	44%	346	56%	614
Total	635	19%	2,695	81%	3,330

Table 1B Distribution of Sample Firms by Industry

Fama and French (1997) 12 Industries	Public Firms	% of total	Private Firms	% of total	Total	% of total
1 Consumer Non-Durables	395	0.092%	68	0.016%	463	13.904%
2 Consumer Durables	7	0.002%	10	0.002%	17	0.511%
3 Manufacturing	608	0.142%	52	0.012%	660	19.820%
4 Energy	83	0.019%	61	0.014%	144	4.324%
5 Chemicals and Allied Products	167	0.039%	15	0.004%	182	5.465%
6 Business Equipment	18	0.004%	18	0.004%	36	1.081%
7 Telecom	106	0.025%	11	0.003%	117	3.514%
9 Wholesale, Retail, and Some Services (Laundries, Repair Shops)	292	0.068%	59	0.014%	351	10.541%
10 Healthcare, Medical Equipment, and Drugs	85	0.020%	4	0.001%	89	2.673%
12 Other -- Mines, Constr, BldMt, Trans, Hotels, Bus Serv, Entertainment	934	0.218%	337	0.079%	1,271	38.168%
Total	2,695	80.9%	635	19.1%	3,330	100%

Table 2A Summary Statistics of key firm-level variables - All GCC Countries (2003-2012)

This table presents summary statistics for key variables for all 6 countries (i.e. Bahrain, Kuwait, Oman, Qatar, Saudi Arabia, and United Arab Emirates) in the sample. All dollar values are expressed in 2012 constant US Dollars million. All continuous variables are winsorized (within Public and Private Firms and within each country separately) at 1% at each tail to reduce the impact of outliers. Asset (A) is total assets. Sales are sales revenue. Sales growth is revenue growth from time t to $t+1$. Leverage is total debt (short-term debt plus long-term debt) scaled by assets. ROA is Net Income scaled by assets. Firm age is number of years since firm's establishment. CFO is cash flow from operations PROD is production defined as cost of goods sold plus change in inventory. DEXP is Discretionary expenditures defined as R&D expenditures.

	Public Firms							Private Firms							Difference in Means	Difference in Medians
	N	mean	median	st. dev	25th %	75th %	N	mean	median	st. dev	25th %	75th %				
Asset	2638	927.33	171.70	2712.33	52.97	587.55	633	2443.81	138.31	7974.61	26.31	439.79	-1,516.48	33.39		
Sales	2585	423.96	79.56	1236.93	19.04	265.04	585	1214.81	73.57	4663.61	11.30	271.66	-790.85	5.99		
Sales Growth	2263	26.18%	11.48%	82.16%	-4.66%	30.73%	434	48.38%	14.22%	184.48%	-6.44%	35.51%	-22.19%	-2.74%		
Leverage	2636	18.77%	10.86%	21.99%	0.00%	32.11%	551	21.81%	13.75%	24.88%	0.00%	36.26%	-3.04%	-2.88%		
ROA	2638	9.07%	7.20%	7.40%	3.66%	12.59%	633	11.44%	8.20%	12.27%	2.90%	15.44%	-2.37%	-1.00%		
Firm Age	2283	23.82	24	13.83	12	33	453	23.98	21	19.07	8	33	-0.17	3.00		
CFO/ A_{t-1}	2144	11.53%	8.96%	10.52%	4.01%	15.92%	382	16.28%	8.50%	57.88%	3.41%	17.87%	-4.75%	0.47%		
PROD/ A_{t-1}	1917	54.39%	32.49%	67.79%	17.04%	67.39%	339	63.17%	43.41%	65.82%	17.97%	84.73%	-8.79%	-10.92%		
DEXP/ A_{t-1}	2637	3.19%	0.00%	3.19%	0.00%	0.00%	632	0.16%	0.00%	3.97%	0.00%	0.00%	3.03%	0.00%		

Table 2 B: Pearson Pairwise correlation matrix

This table presents pairwise correlations between some of the key variables used in main regressions. ***, **, * represent significance at 1%, 5% and 10% levels, respectively. All continuous variables are winsorized at 1% at each tail to reduce the impact of outliers. All dollar values are expressed in 2012 US dollars.

	1	2	3	4	5	6	7	8	9
1 Asset	1.0000								
2 ROA	-0.0077	1.0000							
3 Sales	0.8471***	-0.0019	1.0000						
4 Sales Growth	0.0283	-0.0201	0.0006	1.0000					
5 Leverage	0.0942***	0.1045***	0.0818***	0.0613***	1.0000				
6 Firm Age	0.0493***	-0.0327*	0.0662***	-0.1091***	-0.1683***	1.0000			
7 CFO _t /A _{t-1}	0.0850***	-0.0017	0.0873***	0.0589***	-0.0907***	0.0046	1.0000		
8 PROD _t /A _{t-1}	0.6745***	0.0466**	0.8951***	0.0074	0.0913***	0.0668***	0.0654***	1.000	
9 DEXP _t /A _{t-1}	0.0838***	0.4941***	0.2377***	0.0225	0.0649***	-0.0308	0.0397**	0.2405***	1.000

Table 3: The Regression Models of Real Earnings Management

This Table presents regression of Real Earnings Management of 6 GCC Countries between 2003 and 2012. The data for publicly traded and private firms comes from S&P's Capital IQ database. Regressions are grouped by all GCC countries. Dependent variable for model (1) is operating cash flow to lagged of total assets, model (2) is sum of cost of goods sold and change inventory to lagged of total assets, model (3) is research and development expenses to lagged of total assets. S is sales revenue. ΔS is change in sales revenue. Country and year dummies are included in all regressions. ***, **, * represent significance at 1%, 5% and 10% levels, respectively. All continuous variables are winsorized at 1% at each tail to reduce the impact of outliers. Dollar values are converted into 2011 constant dollars using the CPI.

	Model 1	Model 2	Model 3
	CFO_{it}/A_{it-1}	$PROD_{it}/A_{it-1}$	$DEXP_{it}/A_{it-1}$
I/A_{it-1}	0.716*** (5.82)	-9513.2*** (-4.18)	0.00620*** (3.27)
S_{it}/A_{it-1}	0.0805*** (19.03)	730.0*** (5.45)	
S_{it-1}/A_{it-1}			0.000286** (2.15)
$\Delta S_{it}/A_{it-1}$	-0.817** (-2.02)	-9462.9** (-2.31)	
$\Delta S_{it-1}/A_{it-1}$		58390.4** (2.11)	
N	2376	1857	3168
Adj R ²	0.459	0.098	0.006

Table 4: Test Results of Real Earnings Management Proxies for Public and Private Firms

This table presents student's test statistics for the residuals of 3 regression models presented in Table 3. Residuals proxy for abnormal levels of CFO, PROD, and DEXP for Models 1, 2, and 3, respectively. ***, **, * represent significance at 1%, 5% and 10% level, respectively. T-test statistic on the third column of each model belongs to difference in mean test. Significance of median is tested using p-values (not reported)

	Model 1 (CFO) residuals			Model 2 (PROD) residuals			Model 3 (DEXP) residuals					
	N	mean	t-test	median	N	mean	t-test	median	N	mean	t-test	median
Overall	2376	0.0456***	12.58	0.00	1857	-0.0267***	-5.19	-0.08***	3168	-0.6452***	-4.39	0.00***
Public	2028	0.0055***	3.04	0.00*	1623	-0.0839***	-18.47	-0.036***	2584	-0.7932***	-4.37	0.00***
Private	348	0.2160***	13.75	0.013*	234	0.3384***	15.31	0.169***	584	-0.0169***	-15.70	-0.011***
Diff (Private-Public)		0.2105***	24.83	0.013***		0.4223***	22.27	0.205***		0.7763**	2.074	-0.011***

Table 5: The Regression of Real Earnings proxies on key firm-level variables

This table presents regression of Real Earnings Management proxies on key firm-level variables for 6 GCC Countries between 2003 and 2012. The data for publicly traded and private firms comes from S&P's Capital IQ database. Country and year dummies are included in all regressions. Dependent variable for model (1) is CFO (operating cash flows) scaled by lagged assets, model (2) is PROD (sum of cost of goods sold and change inventory) scaled by lagged assets, model (3) is DEXP (research and development expenses) scaled by lagged assets. Private is a dummy variable that takes the value of 1 for privately held firms and 0 otherwise. Ln(Asset) is natural logarithm total assets. ROA is Net Income scaled by assets. Leverage is total debt (short-term debt plus long-term debt) scaled by assets. Firm age is number of years since firm's establishment. Sales growth is revenue growth from time t to t+1.

	Model 1	Model 2	Model 3
	CFO_{it}/A_{it-1}	$PROD_{it}/A_{it-1}$	$DEXP_{it}/A_{it-1}$
Private	0.355*** (-13.77)	0.447*** (-25.70)	1.031*** (-3.80)
Ln(Asset)	-0.0853*** (-3.16)	0.00349 (1.06)	0.425*** (2.79)
ROA	-0.328*** (-3.30)	0.00115 (0.01)	-1.111 (-0.27)
Leverage	0.0714*** (3.25)	-0.0205 (-0.69)	0.354 (0.41)
Firm Age	0.000582** (2.27)	0.000392 (1.04)	0.0316*** (2.71)
Sales Growth	0.00551*** (2.81)	-0.000510 (-0.03)	0.0153 (0.40)
Constant	0.5858*** (10.33)	0.366*** (9.41)	-4.15*** (-3.37)
N	2,320	1,697	2,736
R-sq	0.298	0.224	0.011

Appendix A1 Variable definitions

All variables are winsorized (within Public and Private Firms and within each country separately) at 1% at each tail to reduce the impact of outliers.

Asset (A)	Book value of total assets in millions of 2012 U.S. dollars
Sales	Total sales revenue in millions of U.S. 2012 dollars
Sales growth	Sales revenue growth from time t to t+1.
Leverage	Total debt (short-term debt plus long-term debt) scaled by assets.
ROA	Net Income scaled by assets
Firm age	Number of years since firm's establishment
CFO_t/A_{t-1}	Cash flow from operations scaled by lagged total assets
$PROD_t/A_{t-1}$	Production defined as cost of goods sold plus change in inventory from t-1 to t scaled by lagged total assets
$DEXP_t/A_{t-1}$	Discretionary expenditures defined as R&D expenditures scaled by lagged total assets
