

The impact of income smoothing on earnings quality in emerging markets

Evidence from GCC markets

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299

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Abstract

Purpose – The purpose of this paper is to assess the practice of income smoothing in the Gulf Cooperation Council (GCC) emerging markets; Saudi Arabia, Kuwait, United Arab Emirates, Oman and Qatar. Then, to examine the impact of income smoothing on the earnings quality to decide whether income smoothing can serve as either a tool to enhance earnings quality or a tool for opportunistic behavior. Audit quality and corporate governance as additional factors are considered in this study.

Design/methodology/approach – The study methodology measures income smoothing behavior based on the coefficient of variation method. Earnings quality is measured as an outcome of the explained variations in stock returns by earnings based on the efficient market hypothesis. Audit quality is measured based on brand as higher quality assigned to auditor from any of the Big 4, while the corporate governance is addressed based on the extent of governmental ownership. The initial study sample comprises 55 companies over a ten year period, from 1999 to 2008; the final sample represents approximately 64 percent of the industrial sector that have public data during the study.

Findings – The results suggest that income smoothing behavior in the GCC markets has many variations in practice. Income smoothing, on average, improves earnings quality in three countries out of four, but not significantly for the whole sample based on earnings level. The earnings changes model demonstrated a positive and significant impact of income smoothing on earnings quality. Audit quality and earnings quality have a positive relationship within the region, and companies dominated by the government perform well in accordance with the earnings-return model.

Research limitations/implications – The study is limited to the industrial sector of the GCC.

Practical implications – The study opens the door to future applications to other sectors within the GCC, same sectors and other sectors for Middle East countries and other emerging markets.

Social implications – The study may foster a better understanding of accounting practices in the GCC and Middle East. The study reveals variations in different aspects among GCC countries, this matter should be considered in separate studies across different areas.

Originality/value – The study makes an original contribution to being the first to explore this topic in the GCC. Additionally, this study shows that the GCC markets have different characteristics in the practice and impact of income smoothing on earnings' quality. Further, audit quality and corporate governance was investigated for each country and for the region, in addition to the interaction between these factors with the income smoothing and earnings quality.

Keywords Audit quality, Corporate governance, Emerging markets, Earnings quality, Income smoothing, Market-based accounting research

Paper type Research paper

1. Introduction

Several studies in the accounting literature conducted in several countries and based on various data sets have reached mixed results concerning the relationship between accruals and earnings ability to measure the company performance.



An accounting classification of aggregate accruals results in the standard categories of purchases and sales of fixed assets, new finances raised from and payments to capital providers, long-term operating accruals and changes in working capital. A behavioral classification reflects the recognition that certain accruals are mandatory, arising naturally as part of the accounting reporting process, while other accruals are decided, both in their timing and magnitude, by managers. This produces a division of accruals into non-discretionary and discretionary components. The discretionary aspect of accruals can be used in smoothing earnings.

In the literature, there are two conflicting points of view regarding the consequence of income smoothing. One group supports smoothing as a valuable property of accounting earnings[1]. Another point of view is that smoothing is a poor property of accounting earnings that enables managers to satisfy their own interests by withholding valuable information[2].

This study will help to present the practice of income smoothing, earning quality relationship with income smoothing, corporate governance and audit quality factors in the Gulf Cooperation Council (GCC) region. Further, this study will try to uncover more facts about GCC markets based on the market-based accounting approach and will present more understanding of the extent of earnings smoothing, nature of earnings-return relationship and potential impact of additional factors; namely, audit quality and corporate governance.

GCC region has potential advantages and it deserves more attention from empirical studies that help achieve better understanding of this important region. There are several reasons that make the GCC region interesting area for conducting research. It provides a tax-free environment; this fact expects to attract investors' attention and will encourage external investments to explore this region. Despite this advantage, there are various studies that demonstrate a lack of external investment in the GCC region. Hammoudeh and Choi (2006) show that the major sources of variations in GCC return index returns come from the same region and global factors, in general, account for a small percentage of GCC stock markets' total variation. Moreover, Al-Shammari *et al.* (2008) show that GCC countries are still in the early stage of attracting foreign investors, as the median for internationality factor was only 0.01.

GCC countries have a geographic advantage over other regions as a result of their proximity to the world's major markets. A measure of this proximity can be derived from the concept of economic distance Behar and Manners (2010). Applying this measure, MENA region (which includes the GCC, Maghreb and the Levant) clearly has a lower economic distance figure than other emerging markets, such as East Asia. In addition, GCC countries currently hold about significant portion of the world's oil reserves, giving them an advantage over other emerging markets in terms of resource availability at the disposal of their respective governments.

GCC has strong cultural ties and similarities in many aspects, such as informal behavioral norms, values, customs and traditions. These similarities make it relatively convenient to navigate the different market opportunities in these countries. Conversely, there are challenges facing GCC countries, such as enhancing non-oil sectors, harmonizing implementation procedures to reflect similarities in the plans, directing research to serve market needs and enhancing transparency in various fields, such as foreign investment. In Summary, GCC countries are well placed to capitalize on their advantages and become a central part of tomorrow's global economy.

The current study will add to the literature in different ways. It will base its analysis on the industrial sector in GCC countries, and results will be provided at

GCC and country level. Previous studies in this area either focus on other topics, other sectors or just general approaches to similar topics, while this study will analyze in-depth this topic and add more factors, such as audit quality and corporate governance. This will make the study an advanced attempt to address an important issue in the GCC markets that have not received substantial attention in the literature. It will help achieve better understanding of the practices of income smoothing, audit quality and corporate governance in GCC, and will allow interaction between different variables for better understanding of the results. The approach adopted in the next sections is the general presentation of topic followed by addressing the topic in relation to GCC to enable better understanding for the reader and open the door for further research in the region. Further, this study could be extended to cover other emerging markets in the MENA, or any other, region.

The remainder of this paper is organized into eight sections. Section 2 presents a brief description of the GCC emerging markets and economy, Section 3 is a literature review, Section 4 addresses the process of detecting income smoothing, Section 5 presents the hypothesis of the study, Section 6 presents the sample of the study and descriptive statistics, Section 7 concerns hypothesis testing and inferential statistics and Section 8 contains conclusions and recommendations.

2. Brief description of the GCC emerging markets and economy

As the study period ends in 2008, this section offer a macroeconomic overview of the GCC only to the end of 2008, taking information from the GCC economic overview presented on the GulfBase web site (www.gulfbase.com) and the sixth and seventh editions of the Gulf Investment Guide for 2009 and 2010 produced by Zughaibi and Kabbani Financial Consultants. The GCC is an oil-based region with the largest proven crude oil reserves in the world, accounting for about 35.7 percent of the world's total in 2010. It is important to be aware about of this fact about the emerging markets in the GCC, as they represent a significant force in the international economy, are located in a very sensitive location, and play a very important role in the international political system. The principal macro indicators for the GCC are presented in Figures 1 and 2.

3. Literature review

3.1 General studies

Income smoothing has been defined by Beidleman (1973) as “dampening of fluctuations about some level of earnings that is currently considered to be normal for a firm[3].” Eckel (1981), Albrecht and Richardson (1990) and others distinguish between intentional and natural income smoothing. Natural income smoothing involves technical automatism of accrual, while intentional smoothing can occur either by timing real business decisions (this is called real smoothing)[4] or by choosing accounting methods that allocate earnings over time in the desired manner (this is called as artificial smoothing). Horwitz (1977) argues that real smoothing affects cash flow while artificial smoothing does not have such an impact.

The following figure present different types of income smoothing (Eckel, 1981) (Figure 3).

The question of the impact and intention of income smoothing remains controversial in the literature. Gassen *et al.* (2006) present two theories of income smoothing. On one hand, income smoothing can be viewed as having a signaling role in efficient capital

Figure 1.
GDP in GCC
for 2004-2008

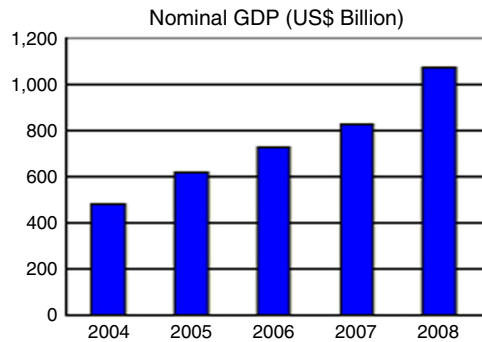


Figure 2.
Inflation in GCC
for 2004-2008

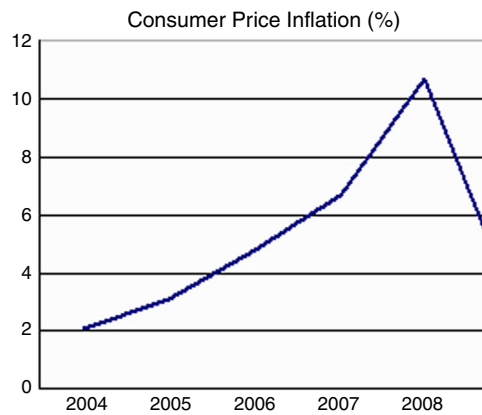
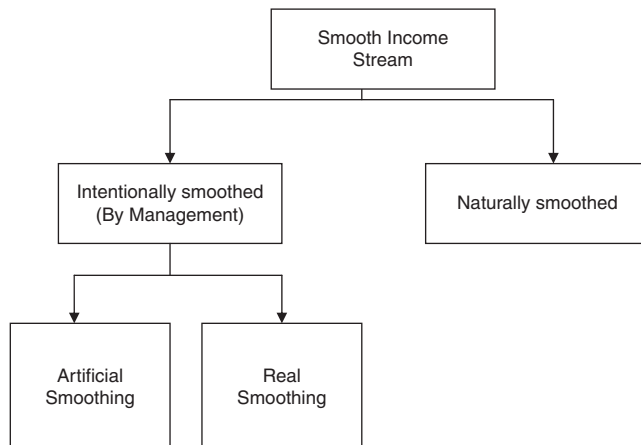


Figure 3.
Different types of
income smoothing



markets. In this sense, income smoothing is a vehicle for the disclosure of private information about future earnings (Barnea *et al.*, 1976). However, if the assumption of the efficient market is dropped, then income smoothing can be viewed as a tool utilized by managers to mislead market participants regarding future earnings or risk levels

for a company in order to lower the cost of capital and extract private benefits from the company (Gordon, 1966). Thus, based on this argument the motivation and expectations of consequences remain unclear.

Other studies have asserted a more definite vision of the role of income smoothing. Tucker and Zarowin (2006), for instance, address the question “Does Income Smoothing Improve Earnings Informativeness?” In their study, they define income smoothing in terms of the “amount of information about future earnings and cash flows that is reflected in current period stock returns.” Their results show that a change in the current stock price of higher-smoothing firms contains more information about their future earnings than does a change in the stock price of lower-smoothing firms. Thus, they imply that managers use income smoothing to reveal private information about the firm’s future profitability. Results indicate the same trend under several sensitivity tests. In the same vein, Cahen *et al.* (2008) explore the relationship between earnings informativeness and income smoothing under investor protection in 44 countries from 1993 to 2002[5]. Results show that earnings informativeness is more positively correlated with income smoothing in countries with strong investor protection. On the other hand, results show that in weak protection countries, managers are most likely to adopt income smoothing for opportunistic reasons. The overall conclusion is that the role of income smoothing “accounting discretion” is influenced by a country’s overall institutional infrastructure mainly in the ability to provide protection for shareholders[6].

Other studies in this field address certain factors that may motivate the income smoothing. Hall and Frickel (2008) investigate the relationship between executive compensation and income smoothing. They conclude that compensation provides incentive for managers to smooth the time series of the reported earnings. Tseng and Wen Lai (2007) explore the relationship between income smoothing and profitability based on data on 142 companies listed on the Taiwan Stock Exchange for ten years from 1995 to 2004. Results show a negative relationship between income smoothing and profitability. Managers of companies facing lower profits have more incentive to smooth earnings according to the main findings of this study.

In addition to the aforementioned studies there are studies in the literature that investigate the consequences of income smoothing. Li and Richie (2009) adopt the approach of Tucker and Zarowin (2006) in determining the effect of income smoothing. Results show that smoother companies have a lower cost of debt and higher credit ratings. Additionally, results indicate that income smoothing serves companies in reducing the cost of capital. Further, Ayoib and Nooriha (2009), based on Malaysian data from 1991 to 2000, conclude that the existence of non-executive directors and the presence of brand name auditors was significant in delaying management from indulging in income smoothing. Ayoib and Nooriha (2009) adopt the coefficient of variation approach to detect income smoothing.

In the accounting literature, famous studies have generated well-known models to detect income smoothing via the accrual model. The following models are considered the most frequently employed in the literature:

- (1) Healy’s (1985) model.

General formula is as follows:

$$DA_{i,t} = \frac{TA_{i,t}}{A_{i,t}} \quad (1)$$

where $DA_{i,t}$ is discretionary accrual for firm i in year t , $TA_{i,t}$ is total accruals for firm i in year t , and $A_{i,t}$ is total assets for firm i in year t .

- (2) DeAngelo's (1986) model.
General formula is as follows:

$$DA_{i,t} = \frac{(TA_{i,t} - TA_{i,t-1})}{A_{i,t}} \quad (2)$$

- (3) Jones' (1991) model.
First, estimate the time series regression for the sample as follows:

$$\frac{TA_{i,t}}{A_{i,t}} = \beta_0 \left(\frac{1}{A_{i,t-1}} \right) + \beta_1 \left(\frac{\Delta REV_{i,t}}{A_{i,t-1}} \right) + \beta_2 \left(\frac{PPE_{i,t}}{A_{i,t-1}} \right) + \varepsilon_{i,t} \quad (3)$$

where $TA_{i,t}$ is total accruals for firm i in year t ; $A_{i,t-1}$ is total assets for the previous period; $\Delta REV_{i,t}$ is change in revenues for firm i in period t ; and $PPE_{i,t}$ is gross plant property and equipment for firm i in period t .

Then, estimate discretionary accruals as stated as follows:

$$DA_{i,t} = \frac{TA_{i,t}}{A_{i,t}} - \left(b_0 \left(\frac{1}{A_{i,t-1}} \right) + b_{1i} \left(\frac{\Delta REV_{i,t}}{A_{i,t-1}} \right) + b_{2i} \left(\frac{PPE_{i,t}}{A_{i,t-1}} \right) \right) \quad (4)$$

- (4) The cross-sectional Jones model by Defond and Jiambalvo (1994):
In order to overcome the survivorship bias generated from applying a time series approach in Jones' model, Defond and Jiambalvo (1994) adopt a cross-sectional version of Equation (3) using portfolios of firms based on industries.
- (5) Modified Jones (1991) model:
Dechow *et al.* (1995) provide a modified version of Jones' model. They adjust the change in revenues by the change in receivables (debtors) during the event period in order to capture the manipulation of sales since the original version of Jones model assume that sales will not be manipulated by the company, this assumption contradict with Kaplan (1985) argument that sales can be used as tool of manipulating income.

3.2 GCC studies

The earlier discussion in Section 3.1 addresses well-known studies in this field in a general fashion. In order to address what was done in this field at the region of the study, this section will present various previous studies related to the GCC in this field in addition to other related studies discussed in Section 1.

Darayesh *et al.*'s (2010) study addresses the income enhancement practice in GCC, no attempt has been made to obtain different results for each GCC country or per sector. The frequency of the second digit for income numbers was used as an indicator for income enhancement engagement based on the assumption that the second digit distribution will reveal income engagement. Overall, results were mixed and the overall statistical results were insignificant as some digits are significant and others show unexpected trends. The conclusion was that income enhancement is somewhat present. Marshdeh and Shrestha (2010) examine the extent of the market integration in the GCC markets; the results show that GCC markets are not fully integrated. For example Kuwait market and Saudi Arabia markets are moving in opposite directions; results also show opportunities for international investment diversification. These support earlier

conclusions made by Abraham *et al.* (2001) when they analyzed three GCC markets, namely, Bahrain, Kuwait and Saudi Arabia, and correlated the monthly market index with S&P 500 monthly market index return. The outcome of the study shows significant potential diversification opportunities based on low-negative correlation for Bahrain and Kuwait, and almost zero for Saudi Arabia with S&P market index.

The current study builds on what is done in the literature in this region and extends the contribution in terms of being the first to address income smoothing matters based on documented methodology. Further, more factors are included, such as audit quality and corporate governance, and further discussion about the additional two more factors can be found in Section 4. Moreover, other studies in the region will be mentioned in subsequent sections as the need arise.

4. Detecting income smoothing

Dechow *et al.* (1995) present real concerns about the ability of the Jones model, as the most famous and applicable accrual model, to separate accruals into discretionary and non-discretionary components. Other models are subject to the same criticism, as Jones' model is considered an advanced version of the other models. This justifies the existence of several versions of the Jones model. On the other hand, many studies discussed in the previous section adopted the coefficient of variations method. In this study, the researcher will adopt the coefficient of variations approach, as it is more applicable to the study data set, taking into account the difficulties of collecting data from several countries and the current lack of a comprehensive data for this region. Further, the potential misspecification may create noise and harm the originality of the outcome. Finally, adopting advanced models across different countries requires more preparation and more studies to assess the applicability of adopting the same model for different countries in the same study[7].

As the main aim of this study is to assess the impact of income smoothing on earnings quality in the GCC capital markets, the proxy of income smoothing will be determined based on the coefficient of variation approach. Thus, the methodology of the study in this regard will follow the coefficient of variation method developed by Eckel (1981), which has been adopted in many studies, as discussed in the previous section. For example, Ashari *et al.* (1994), Albrecht and Richardson (1990), Tseng and Wen Lai (2007), Michelson *et al.* (2000) and Ayoib and Nooriha (2009) adopt the coefficient of variation approach to detect income smoothing. This methodology measures income smoothing by accumulating the impact of a potential smoothing variable and considering it over time. The procedure is as follows:

Compute the coefficient of variation for the change in income and the change in sales, and then classify the company as smoother if Equation (5) is satisfied:

$$\frac{CV_{\Delta I}}{CV_{\Delta S}} < 1 \quad (5)$$

where ΔI is the one period change in income; ΔS is one period change in sale; and CV is the coefficient of variation. CV is computed by dividing the standard deviation over the mean $CV = SD/\bar{X}$ (Berenson *et al.*, 2006, p. 86).

In order to extend the potential contribution of the study, two more factors will be added to this study[8]. First, is the audit quality. Teoh and Wong (1993), Balsam *et al.* (2003) and Krishnan *et al.* (2005), among others, document a relationship between audit

quality and earnings quality. Thus, in this study, the audit quality will be included as an additional factor to help understand the potential impact of income smoothing on earnings quality. Audit quality will be measured based on brand name as a proxy for this factor, data of the study split into two groups: the first is companies audited by any of the Big 4 auditing firms: Deloitte Touche Tohmatsu, Ernst & Young, KPMG or PwC. This group will expect to represent higher auditing quality, while the group audited by companies not in the Big 4 list represents relatively lower auditing quality. The Big 4 companies assume to be greater in size than non-Big 4 companies; this approach is adopted in other studies, such as Chen *et al.* (2010), that adopt similar a proxy based on another emerging market, which is the Chinese market. However, there is one difference that the current study limits the brand name to the international Big 4 companies for all GCC capital markets in order to minimize any noise due to the variations among GCC markets and since Big 4 classification is widely accepted in the region and abroad. Ayoib and Nooriha (2009) used a brand name as a proxy for auditing quality and they apply the study to another emerging market, which is the Malaysian market.

The second factor is corporate governance. Marra *et al.* (2011) and Wang (2006), among others, argue that corporate governance is a potential factor that has an impact on earnings quality as a consequence of its role in public disclosure. Eventually, this will have an effect on earnings disclosure and quality. Thus, this study will add this new factor in order to achieve better understanding of the potential impact of the income smoothing on earnings quality. Two groups of companies are created based on the structure of the board of directors. The first group is for companies owned largely by the government, royal families or dominated by other companies with the same features; while the second group includes companies that have more diverse ownership among individuals including members of well-known families in the GCC markets or other corporate companies as institutional investors. Saidi (2011) argues that, corporate governance issue has been improved in the GCC region, as almost all GCC countries have a corporate governance code or guidelines in place. For example, Oman issued corporate governance standards for listed companies in 2002. However, he added, the next challenge is the effective implementation in the region.

5. Hypothesis of the study

As explained in the previous sections, there are two points of view about the impact of income smoothing on earnings quality. Managers could exercise discretion on accruals either to enhance the quality of earnings or to manipulate earnings opportunistically in order to pursue their own interests. The conflict between these two views is related to the way in which managers exercise their discretion over accruals. The question here is whether managerial discretion over specific components of accruals reduces or enhances the quality of earnings. The assumption in this study is that on average, managers use their discretion within GAAP to increase the ability of earnings to reflect company performance. The approach adopted here is based on a large sample. The other assumption of this study, based on the efficient market hypothesis (EMH), is that price is a valid benchmark for company performance; therefore any information in earnings or cash flow is revealed in the stock price. The main hypothesis of the study stated in the alternative form, is the following:

H1. On average, income smoothing is expected to enhance accounting earnings' quality.

To test this hypothesis, a simple linear regression will be run independently for smoothing vs non-smoothing companies. The independent variable in the model is earnings per share deflated by the price at the beginning of the period to reduce the heteroskedasticity problem (White, 1980), while the dependent variable is stock returns. It is worth mentioning that various studies across accounting literature have used earnings levels deflated by price at the beginning of the period as an explanatory variable in the return model. Therefore, this methodology is well-documented in many studies. Kothari (2001) refers to two 1992 papers: Kothari (1992) and Ohlson and Shroff (1992), which provide a rationale for using earnings levels in returns – earnings regressions and states “[...] In recent years, researchers estimating a return-earnings regression frequently use earnings-deflated-by-price variable to explain stock returns [...]” (p. 129). In further detail: Kothari (1992) shows that earnings level deflated by price is better than using earnings-change-deflated-by-price. Further, earnings level deflated by price at the beginning of the period is better than earnings level deflated by lagged earnings variables. While, Ohlson and Shroff (1992) state that earnings-level variable should be the natural start point in explaining returns. On a related note, Dechow’s (1994) study is very important in market-based accounting research; at it used earnings level deflated by price at the beginning of the period as an explanatory variable for returns. This will not rule out the opposing view which prefers to include earnings changes as sole or additional to earnings levels. Based on kind feedback from anonymous reviewers, a new model will be added, Model 7, which is based on earnings changes’ interaction with a dummy variable of income smoothing, based on the same deflator:

$$R_{i,t} = \alpha + \beta E_{i,t} + \varepsilon_{i,t} \quad (6)$$

where $R_{i,t}$ is the stock return for company i at time t ; $E_{i,t}$ is the EPS for company i at time t deflated by the price at the beginning of the period.

Equation (6) will run again by including dummy variables to account for the potential impact of audit quality and corporate governance on the association of earnings with stock returns, as indicated in Equations (6.1) and (6.2), respectively:

$$R_{i,t} = \alpha + \beta_1 \times E_{i,t} + \beta_2 AQ_{i,t} + \beta_3 E_{i,t} \times AQ_{i,t} + \varepsilon_{i,t} \quad (6.1)$$

where $R_{i,t}$ is the stock return for company i at time t ; $E_{i,t}$ is the EPS for company i at time t deflated by the price at the beginning of the period; $AQ_{i,t}$ is the audit quality dummy variable for company i at time t where $AQ_{i,t} = 1$ if company audited by any of the Big 4 auditing firms and zero otherwise; and $E_{i,t} \times AQ_{i,t}$ is the interaction between the audit quality dummy variable and EPS for company i at time t .

The criterion for testing this model is based on whether β_3 is significantly larger than zero, where β_3 measures the impact of auditor quality on the association between earnings and returns. A positive sign indicates a positive impact of audit quality on the association of earnings with stock returns for company i at time t and negative impact indicates the opposite:

$$R_{i,t} = \alpha + \beta_1 \times E_{i,t} + \beta_2 CG_{i,t} + \beta_3 E_{i,t} \times CG_{i,t} + \varepsilon_{i,t} \quad (6.2)$$

where $R_{i,t}$ is the stock return for company i at time t ; $E_{i,t}$ is the EPS for company i at time t deflated by the price at the beginning of the period; $CG_{i,t}$ is the corporate governance dummy variable for company i at time t where $CG_{i,t} = 1$ if company ownership dominated by government and/or royal families, and zero when ownership

divided among institutional and individual owners; and $E_{i,t} \times CG_{i,t}$ is the interaction between the corporate governance dummy variable and EPS for company i at time t .

The criterion for testing this model is based on whether β_3 is significantly larger than zero, where β_3 measures the impacts of corporate governance on the association between earnings and returns. A positive sign indicates positive impact of corporate governance on the association of earnings with stock returns for company i at time t and negative impact indicates the opposite.

As indicated earlier, in order to strengthen the outcome of the study, an additional approach is to test the hypothesis based on earnings changes instead of earnings level as stated in Equation (6)[9]. Equation (7) lists model based on earnings changes with two explanatory variables; earnings changes and the interaction between a dummy variable of income smoothing and earnings changes[10]:

$$R_{i,t} = \alpha + \beta_1 \times DE_{i,t} + \beta_2 DUM_{i,t} + \beta_3 DE_{i,t} \times DUM_{i,t} + \varepsilon_{i,t} \quad (7)$$

where $R_{i,t}$ is the stock return for company i at time t ; $DE_{i,t}$ is the change of EPS for company i at time t deflated by the price at the beginning of the period; $DUM_{i,t}$ is the income smoothing dummy variable for company i at time t where $DUM_{i,t} = 1$ if company classified as smoother based on Equation (5) and zero otherwise; and $DE_{i,t} \times DUM_{i,t}$ is the interaction between then income smoothing dummy variable and change of EPS for company i at time t .

The criterion for testing this model is based on whether β_3 is significantly larger than zero.

6. Sample of the study and descriptive statistics

Data of the study derived from the industrial sector of the GCC markets; titles of sectors vary among GCC countries[11]. Ultimately, all companies in the study are classified as industrial sector; companies included in the study must have sufficient financial data for a least five consecutive years, along with stock returns, in order to generate reliable estimates. This condition generates an initial sample size of 55 companies representing 72 percent of industrial companies in the GCC markets. As a breakdown of figures, companies in Kuwait included in the initial sample were 17 out of 24, in Oman ten out of 15, in Qatar five out of six, in Saudi Arabia 14 out of 21, in UAE nine out of ten and in Bahrain no company was classified in the industrial sector. In summary, 55 companies in the GCC market extracted from 76 companies in the industrial sector, based on this high percentage this initial sample, could be regarded as representing the population of listed industrial companies in these emerging markets.

This study is based on data collected from GCC capital markets for ten years from 1999 to 2008. The initial number of company-year observations before excluding outliers was 447[12]. The use of this time period kept the financial crisis from having a significant impact on the results[13]. The data were limited to the industrial sector, the GCC countries have sought to adopt similar policies. However, due to differences in several factors, industry classifications are not harmonized in titles across the capital markets of the GCC. Further, countries like Bahrain have been significantly dominated by the financial sector and there were no data as industrial sector in this market, so Bahrain market was dropped from the study due to the lack of representative data. The United Arab Emirates (UAE) had two markets, one in Dubai and the other in Abu Dhabi. For the sake of standardization, these two markets were combined as the UAE market; observations for this market came mainly from Abu Dhabi market as Dubai

market, like Bahrain market, does not have representative data for the industrial sector. However, results were unexpected, when computing the smoothing index the outcome shows that all UAE observations were classified as non-smoother companies thus the entire company-year observations for this market were dropped this cause losing 70 company-year observations derived from nine companies related to this market. The reason of excluding UAE data since there was no company engaged in income smoothing within the market based on the results[14]. Thus, there is no chance for any comparison so UAE observations will be excluded from the analysis, as there are only non-smoothing companies in UAE. Moreover, the outliers were excluded based on the main variables per country[15]. Thus, the total number of lost observations is 122 company-year observations and that made the final sample as measured in company-year observations declined to 325. Table I describes the cause of this decline in detail.

Table II shows the distribution of annual observations among different countries. Final sample size represents 64 percent of industrial companies for the remaining four GCC countries[16]. Table III presents the distribution of company-year observations among different countries. Tables II and III show that most of the observations came from the Saudi Arabia and Kuwait markets. All companies are from the industrial sector of GCC markets and combined at country level as industrial companies, in order to ensure consistency throughout the paper.

The smoothing index was computed according to Equation (5) and classified the companies as smoothing or non-smoothing. Initial results before excluding outliers show that 140 observations out of the sample size, 447 observations, were classified as income smoother. Thus, distribution of smoothing vs non-smoothing companies

Cause	Lost observations: company-year
Excluding UAE observations	70
Outliers in SA	11
Outliers in KW	31
Outliers in OM	10
Outliers in QA	0
Total	122

Table I.
Causes of decline in
company-year
observations

Country	Frequency	%	Cumulative frequency	Cumulative (%)
KW: Kuwait	14	33.3	14	33.3
OM: Oman	10	23.8	24	57.1
QA: Qatar	5	11.9	29	69
SA: Saudi Arabia	13	31	42	100

Table II.
Distribution of
data according to
number of
companies
per country

Country	Frequency	%	Cumulative frequency	Cumulative (%)
KW: Kuwait	98	30.15	98	30.15
OM: Oman	84	25.85	182	56.00
QA: Qatar	32	9.85	214	65.85
SA: Saudi Arabia	111	34.15	325	100.00

Table III.
Distribution of data
according to
company-year
observations
per country

reveals that income smoothing is practiced by GCC companies. About one-third of GCC companies are classified as income smoothing companies. In order to shed light on smoothing behavior among countries in the GCC, the income smoother behavior was examined for each country. Initial results show that smoothing companies equate to 31.3 percent of the total before excluding outliers. After excluding UAE due to earlier explanation, the percentage of smoother companies has become 37.14 percent. This percentage is calculated by dividing the 140 company-year observations classified as smoother by the total number of the observations (447), subtracting the 70 UAE company-year observations:

$$\frac{140}{447-70} \times 100\% = 37.14\%.$$

The percentage of smoothing company-year observations varies across GCC countries. For Qatar and Saudi companies, this figure was 59.38 and 51.64 percent, respectively while it was just 28.7 and 24.03 percent for Kuwait and Oman companies, respectively. The results in Table IV show that the percentage of smoothers, after excluding UAE observations and outliers, is 41.85 percent, while in Table V results show that the percentage of observations classified as smoother are 59.38, 54.95, 30.95 and 30.61 percent for Qatar, Saudi Arabia, Oman and Kuwait, respectively[17].

7. Hypothesis testing and inferential statistics

Earnings quality is measured based on the ability of earnings per share deflated by the price at the beginning of the period to explain variations in stock returns for the same period. Following the efficient market hypothesis, stock returns can be used as a base for earnings quality, as the EMH states that prices reflect any relevant information about the company in a timely fashion. Higher coefficient of determination (adjusted R^2) in stock returns-earnings model reflects higher earnings' quality. Market-based accounting research studies adopt this assumption. In order to measure the

Table IV.
Smoothing index
for all company-year
observations

Smoothing index	Frequency	%	Cumulative frequency	Cumulative (%)
Smoothing	136	41.85	136	41.85
Non-smoothing	189	58.15	325	100.00

Table V.
Smoothing index
for each country,
company-year
observations

Index	Country				Total
	KW	OM	QA	SA	
Smoother	30	26	19	61	136
%	9.23	8.00	5.85	18.77	41.85
Row (%)	22.06	19.12	13.97	44.85	
Col (%)	30.61	30.95	59.38	54.95	
Non-smoother	68	58	13	50	189
%	20.92	17.85	4.00	15.38	58.15
Row (%)	35.98	30.69	6.88	26.46	
Col (%)	69.39	69.05	40.63	45.05	
Total	98	84	32	111	325
%	30.15	25.85	9.85	34.15	100.00

impact of income smoothing on earnings quality, the simple linear model indicated in Equation (6) was run independently for all data for smoothing and non-smoothing companies. Table VI presents results for the regression model for smoothing and then non-smoothing companies.

Results in Table VI suggest that, on average, income smoothing as it is practiced in GCC industrial companies does not reduce the ability of earnings to reflect company performance, so there is no negative impact on earnings quality by engaging in income smoothing in companies within the GCC markets. However, results suggest that the gap between the quality of earnings in the smoothing companies vs the non-smoothing subsample is relatively very small, with a relative advantage accorded to the smoother companies. Vuong (1989) developed a technique to compare two regression models and to test whether the relative differences are significant or not. When one applies the Vuong technique of the two models in Table VI, the p -value of the computed Z value only equals 12 percent[18]. Assuming that the confidence level adopted in the study is 90 percent, this suggests that there is no significant difference between the ability of earnings to explain variations in stock returns between smoothing or non-smoothing companies, as the Z value of the differences is not significant on a 90 percent confidence level.

For a further investigation the test of the impact of income smoothing on the earnings quality repeated for each country. Results, presented in Table VII, show clear variations among the four countries in the GCC included in the study. Saudi Arabia's observations provide evidence that involvement in income smoothing causes a decline in earnings quality, as the explained variations in stock returns by earnings for non-smoothing companies are higher than those for smoothing companies, while the opposite was noticed for other countries. The mixed results show differences among different countries within the GCC[19].

Thus, the overall conclusion is that the hypothesis of the study is accepted for three out of four countries. On the aggregate level, however, the insignificant results for the pooled sample are driven by the observations on Saudi Arabia companies, therefore, despite the relative improvement of income smoothing on earnings quality, the overall impact is not significant. This suggests that the hypothesis is accepted for three countries and rejected for one. The initial conclusion was that the alternative hypothesis can be accepted for group 1 (including Kuwait, Oman and Qatar), and rejected for group 2 (only Saudi Arabia). The researcher will apply an alternative model based on earnings changes as stated in Model 7 for the pooled data, in order to assess the impact of income smoothing on aggregate level based on earnings changes. Related results will be discussed later in this section and results will be presented in Table XII.

Annual	E smoother companies	E non-smoother companies
Coefficient	3.08	2.12
(t -statistic)	(4.71)	(5.34)
Number of observations	136	189
Adj. (R^2)%	13.59	12.78
R_{Es}^2/R_{Ens}^2		1.06
p -value/Vuong test		0.12

Note: The table gives results from simple regression of stock returns on earnings per share deflated by the market price at the beginning of the period for smoothing vs non-smoothing companies.

$$R_{i,t} = \alpha + \beta E_{i,t} + \epsilon_{i,t}$$

Table VI.
A comparison of the association of earnings with stock returns between smoothing and non-smoothing companies

Table VII.

A comparison of the association of earnings with stock returns between smoothing and non-smoothing companies for each country

Country/results	KW: Kuwait	OM: Oman	QA: Qatar	SA: Saudi Arabia
<i>Panel A: Smoother companies</i>				
Coefficient	2.78	4.33	10.66	1.99
(<i>t</i> -statistic)	(5.41)	(3.31)	(2.33)	(1.30)
Number of observations	30	26	19	61
Adj. (<i>R</i> ²)%	49.37	28.42	19.70	1.15
<i>Panel B: Non-smoother companies</i>				
Coefficient	2.93	1.37	4.02	6.23
(<i>t</i> -statistic)	(5.47)	(2.32)	(1.72)	(1.82)
Number of observations	68	58	13	50
Adj. (<i>R</i> ²)%	30.11	07.12	13.94	17.94
<i>Panel C: Adj. (<i>R</i>²) for smoother companies vs non-smoother for each country</i>				
R_{Es}^2/R_{Ems}^2	1.64	3.99	1.41	0.06
Note: The table gives results from simple regression of stock returns on earnings per share deflated by the market price at the beginning of the period for smoothing vs non-smoothing companies for each country. $R_{i,t} = \alpha + \beta E_{i,t} + \varepsilon_{i,t}$				

Regarding Saudi Arabia's opposing results (as stated in Table VII), the Saudi market is the most recent of the four markets addressed in Table VII. Moreover, Camilla Hall, in a Financial Times article published on January 23, 2012, mentioned that Saudi Arabia is working toward opening its borders to foreign investment (Hall, 2012). This fact may change the earning environment in this market as, during the period of the study, foreign investment is not allowed to enter directly the Saudi market, which differentiates it from other GCCs as other countries are more open to foreign investment to various extents. Thus, one of the potential explanations for the negative impact of income smoothing on earnings' quality as an indicator of company performance in the Saudi market, may be due to the strong regulatory enforcement. This led to restricting accountants from signaling to the market and limiting income smoothing to communicate the positive aspect of earnings. In the same article, Camilla Hall, mentioned that Saudi Arabia had a tough stance in terms of regulations; so, applying this fact to the study it seems that the market is not welcoming any flexibility in terms of applying income smoothing tools by accountants. Thus, such behavior, where it exists, had a negative impact on the ability of earnings to reflect company performance. This may explain the differences in Saudi Arabia market compared with other markets in this regard. On the other hand, the Kuwait market is the oldest market in the GCC, followed by Oman, Qatar and, finally, Saudi Arabia. It seems that practice shaped over time, and it may improve in the Saudi market if this study is replicated after a few years.

Further analyses lead to conclude that income smoothing as action in this study has a relatively positive impact, in general, on earnings. Therefore, the results of this study are in line with the group of studies mentioned in footnote 1 that state the positive impact of smoothing. As a descriptive measure, the EPS mean of the smoother group is more stable compared with that of the non-smoother group as it has less standard deviation and narrower range. Furthermore, the median for smoother is closer to the mean compared with the distance between mean and median of non-smoother. This enhances the stability conclusion about the mean of smoother. In figures, the EPS mean, median, standard deviation and range for smoother and (non-smoother) were 1.19 (0.86), 0.67 (0.23), 1.60 (1.63) and 8.74 (12.95), respectively. Moreover, as it was noted

in Section 6 footnote 14, outliers excluded were mostly non-smoother. This exclusion enhances the non-smoother model and narrows the gap with the smoother. The exclusion of outliers is a normal action done in any research to maintain objectivity and avoid results being dominated by outliers.

A further sensitivity analysis was conducted to check the robustness of the outcome from the earnings-returns relationship. The model was conducted for each year of the study, data of the study was divided among period of the study as the number of observations and (percentage) for years 2000 to 2008 were 33 (10.15), 31 (9.54), 32 (9.85), 31 (9.54), 35 (10.77), 39 (12.00), 42 (12.73), 41 (12.62) and 41 (12.62), respectively. This distribution shows that no single year dominates the sample, and χ^2 computed a very small value and equal to 0.131, while the critical χ^2 value at eight degree of freedom is 20; therefore, it is obvious that this computed value is not significant [20]. Moreover, in order to keep more observations, the smoother was added as a dummy to the model and the model ran for the whole study. The coefficient of smoother dummy (0 non-smoother and 1 smoother) was positive which confirm the overall advantage of smoother sample over non-smoother whereas the significant level was not high enough to secure sufficient evidence and this analysis was repeated by year and again the trend stay the same in most years.

As indicated in Section 4, two more factors are added to this study. The first is audit quality, which is included to explore the audit quality level in the four GCC countries and to measure the impact of this variable on the association between earnings and returns. While the second factor is corporate governance, this is included for the same reason as the audit quality variable. Tables VIII and IX present results of Models 6.1 and 6.2, respectively, which are related to audit quality and corporate governance, respectively. In Table VIII, results show sign of β_3 which reveals that the impact of auditor quality on the association between earnings and stock returns is positive and equal to 0.87. This positive sign of the interaction between the audit quality dummy variable and earnings indicates that the impact of audit quality on income smoothing is positive. This trend coincides with the expectation presented in Section 4, and with

Annual	Intercept	$\beta_1 E_{i,t}$	$\beta_1 A Q_{i,t}$	$\beta_3 E_{i,t} \times A Q_{i,t}$
Coefficient	-0.07	1.89	-0.03	0.87
(<i>t</i> -statistic)	(-1.05)	(3.46)	(-0.43)	(1.23)
Adj. (R^2)%			12.83	

Table VIII.
Impact of audit quality on association between stock returns and earnings

Note: The table displays results from regression of stock returns on earnings per share deflated by the market price at the beginning of the period, the dummy variable for audit quality and interaction between audit quality and earnings as presented in Equation (6.1)

Annual	Intercept	$\beta_1 E_{i,t}$	$\beta_2 C G_{i,t}$	$\beta_3 E_{i,t} \times C G_{i,t}$
Coefficient	-0.07	2.09	-0.07	0.95
(<i>t</i> -statistic)	(-1.58)	(4.91)	(-0.88)	(1.28)
Adj. (R^2)%			12.81	

Table IX.
Impact of corporate governance on association between stock returns and earnings

Note: The table gives results from regression of stock returns on earnings per share deflated by the market price at the beginning of the period, the dummy variable for corporate governance and interaction between corporate governance and earnings as presented in Equation (6.2)

the trend of other studies listed in Section 4 also which were conducted on other emerging markets, such as Ayoib and Nooriha (2009) and Chen *et al.* (2010). However, the coefficient value, 0.87, is not significant as the *p*-value reached 22 percent, which generated a computed confidence level of only 78 percent, which is less than the accepted confidence level of the study (90 percent). The same observation is noted for the corporate governance model; results presented in Table IX reveal that the sign is positive and the amount of β_3 which measures the impact of corporate governance on the association between earnings and stock returns equals 0.95, with a *p*-value reaching 20 percent. Therefore this indicates a better association between earnings and stock returns for companies dominated by government, but this trend is not significant.

Further analysis occurs to present more information concerning the impact of the two additional variables (audit quality and corporate governance) on the association between stock returns and earnings by splitting the data based on each factor alone, when the model as presented in Equation (6) runs for a subsample of each factor. Goodness of fit for 99 company-year observations audited by non-Big 4 auditors equals 11.4 percent, while it reached 13.7 percent for 226 company-year observations audited by one of the Big 4 auditors. Goodness of fit for 207 company-year observations governed by private sector equals 10.4 percent, while it reached 16.4 percent for 118 company-year observations governed by government and royal families. Both results coincide with results presented in Tables VII and VIII based on Equations (6.1) and (6.2), respectively. However, since results in Tables VIII and IX are not significant and the results mentioned in this paragraph have a descriptive nature, further analysis in future studies should be conducted before reaching a final conclusion regarding this matter. The study underlines the need for further research in the future.

The inclusion of two additional variables, audit quality and corporate governance, is extended to provide an example of each variable in the four GCC markets. Tables X and XI display further information about audit quality and corporate governance, respectively. Results in Table X show that almost 70 percent of company auditors are one of the Big 4 auditor firms or their partners, while the other 30 percent are mainly local auditors without connection to any of the Big 4.

Distributions of audit quality among the four countries show the same trend with various extents, majority of company-year observations in each country are related to one of the Big 4 auditor companies, as 53, 68, 76 and 100 percent for Kuwait, Oman, Saudi Arabia and Qatar, respectively. The 100 percent in Qatar for one of the Big 4 auditors firms may be due to the fact that Qatar investment funds undertook several

	KW	OM	Country QA	SA	Total
Big 4 auditors (1)	52	57	32	85	226
%	16.00	17.54	9.85	26.15	69.54
Row (%)	23.01	25.22	14.16	37.61	
Col (%)	53.06	67.86	100.00	76.58	
Local auditor (0)	46	27	0	26	99
%	14.15	8.31	0.00	8.00	30.46
Row (%)	46.46	27.27	0.00	26.26	
Col (%)	46.94	32.14	0.00	23.42	
Total	98	84	32	111	325
%	30.15	25.85	9.85	34.15	100.00

Table X.
Audit quality index
for each country,
company-year
observations

huge investments in Europe and USA. Thus, in order to comply with the requirements of all these advanced markets you have to maintain the highest level of audit quality, which may explain this exceptional percentage in Qatar for the high audit quality. On the aggregate level audit quality has a positive impact on earnings quality and this coincides with previous results, such as Teoh and Wong (1993) and Balsam *et al.* (2003). Moreover, as presented earlier, the goodness of fit of the model computed for two subsamples based on audit quality variable, coefficient of determination for non-Big 4 models with 99 observations was 11.38 percent, while it was 13.72 percent with 226 observations for the Big 4 model. This result goes in the same line of results in other studies that higher audit quality enhances earnings quality, like Balsam *et al.* (2003) who reach the same trend based on ERC; therefore, this result provides similar evidence in this region[21]. On the other hand, Balsam *et al.*'s (2003) study argues that more audit quality leads to less discretionary accruals, so they implicitly took the negative side about income smoothing by concluding that more income smoothing will lead to less earnings quality as it is measured by less ERC. In other words, it will reduce the quality of earnings. In this portion, this study did not find similar trends as, from the 226 observations classified in the Big 4 category, 97 were classified as smoother (43 percent), while 129 were classified as non-smoother (57 percent). On the other hand, 99 observations were classified as non-Big 4 companies distributed in observations (percentages) as 39 (39.4 percent) and 60 (60.6 percent) for smoother and non-smoother, respectively. Further, the computed χ^2 value for this contingency table was only 0.35 and this small value is not significant as the cut-off χ^2 at 90 percent confidence level equal 6.63. To sum up, audit quality leads to higher earnings quality and there is no evidence that high auditor quality leads to less smoothing in the region. This, again, is in the line with the group of studies that state that income smoothing could enhance earnings ability to reflect company performance.

The other, second, factor is the corporate governance. Sbeiti (2008) states that specialized banks in GCC are owned by government and commercial banks are owned by family owned with modest government participation. In the same direction, Al-Shammari *et al.* (2008) report that the institutional ownership in GCC only 0.20. This leads to a general impression that the corporate governance structure in the GCC countries is that most companies are dominated mainly by the government or by wealthy families. However, this impression, based on those aforementioned studies among other studies, reaches this conclusion based mainly on the financial sector, while this study explores the industrial sector. Thus, it is expected that the ownership

Index	KW	OM	Country		Total
			QA	SA	
Government dominated ownership (0)	8	40	27	43	118
%	2.46	12.31	8.31	13.23	36.31
Row (%)	6.78	33.90	22.88	36.44	
Col (%)	8.16	47.62	84.38	38.74	
Private dominated ownership (1)	90	44	5	68	207
%	27.69	13.54	1.54	20.92	63.69
Row (%)	43.48	21.26	2.42	32.85	
Col (%)	91.84	52.38	15.63	61.26	
Total	98	84	32	111	325
%	30.15	25.85	9.85	34.15	100.00

Table XI.
Distribution based
on corporate
governance for
each country,
company-year
observations

structure in firms operating in the GCC markets will be dominated by government or family business. This matter was investigated by assessing the corporate governance of GCC firms analyzed in this study. All companies are divided into two categories: the first includes companies dominated heavily by government units or royal family or by other companies that having the same features; and the second comprises companies that have either commercial institutional owners or individuals. This ownership structure in the second group is more diverse than the first. There are vague cases that have major shareholders from both sides at the same time, in this case the weight of each category was computed and the higher weight category was considered. This matter was not a black vs white classification, so there may be some noise. Results, as presented in Table XI, show that 118 company-year observations represent 36.31 percent was classified as belong to companies that denominated by governmental units or royal family figures while 207 companies stand for 63.69 percent classified as companies with relatively more diversifications in the ownerships. These results indicate more liberal policy and less than expected government involvement, in general, in the industrial sector. However, this trend is not harmonized among the four GCC countries; in the same table the distribution of the corporate governance for each country is presented as well. Results show clear variations among the four GCC countries with different weight that not necessarily goes in the same trend as indicated by the aggregate amounts. Kuwait and Qatar are two extremes as the vast majority of Kuwaiti companies, 91.8 percent, having diversified ownership structure while the contrary in Qatar that show the vast majority of Qatar companies, 84.4 percent, are dominated by the government. In Oman, results show almost equal division among the two groups while the relative majority in Saudi Arabia could be classified as having diversification in the ownership as 61.3 percent of company-year observations were classified in this category. The detailed results show different indicators, as in three out of four countries there were influential impact of the company-year observations that classified as dominated by the government or royal families, 38.7, 47.6 and 84.4 percent for Saudi Arabia, Oman and Qatar, respectively. While Kuwait had only 8.2 percent of company-year observations, they were classified as government dominated observations. Such results could be due to the fact that Kuwaiti market is the oldest market in the region despite the fact there is no code yet for corporate governance as indicated in Saidi (2011) study and in other studies; Kuwait took significant steps in the proper implementation and building more institutional controlling practices that help in diversifying ownership structure ahead of other countries in the region, this interesting outcome in this study coincide with results in Shammari *et al.* (2008) when it reports Kuwait at the top of all the GCC countries in terms of institutional ownership based on the general GCC sample that covers various sectors. Result, as presented earlier, favors government dominated companies due to the fact that market may fixate to this type of owners due to their influence but this point require more investigation in more depth in a separate study that consider more sectors, more data and control for other factors in order to reach solid conclusion. In addition, the distribution of the companies in terms of corporate governance and classification of smoother and non-smoother is done. Totally, 207 observations for the more diversity in ownership were distributed as 86 smoother with 41.55 percent and 121 as non-smoother with 58.45 percent of this category. The 118 observations classified as governmental dominated ownership were distributed as 50 smoother with 42.4 percent and 68 non-smoother with 57.6 percent. χ^2 computed value for the contingency table was just 0.02 and shows there is no relation in the smother distribution with the corporate governance and

both categories of corporate governance place almost the same trend in dealing with smoother matter[22].

Finally, the impact of income smoothing on earnings quality is re-tested based on Equation 7. This model will include the entire observations, utilizing changes in earnings and allowing for interaction between the income smoothing dummy variable and changes in earnings. If income smoothing improves earnings quality to measure company performance, then the coefficient of the interaction between income smoothing and changes in earnings is expected to be positive. The results presented in Table XII show that the β_3 sign is positive and this confirms the earlier results about the positive impact of income smoothing on earnings quality. Furthermore, this coefficient is significant (p -value equals 0.001). Thus, the changes in the earnings model confirmed the earlier results based on earnings level and provides clear evidence of the validity of the result.

Thus, based on results in Table XII, the overall conclusion is that income smoothing improves earnings quality and the model based on earnings changes provides stronger and clearer evidence, supporting the initial results based on earnings-level approach.

8. Conclusions and recommendations

This paper shows that the income smoothing practice in GCC countries exists, and has various effects. Further, it has shown that on average, income smoothing practice did not reduce the quality of earnings measured by the ability of earnings to explain variations in stock returns. On average, income smoothing improved the quality of earnings, but this advantage was not significant on the aggregate-level for the earnings-level model. On the country level, based on earnings-level model, there were variations. For instance, in Saudi Arabia, income smoothing reduced earnings quality, whereas it enhanced the quality of earnings in Kuwait, Oman and Qatar to different extents. The highest impact was in Oman, followed by Kuwait and Qatar. In order to obtain solid evidence, a new model was introduced based on earnings changes. Results for the whole sample based on this model revealed the positive impact that income smoothing has on improving earnings' ability to reflect company performance. This was made possible as the model provided significant evidence to confirm the positive impact of the interaction between earnings changes and income smoothing.

Overall, results of the study show that it correlates with results of other studies conducted in different markets which adopt a positive attitude toward the impact of income smoothing as presented in earlier sections. However, the study contradicts those adopting a negative attitude toward income smoothing.

This study explored income smoothing practice in GCC capital markets. This behavior is known and practiced in the area based on the results of four out of six markets that comprise the GCC capital markets. Further, the impact of income smoothing varies across GCC countries. The overall result revealed the positive impact that income smoothing has on earnings quality, with significant evidence based on the earnings

Annual	Intercept	$\beta_1 \times DE_{i,t}$	$\beta_1 DUM_{i,t}$	$\beta_1 DE_{i,t} \times DUM_{i,t}$
Coefficient	0.058	0.983	0.009	2.317
(p -value)	(0.133)	(0.001)	(0.876)	(0.001)

Note: The table gives results from regression of stock returns on income smoothing, changes in earnings per share deflated by the market price at the beginning of the period and the interaction between income smoothing and changes in earnings. $R_{i,t} = \alpha + \beta_1 \times DE_{i,t} + \beta_2 DUM_{i,t} + \beta_3 DE_{i,t} \times DUM_{i,t} + \varepsilon_{i,t}$

Table XII.
The impact
of income smoothing
on the association
of earnings with
stock returns

changes model. Further, this study extends the topic by adding two more factors: audit quality and corporate governance. Most auditors belong to one of the large four auditor firms; this was recognized for all the GCC countries involved in this study. However, in corporate governance, the majority of companies have relatively more institutional private ownership with variation among different markets within the region. The two additional factors included in the model were based on dummy variables; both variables have a positive sign for their dummy variables in the model but only relative improvement.

This study contributes to the accounting literature by exploring this issue in the Middle East and GCC and provides various directions for future research in extending this research to other sectors and countries. The Saudi market requires further analysis in order to provide an answer for the different behavior compared to other markets within the GCC. The impact of the GCC economy movement during the period of the study may have an impact on the results; the GCC economy tripled in size to \$1.1 trillion from 2002 to 2008. Thus, extending the period to account for the financial crisis should be in the other direction for future studies.

The GCC consultative committee suggested changing the name of the GCC to Arab Gulf Union Council (Zawya, 2012). In order to enhance integration between markets of the GCC region, this study provides empirical evidence that there are variations among markets in the region and it encourages more analyses and further studies before proceeding to the union stage.

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Notes

1. Lambert (1984), Trueman and Titman (1988), Subramanyam (1996), Sankar and Subramanyam (2001) and Hunt *et al.* (2000) adopt this perspective. Managers may use income smoothing to communicate private information about future earnings to the market. Thus, it is expected that income smoothing will improve earnings informativeness and quality.
2. Managers smooth earnings for their own benefit. Thus, it is expected that income smoothing will reduce the quality of earnings (Leuz *et al.*, 2003; Healy, 1985; Defond and Park, 1997).
3. The earliest study to use the term "income smoothing" explicitly was that of Hepworth (1953): "[...] Certainly the owners and creditors of an enterprise will feel more confident toward a corporate management which is able to report stable earnings than if considerable fluctuation of reported earnings exist [...]" (p. 33).
4. Eckel (1981) presents this type as management actions to control economic events.
5. None of the 44 countries were in the Middle East. Thus, the current study will not overlap with that of Cahan *et al.* (2008).

6. Cahan *et al.* (2008) adopted the approach of Tucker and Zarowin (2006) in determining earnings informativeness. The indicator for the earnings informativeness was the future earnings response coefficient (ERC) which measures the association between current stock returns and future earnings. While the indicator for income smoothing was based on accrual approach by measuring the Spearman correlation between the cash from operations and total accruals over five years for each firm; a negative correlation was an indicator of income smoothing. The study avoided using the Jones model or any other accrual model to prevent misspecification since data divided among 44 countries.
7. There are studies that have taken the same direction and used simple models, rather than versions of Jones's model. This is because the number of observations per industry is limited or there is no variation in the industry; as in the current study, the examination based on these models will be unreliable (Wysoccki, 2004). Marra *et al.* (2011) adopted this point of view when they looked at abnormal working capital accruals as a proxy for earnings management, since their data, based on Italian companies, have limited year/industry observations.
8. I would like to acknowledge the inclusion of the two factors based on the anonymous referee feedback and invaluable discussion.
9. As mentioned prior to presenting Equation (6), using the earnings level as an explanatory variable in the returns-earnings model is a well-documented approach and utilized in various studies. However, this will not rule out the opposing view, which prefers to include earnings changes as sole or additional to earnings levels. Thus, this model based on earnings changes' interaction with a dummy variable of income smoothing provides an alternative approach.
10. An additional year was collected in order to maintain the first year of the study. By doing this, the sample size is maintained for the new model, identical to Model 6, but based on earnings changes.
11. Industrial companies in the Saudi market are divided among industrial and petrochemical sector, cement sector while the agriculture sector dropped since this sector has its own characteristics and no other country in the gulf had a counter (similar) sector. For simplicity and due to the limited number of companies in each sector the two sectors combined to represent the industrial sector of Saudi Arabia market. Kuwait had one industrial sector that include both petrochemical and cement companies; the same policy adopted in Qatar. UAE had two markets, one located in Dubai and the other in Abu Dhabi. The Abu Dhabi market had a construction sector and industrial both combined together as industrial sector later Abu Dhabi market, while Dubai combined construction with real estate in the same sector. As for Bahrain there is no company classified as industrial company during the study period.
12. Data Hand Collection started in 1999 as earliest available data for the research, since variables need to be deflated with one year lag as explained in Section 3, data for 1999 secured variables for 2000 for a deflate but observations for 1999 needs deflated for 1998 which most of the data were not available. Thus, in the coming sections you will notice that the analysis done from 2000 to 2008 and observations are distributed nicely among these years.
13. This matter needs to be addressed in a separate paper by extending the period to include more years after the crisis once enough data are available.
14. UAE is considered as a leader in bringing foreign investment to the region, despite the fact that foreign investment attraction needs more effort as indicated in Shammari *et al.* (2008) study. In addition UAE has a unique situation in the region as it is the only state with two markets. Further, UAE liberal economic policy led to the high integration of the private and public sector. So, this may cause to limit discretion of accountant to convey any message via income smoothing. Thus, it leads to have all UAE observations classified as non-smoother. However, this matter requires further investigation as the current study is limited to the industrial sector, so when other sectors are included in future studies, the justification will be more mature.

15. The data were standardized in terms of currency by transferring all financial data to US dollars. Given the variation of the currency amounts among the GCC countries, it was preferable better to exclude outliers per country rather than for the entire data set. Outliers determined by exclusion the extreme values of stock returns, smoothing index and deflated earnings per share for each country. Company-year observations for Qatar were small and represent a small portion of the total. Further, there were not huge variations in the Qatar observations; thus, no observations from the Qatar market were deleted.
16. This percentage will be regarded as the final percentage and is reported in the abstract, the earlier percentage (72 percent), listed on the previous page is an initial percentage before excluding UAE observations and before eliminating outlier observations as listed in Table II.
17. It is obvious that percentage of smoother increased from 37.14 to 41.85 percent after excluding outliers except for Qatar as no observations were excluded. Thus, from this initial indicator most of outliers were from the non-smoother category. This shows that the smoother observations are steadier compared with the non-smoother category. More analysis will be conducted related to this point in Section 7.
18. The Young test assumed that the two non-tested models were developed based on the same sample size. In order to maintain this assumption, the non-smoother subsample was modified in selecting the same number of smoother size. Thus, since the number of company-year observations of the smoothers are 136 observations, three non-smoother subsamples with 136 observations were created randomly; the first subsample was created by selecting first 136 company-year observations from the non-smoother, the second by selecting the bottom 136 observations and the third was created starting from the middle, 94th observation, then select the 94th observation with 67 observations upwards and then another 68 downwards from the middle. Then Young test runs independently three times to compare the smoother sample and three overlapped sub non-smoother samples that match the smoother in size; 136 observations each. *p*-Value of the *Z* score that created as output from Young test, results show that goodness of fit for the smoother was relatively higher than that for the non-smoother. However, this superiority was insignificant as the higher significance level for *Z* score reached 87 percent; this cannot be considered as sufficient evidence, as the minimum significance level should be higher than 90 percent.
19. Al-Shammari *et al.* (2008) present the fact that, despite strong ties between the GCC, there is diversity among GCC countries in terms of compliance with international accounting standards. Furthermore, Al-Hussaini *et al.* (2008) conclude that the extent of monitoring compliance with accounting standards varies between GCC countries.
20. Computations of χ^2 done based on Keller (2005, p. 559).
21. ERC, as pointed out and utilized in this study and other studies discussed earlier, could be a good alternative for the return-EPS model as it adopted in this study. However, the current methodology adopted in order to maintain the current sample size at this level and avoid losing more observations as more data will be needed data to determine unexpected earnings and unexpected return.
22. This study explores the potential relationship between the distribution of auditor quality and corporate governance to open the door for further research to investigate this matter. From 118 observations classified as governmental dominated observations; 92 observations stand for 78 percent were having auditor as one of the Big 4; and 26 observations with 22 percent as auditor not from the Big 4 category. The 207 observations classified as more institutional ownership have the same trend but with less extent as from 207 observations 134 with 64.7 percent were smoother and 73 observations with 35.3 percent were non-smoother the compute χ^2 for this contingency table is 6.2, which is still not significant as critical value at 90 percent confidence level is 6.6 but it is closer and it shows that this topic should be explored in more depth to achieve better understanding of the GCC market.

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