Journal of Economic, Administrative and Legal Sciences
Volume (4), Issue (15): 30 Dec 2020
P: 178 - 201
ISSN: 2522-3372
مجلة العلوم الاقتصادية والإدارية والقانونية
المجلد (4)، العدد (15): 30 ديسمبر 2020 م
ص: 178 - 201

The Impact of IFRS adoption and AQ upon Earnings Management in Saudi Stock Exchange (Tadawul)

Maha Nasser Allehaidan
Majmaah University || KSA

Abstract: The main purpose of this paper is to examine the impact of International Financial Reporting Standards (IFRS) adoption and Audit Quality (AQ) on Earnings Management (EM) practices in Saudi Arabia listed firms. EM is measured by the discretionary accrual using Healy (1985) and Kothari, Leone, and Wasley (2005) models. The research sample contains 16 Saudi listed firms during the period from 2014 to 2019. Statistical analysis including t-test and linear regression were used to test the research hypotheses. The investigation indicates that there is a negative relationship between IFRS adoption and EM practices, especially if it is combined with AQ, while it found a positive relationship between firms' size and accrual EM, and no significant impact of AQ on firms' debt ratio and EM practices. The importance of these results lies in providing clear evidence that the adoption of IFRS in developing countries has helped reduce earnings manipulation practices, which contributes to gaining confidence in Saudi firms and thus attracting many foreign investments.

Keywords: IFRS, Earnings Management, Audit Quality, Saudi Stock Market Exchange.

تأثير تطبيق المعايير الدولية لإعداد التقارير المالية وجودة المراجعة على إدارة الأرباح للشركات المدرجة في السوق المالية السعودية (تداول)

مها ناصر اللحيدان
جامعة المجمعة || المملكة العربية السعودية

الملخص: الغرض الرئيسي من هذه الورقة هو دراسة تأثير اعتماد المعايير الدولية لإعداد التقارير المالية وجودة التدقيق على ممارسات إدارة الأرباح في الشركات السعودية المدرجة. يتم قياس إدارة الأرباح من خلال الاستحقاقات التقديرية باستخدام نموذج هيلي (1985) ونموذج كوثاري، ليون وواسلي (2005). تضمنت عينة البحث 16 شركة سعودية مدرجة في سوق الأسهم السعودية (تداول) خلال الفترة من 2014 إلى 2019، تم استخدام التحليل الإحصائي) اختبار T والانحدار الخطي) لاختبار فرضيات البحث. يشير التحقيق إلى وجود علاقة سلبية بين اعتماد المعايير الدولية لإعداد التقارير المالية وممارسات إدارة الأرباح، خاصة إذا تم دمجها مع جودة التدقيق، بينما وجدت علاقة إيجابية بين حجم الشركات والاستحقاقات التقديرية، ولا يوجد تأثير كبير لجودة التدقيق على نسبة ديون الشركات وممارسات إدارة الأرباح. تكمن أهمية هذه النتائج في أنها تقدم دليلا واضحا على أن تبني المعايير الدولية للتقرير المالي في الدول النامية قد ساعد في تقليل ممارسات التلاعب في الأرباح مما يساهم في كسب الثقة في السوق السعودي وبالتالي جذب العديد من الاستثمارات الأجنبية.

الكلمات المفتاحية: المعايير الدولية لإعداد التقارير المالية، إدارة الأرباح، جودة التدقيق، سوق الأسهم السعودية.

1- Introduction

It is very important for users of financial statements (whether investors or government organizations) to obtain transparent and credible financial statements that are useful in making decisions. EM by managers in many firms is a major economic barrier that could cause financial crises, Enron and World Company scandals are the most prominent examples of the collapse of US companies in the early 2000s and the most famous examples of management manipulation of financial statements. Therefore, in order to increase the confidence, rules were issued in 2002 by the European Parliament requiring firms listed in the European Union (EU) to IFRS beginning in 2005 (Soderstrom & Sun, 2007).

Saudi Arabia was adopting Saudi GAAP in accounting and auditing operations, as Saudi Organization for Certified Public Accountants (SOCPA) issued 22 accounting and 15 auditing standards guided by available international standards such as the American and British. In the event of a shortage, the reference is international standards, this continued until 18/2/2012 when the project to convert to IFRS was adopted (SOCPA, 2015). After agreeing to the adoption of IFRS, SOCPA conducted the necessary discussions in order to study the implementation stages with the help of many experts. It was necessity of dividing the companies that will implement the standards into two groups: Firms listed in Saudi Stock Market Exchange (Tadawul) must implement the standards at the beginning of 2017 which will follow Standards for large firms, while unlisted firms should start applying standards for SMEs at the beginning of 2018.

In this paper, we study the effect of IFRS adopting on limiting managers' practices of EM activities in Saudi Arabia, considering the impact of AQ and other variables, such as firm size and debt.

Problem

The problem of this investigation lies in trying to answer the following questions:

- Does IFRS adoption effect the level of discretionary EM practices in Saudi Arabia?
- Does the audit quality have a role in this effect, if any?

Hypothesis developments

Hypotheses 1: "The IFRS adoption impacts the level of EM".

Hypotheses 2: "The companies whose financial statements are audited by the Big4 audit firms are less exposed to practice EM than those which are audited by Non-Big 4 audit firms".

Hypotheses 3: "The combined effect of IFRS adoption and Audit quality negatively impacts EM practices".

Hypotheses 4: "Some Control variables impact the EM".

H4-1: "The larger the size of the company, the more EM practices are observed"

H4-2: "The more companies are in debt the more they practice EM"

Importance of study

This investigation contributes to identifying the impact of IFRS adopting on limiting the practices of managers to manipulate the results of financial statements. It enriches the literature that has been investigated in this field and gives results that allow comparison with the results of other developing countries analyzes. It also contributes to the provision of transparent financial statements which help gain confidence in accounting regulations and thus attracting many foreign investments.

Limitations

As in many literatures, this research faces many limitations. First, we have used discretionary accruals to measure the quality of financial statements, while there are many other influences that can be a reason for affecting the quality of financial statements, such as corporate governance. Second, this research covered only 6 years, and the process of adopting standards in Saudi Arabia is still fresh, so we recommend conducting research that covers longer periods in the future to ensure the continued decline in EM practices.

2- Literature review

Researchers differed in their measurement of EM, as some of them relied on accrual-based and others relied on real earnings, while others merged measures together. Using accrual-based EM, Marra, Mazzola, and Prencipe (2011) investigated 222 Italian firms from 2003-2006 and found that the characteristics of corporate governance and the independence of audit committees are improving in light of the application of IFRS, which affects the limitation of EM, this is due to the high transparency and accounting disclosure provided by IFRS. Wijayana and Gray (2019) also examined a sample containing 198,433 observations from listed firms in Asia-Pacific countries from 2001- 2016, Zeghal, Chtourou, and Sellami (2011) in France, also Pelucio-Grecco, Geron, Grecco and Lima (2014) in Brazil, all of them argue that the application of IFRS led to an increase in financial reports quality and a decrease in EM practices. Liu, Yao, Hu, and Liu (2011) also found a similar result on a sample of 870 listed Chinese firms which applying standards that are IFRS- convergent.

Not all researches agree that accounting regulations and standards reduce EM, But there are other influences that play a major role in reducing the effectiveness of the standards, where Tendeloo and Vanstraelen (2005) in their analysis of 636 firm-year observations during the period 1999–2001 in German listed firms, argue that the implementation of IFRS will not reduce EM - except firms audited by BIG4 - due to differences in investor protection laws in many countries, so there will be no significant impact from their adoption. This result is supported by Gray, Kang, Lin, and Tang (2015) in their investigation of 15,258 observations in EU from 2000 to 2010, where they found that IFRS did not affect the levels of EM but rather that cultural values between countries are still present. Houqe, Zijl, Dunstan,

and Karim (2012) have also argued that earnings quality increase after the adoption of IFRS in the presence of a strong investor protection system across countries.

Furthermore, some of results studies indicated that the adoption of IFRS lead to the increase on accrual EM instead of mitigating it, this result found by Cameran, Campa, and Pettinicchio (2014) in analysis of 948 observations in Italian unlisted and nonfinancial firms from 2005 to 2008, this may be due to the exploitation of managers to the flexibility in applying international standards. Capkun, Collins, and Jeanjean (2016) reached a similar result in their analysis of 3853 various subsamples contained early adopters, late adopters and mandatory adopters' firms from pre-2005 to post-2005. These results were supported by Jeanjean and Stolowy (2008) investigation in France, UK and Australia. Moreover, Mongrut and Winkelried (2019) investigated sample of Latin American firms and argued that the reason for positive impact of IFRS adoption on EM in these countries is the increased confidence in IFRS transparency and disclosure rules, which resulted in reducing dependence on high quality audit firms such as BIG4.

On the other hand, IFRS with its high quality may contribute to reducing real EM while increasing EM practices on accrual basis. Evans, Houston, Peters, and Pratt (2015) supported this hypothesis in their analysis of 616 experienced financial officers in US and non-US, which adopted US GAAP and IFRS, they found that US firms that adopted US GAAP are more dependent on real EM than firms that adopted IFRS which have a greater trend towards accrual based EM, whether US or not. In contrast, Ferentinou and Anagnostopoulou (2016) in their analysis of firms listed in Greece from 2001 to 2008 found that managers tend to reduce accrual EM and turn to real EM practices after the adopting of IFRS. Ho, Liao and Taylor (2015) also found a similar result on Chinese A-share firms from 2002-2011. Ipino and Parbonetti (2017) also confirmed these results and stated that the reason for this trend is the existence of strict enforcement of laws in these countries. While Doukakis (2014) conducted a test on 15,206 observations from 2000 to 2010 on companies listed in EU and found that the adoption of IFRS did not have a significant impact on both accrual and real EM.

Regarding the relation between AQ and EM, Habbash and Alghamdi (2017) investigated the impact of audit quality on EM in 337 non-financial Saudi listed firms from 2006–2009 and found that auditor opinion is the only constraining factor on EM practices. Maijoor and Vanstraelen (2006) reached a similar result in EU, argue that restricting EM affected by a strict audit environment, whether companies are audited by Big4 or other audit firms.

3- Methodology

Conceptual models for the relation between IFRS adoption and EM in KSA

Econometric model

The econometric model that should be used to test the impact of IFRS Adoption and Audit Quality on Earnings Management (EM) might be developed as follows:

$$|DA\ it| = \beta 0 + \beta 1\ IFRS\ it + \beta 2\ AQ\ it + \beta 3\ IFRS\ it * AQ\ it + \beta 4\ Size\ it + \beta 5\ Debts\ it + \varepsilon\ it \quad (1)$$

Dependent and independent variables definitions and measurements:

Dependent variable: Earnings Management (EM)

To measure the dependent variable (EM), we are going to apply the model of Kothari et al. (2005), Since it is considered one of the most applied models in the literature, this is due to the Kothari use of discretionary accruals to measure EM similar to the Jones (1991) model and Dechow et al. (1995), but with including firm performance measurement in the accruals regression to compare the effectiveness of matching performance to reduce the specification problems and to control for the misspecification of Jones and modified Jones models.

First, we will obtain total accruals using Healy (1985) model as follows:

$$TA_{it} = Net\ Income\ for\ year_{\ t} - NCF_{it}\ for\ operations \quad (2)$$

Second, we will obtain the non-discretionary accruals using Kothari et al. (2005) model as follows:

$$AND_{it} = \beta 0\ (1/A\ t\text{-}1) + \beta 1\ (\Delta\ CA\ t - \Delta VC\ t)/A\ t\text{-}1 + \beta 2\ (IMMO\ t\ /A\ t\text{-}1) + \beta 3\ ROA_{it} \quad (3)$$

Where AND_{it} = non-discretionary accruals in year t for firm $_{i,}$ A_{it-1} = total assets in year $_{t-1}$ for firm i, ΔCA_t = revenues in year t less revenues in year $_{t-1}$ for firm i, ΔVC_t = (Net receivables in year $_t$ _ Net receivables in year $_{t-1}$, $IMMO_t$ = gross property, plant, and equipment in year $_t$ for firm i, ROA_{it} is return on assets in period $_t$ ε_{it} is residuals, and called Discretionary accruals (DA_{it}).

Third, we will obtain discretionary Accruals as follows:

$$|DA_{it}| = TA_{it} - AND_t \quad (4)$$

Independent variables

The independent variables that are used in the econometric model (6-2) and that are likely to impact the earnings management (EM) in Saudi context are: IFRS adoption; Audit quality, and the mixed effect of these two variables (IFRS*AQ).

For the first independent variable (IFRS adoption), we use a binary variable that takes the value 1 if a firm adopts IFRS, and zero otherwise. For the second independent variable (Audit Quality), we have

also used a binary variable that takes the value 1 if the firm's financial statements are audited by an audit Firm-Big4 and zero otherwise. These variables were chosen because they are the most prominent influences in EM as mentioned in the section of literature review.

Two other control variables that might enhance or reduce the EM practice are Firms' Size and Debts' Level. The following Table 1. shows the measurements of all variables:

Table (1) List of Variables and Definitions

Variable category	Abbreviation and Definition	Measurement
Dependent variable	DA: Discretionary Accruals	Absolute Value of discretionary Accruals calculated using Kothari et al. (2005) model
Independent variables	IFRS: IFRS adoption	Dummy Variable
	AQ: Audit Quality	Dummy Variable
	IFRS*AQ	Dummy Variable
Control variables	Size: Firms' Size	Natural Log of Total Assets
	Debts: Debts' level	Financial debts / total assets

Data sources and data collection methods

Data sources

Data are collected and changes are observed from the annual reports of the respective companies from the website (Tadawul, 2020b) and (Argaam, 2020) for 6 years from 2014 to 2019 as companies listed on the Saudi Stock Exchange were forced to implement the IFRS at the beginning of 2017, while those not listed at the beginning of 2018.

Data collection

The sample is selected from the companies listed in the Saudi Market Exchange (Tadawul), which contains 199 listed companies, where 16 companies were randomly chosen included 96 observations based on the completion of their financial statements from 2014 to 2019 and they were divided into two groups: 8 companies were audited by Big4 and others audited by other audit firms. Where the following was excluded from the sample the following: 1. Financial Institutions (Banks and Insurance companies) as they are not always the same as industrial and commercial companies in accounting measurements 2. Firms that do not have complete financial data for 2019.

4- Results Presentation and discussion

Descriptive analysis

In table 2, we will explain the characteristics of the sample over six years from 2014 to 2019 after excluding financial institutions and companies that did not complete their financial reports for 2019:

Table (2) Sample selection

Total firms listed in Tadawul until 2019	199
Excluded:	
Financial companies	(11)
Insurance companies	(32)
Missing financial statements	(140)
Total selected sample	16

Table (3) Description of Sample

Description	2014	2015	2016	2017	2018	2019	Pooled
Companies audited by BIG 4	10	10	8	8	8	8	52
Companies audited by other firms	6	6	8	8	8	8	44

Table 3 above presents the number of companies under two groups for each year and their total observations.

Table (4) Descriptive Statistics of all variables

Variable		Mean	Std. Dev	Min	Max	Observations
Size	Overall	19.82675	2.460542	14.60439	25.30853	N=96
	Between		2.52269	14.7762	25.19061	n=16
	Within		0.158893	19.43964	20.22442	T=6
Debt	Overall	0.218588	0.1955654	0.0008111	0.6840047	N=96
	Between		0.1913116	0.0010886	0.5714768	n=16
	Within		0.0597665	-0.0193289	0.3459606	T=6
EM	Overall	13.1777	7.757217	-6.170304	22.07002	N=96
	Between		1.951709	8.455064	17.48683	n=16
	Within		7.52102	-7.047343	18.53519	T=6

* Note that size is measured by the natural logarithm of total assets

In terms of the descriptive statistics, Table 4 shows that the study sample from Saudi listed companies have a mean Size of 19.82, and a mean Debt of 0.21. The mean of EM is 13.17 and the standard deviation is 7.757 prove that the companies of the sample have the practice of the EM.

Figure (1) The Debts Ratio by Companies

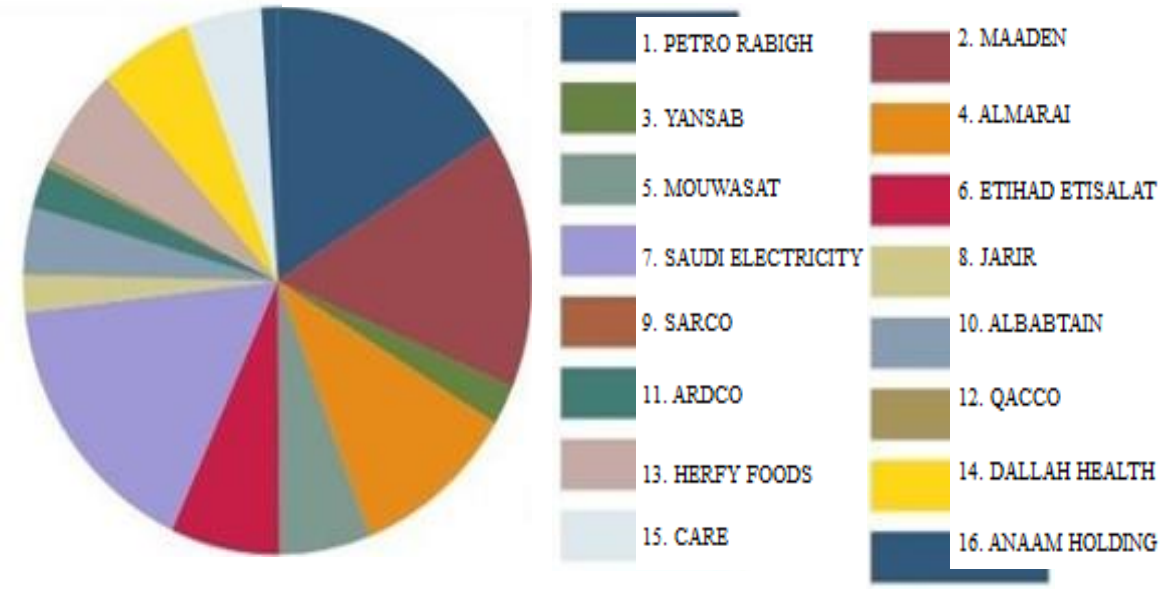
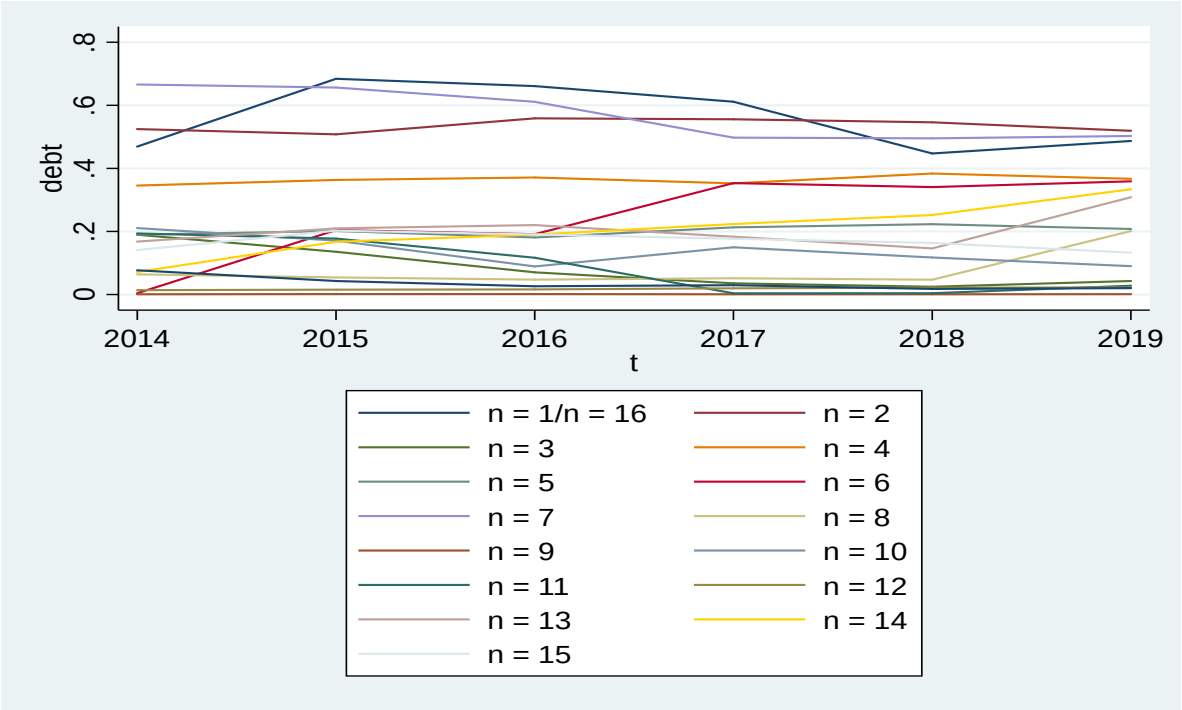
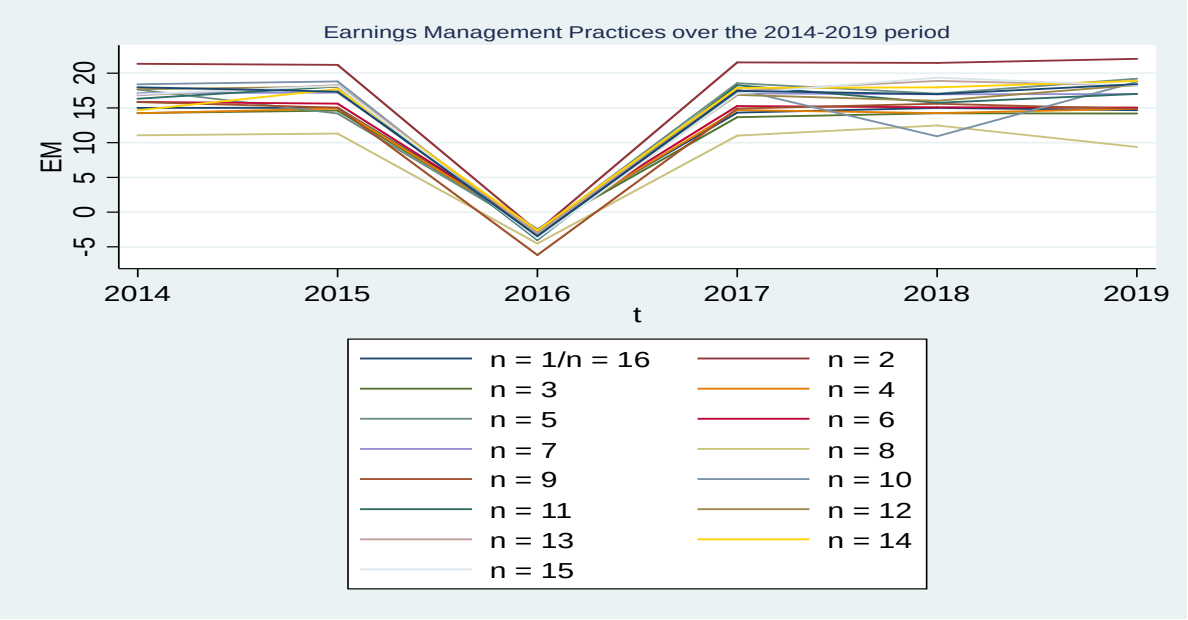


Figure (1)Evolution of debts by year and by company



From the above figure 2 describing the evolution of the debts over the period 2014-2019, we note that the scope of debts is different between companies, but it is almost constant over the years for most companies, some companies have change, but it is not significant.

Figure (3) Earnings management Practice over the 2014-2019 period



From figure 3 describing the evolution and the variation of the EM over the period 2014-2019, we note that the scope of this practice fell during 2016, for most of the companies in the sample, this year represents the year just before the adoption of IFRS standards in Saudi Arabia. Then, this practice resumes increasing little by little after the year 2017.

Table (5) Descriptive analysis of dummy variables

IFRS	Overall		Between		Within
	Freq.	Percent	Freq.	Percent	Percent
0	48	50	16	100	50
1	48	50	16	100	50
Total	96	100	32	200	50
	(n=16)				
AQ	Overall		Between		Within
	Freq.	Percent	Freq.	Percent	Percent
0	44	45.83	8	50	91.67
1	52	54.17	10	62.50	86.67
Total	96	100	18	112.50	88.89
	(n=16)				

Table 5. shows the dummy variables that take the value of 1 if a firm adopts IFRS or audited by BIG4 and zero otherwise.

Empirical results of the relationship between IFRS adoption, Audit quality, other control variables and EM in Saudi Context.

We have tested the four hypotheses using the t-test (Test of difference of means between two independent samples) and the multiple regression analysis.

Hypotheses 1: "The IFRS adoption impacts the level of EM".

To test this hypothesis, we use the t-test for two samples: Firms adopting IFRS and firms do not adopt IFRS.

Table (6) Two-samples t-test with equal variances for the variable EM before and after IFRS adoption

Two-samples t-test with equal variances						
Groups	Obs.	Mean	Std. errs.	Std. dev	[95% Conf. Interval]	
2017-2019	48	9.874	1.387	9.616	7.082	12.667
2014-2016	48	16.480	0.378	2.621	15.719	17.241
Combined	96	13.177	.791	7.757	11.605	14.749
Diff.		-6.605	1.438		-9.462	-3.749
diff = mean(2014-2016) – mean (2017-2019) t = -4.5917 Ho: diff = 0 degrees of freedom = 94						
Ha: diff < 0 Ha: diff != 0 Ha: diff > 0 Pr(T < t) = 0.0000 Pr(T > t) = 0.0000 Pr(T > t) = 1.0000						

Given the results of test t in Table 7, the hypothesis 1 is confirmed because there is a significant difference between the means of EM in the two samples (IFRS 1 and IFRS 0) ; (t = -4.5917 and p = 0.000 <0.05)), so we accept this hypothesis. This result confirms the findings of Brad et al. (2014), Baig and Khan (2016), Sellami and Slimi (2016), Sellami and Fakhfakh (2014) and Liu et al. (2011).

Hypotheses 2: "The companies whose financial statements are audited by the Big4 audit firms are less exposed to practice EM than those which are audited by Non-Big 4 audit firms".

Table (7) Two-samples t-test with equal variances for the variable EM with Big 4 and non-Big 4 audit firms

Two-sample t-test with equal variances						
Groups	Obs.	Mean	Std. errs.	Std. dev	[95% Conf. Interval]	
Non big4: 0	44	13.35571	1.251379	8.30071	10.83206	15.87936
Big4: 1	52	13.02708	1.018535	7.344758	10.98229	15.07188
Combined	96	13.1777	.7917177	7.757217	11.60595	14.74946
Diff.	-	.328628	1.597032	-	-2.842317	3.499573
diff = mean (0) – mean (1) t = 0.2058						

Two-sample t-test with equal variances
Ho: diff = 0 degrees of freedom = 94
Ha: diff < 0 Ha: diff ! = 0 Ha: diff > 0 Pr(T < t) = 0.5813 Pr(T > t) = 0.8374 Pr(T > t) = 0.4187

The results of t-test show that there is no significant difference between the means of EM in the two groups: Firms audited by Big 4 (1) and firms audited by Non-Big 4 (0). The value of t is very low equal to 0.2058 and the p value equal to 0.5813 is more than 0.05, this hypothesis is rejected, it seems that the variable AQ does not impact EM and our results confirm those of Yasar (2013), Habbash and Alghamdi (2017) and Maijoor and Vanstraelen (2006).

Hypotheses 3 and hypothesis 4 are tested using a multiple regression analysis

Hypothesis 3 states that: "The combined effect of IFRS adoption and Audit quality negatively impacts EM practices"

Hypotheses 4 assume that "Some Control variables impact EM practices".

Using the following model, the results of the multiple regression analysis are displayed in table 13.

$$EM = \beta 0 + \beta 1\ IFRS_{it} + \beta 2\ AQ_{it} + \beta 3\ IFRS_{it} * AQ_{it} + \beta 4\ Size_{it} + \beta 5\ Debts_{it} + \varepsilon_{it} \qquad (5)$$

Where AQ_{it}: measure audit quality, 1 if auditor from big4 and 0 otherwise, EM: earnings management measured by discretionary accruals from the model of Kothari et al., 2005, $IFRS_{it}*AQ_{it}$: combined effect of audit quality and IFRS adoption. $Size_{it}$: size of the company measured by natural logarithm of total assets (control variable). $Debts_{it}$: ratio of debts by assets (control variable)

However, to use a multiple regression analysis on panel data, we must firstly use Hausman Specification Test for fixed or random effect. In fact, this research is based on panel data, which contains observations of multiple phenomena obtained over multiple time periods (2014 to 2019) for the same firms (16 companies for 6 years: 96 observations) to test empirically the relationship between EM and six independent variables. There are some mandatory conditions to use multiple regression based on panel data.

Hausman specification tests are conducted for panel data to check whether models that would be used to test the developed hypotheses were fixed- or random-effect models. When the probability of the test is less than 10%, then the fixed-effect model is most appropriate for the study. The unbiased estimator of this type of model is the "within" estimator. The results of Hausman specification tests for the model (Table 9) show that the fixed- effect model is most appropriate for the study because the probability of the test is less than 10% for all models.

Table (8) Fixed-random effect test

Model	chi2(5)	Prob>chi2	Effect
3	5.00	0.4155	random

We conclude from table 5, (Prob>chi2) > 5% so the model 2 has a random effect. Before regression estimation, we did the multi-collinearity and Heteroscedasticity tests in the following Table 9:

Table 9 Vector Inflation Factor test for multi-collinearity

Variables	VIF	1/VIF
AQ	2.97	0.336779
IFRS	2.20	0.454325
AQ_IFRS	3.05	0.327446
Size	1.48	0.676171
Debt	1.72	0.580681
Mean VIF	2.29	

The outputs of table 10 show the non-existence of the problem of multi-collinearity.

Table (10) Breusch-Pagan / Cook-Weisberg test for heteroscedasticity

Breusch-Pagan / Cook-Weisberg test for heteroscedasticity	
Ho:	Constant variance
Variables:	fitted values of EM
LR chi2 (15)	3.49
Prob > chi2	0.9990

From table 10, p-value > 5%, it signifies that the model is heteroscedastic, which means that the variance of the residual in our regression model is non constant.

Table (11) Wooldridge test for autocorrelation

Wooldridge test for autocorrelation in panel data	
H0	No first-order autocorrelation
F(1, 15) =	91.676
Prob > F =	0.0000

The results of Table 11. enable us to reject the null hypothesis at 5% level, which means the presence of autocorrelation.

Table (12) Result of linear regression for hypothesis 3 and 4

R-squared	25,62%			Number of obs.	96	
EM	Coef.	Std. errs.	Z	P>|z|	[95% Conf. Interval]	
IFRS	8.429365	5.599599	1.51	0.132	-2.545647	19.40438
Audit Quality	3.950796	1.681037	2.35	0.019**	.6560232	7.245568
IFRS*Audit Quality	-3.208089	1.533652	-2.09	0.036**	-6.213993	-.2021856
SIZE	.9009413	.1548433	5.82	0.000***	.597454	1.204429
Debt	-1.456006	1.852051	-0.79	0.432	-5.08596	2.173948
Const.	-9.919443	4.287549	-2.31	0.021	-18.32288	-1.516002

* p < 0.10, ** p < 0.05, *** p < 0.01

The results of the multiple regression analysis in table 13 shows that IFRS adoption (with Z = 1.51 and p = 0.132) and Debts (with Z = -0.79 and p = 0.432) do not impact EM, however the Audit Quality positively and significantly impacts EM which is in contradictory of the anticipated direction (Z= 2.35 and p= 0.019). But when we combined IFRS adoption and Audit Quality, there is a significant negative impact on EM (Z=-2.09 and p 0.036), then hypothesis 3 is confirmed.

The size of the firm positively impacts EM practices and this result confirms hypothesis 4 in general, and specifically hypothesis 4-1, it also corroborates the results of Nalarreason, T, and Mardiati (2019) in 75 Indonesian manufacturing companies from 2013 to 2017, Ali, Noor, Khurshid, and Mahmood (2015) in 50 Pakistani companies from 2004 to 2013 and Turegun (2016) in non-financial Turkish firms from 2006 to 2013, but hypothesis 4-2 is rejected because the variable Debt does not significantly impact EM.

In summary, we have firstly provided a descriptive analysis of a sample of 16 companies in Saudi context from 2014 to 2019 using tables of frequencies and measurements of central tendency (means and standard errors) and graphics and Central Tendency Frequency. Secondly we have used two inferential statistic tools to test empirically the four hypotheses: (Test T for difference of means between two independent samples and multiple regression analysis). The results of the four hypotheses tests confirm some hypotheses such as H1, H3 and H4-1 and reject others such as H2 and H4-2. In fact, we found that when we have used the t-test for hypothesis 1, the adoption of IFRS negatively and significantly affect the level of EM. But when we have the same statistic tool to test hypothesis 2, the results do not show any significant impact of audit quality on the level of EM practices. This hypothesis was rejected. Concerning hypotheses 3 and 4, we used the linear multiple regression analysis. The results of this analysis confirm hypothesis 3 that the combined effect of IFRS adoption with audit quality negatively affects EM. With regard to hypothesis 4, we found only the firms' size positively and significantly impacts EM but the debts' level has no significant impact on EM.

5- General Conclusion

The purpose of this research was to study the effect of the IFRS adoption and the audit quality on EM practices in Saudi Arabia. To measure EM we used discretionary accruals as they were defined by Healy (1985) and Kothari et al. (2005) models. Our empirical tests were based on 96 observations of 16 Saudi non-financial companies over the six years from 2014 to 2019 that were chosen randomly based on the completeness of their financial statements, we collected data from (Tadawul) and (Argaam) websites and were processed using the t-test and multiple regression analysis on panel data. The results indicate that the adoption of IFRS has a negative impact on EM practices in public Saudi firms, especially if it is combined with audit quality. The results also indicate that EM practices are positively and significantly

influenced by the firms' size. Concerning the direct effect of audit quality on EM, no significant impact was observed. The Debts' level has also no effect on EM practices. The results of the empirical test of hypotheses 1 and 3 are consistent with the literature indicating that the adoption of IFRS reduces EM practices.

Implications

The implications of our results have a great importance to many decision makers, such as investors, researchers, and control authorities in Saudi Arabia, they give a good impression of the Saudi market's response to the positive aspects resulting from the adoption of IFRS, it reduces the violations committed by managers in order to protect their revenues. The results direct professional bodies such as SOCPA to increase oversight of audit firms to verify compliance with the standards of auditing quality and thus support attract many foreign investments. This research also contributes to motivating researchers to benefit from these results in making comparisons between companies in the GCC markets to know the quality degree of their financial statements.

Recommendations

We recommend in analyzing other effects of adopting IFRS, such as their impact on the risks of accounting disclosure, accounting conservatism and audit quality of earnings. We also suggest making a comparison between GCC stock market corporations in terms of the level of EM practices between them and the quality of accounting disclosure.

References

- Ali, U., Noor, M. A., Khurshid, M. K., & Mahmood, A. (2015). Impact of Firm Size on Earnings Management; A Study of Textile Sector of Pakistan. European Journal of Business and Management, 47-56.
- Argaam. (2020). Financial Reports. Retrieved from Argaam: https://www.argaam.com/en/company/financial-pdf/3
- Baig, M., & Khan, S. A. (2016). Impact of IFRS on Earnings Management: Comparison of Pre-Post IFRS Era in Pakistan. Procedia - Social and Behavioral Sciences, 343 – 350.
- Brad, L., Dobre, F., Turlea, C., & Brasoveanu, I. V. (2014). The impact of IFRS adoption in Romania upon the earnings management of the Bucharest Stock Exchange entities. Procedia Economics and Finance, 871-876.
- Cameran, M., Campa, D., & Pettinicchio, A. (2014). IFRS Adoption Among Private Companies: Impact on Earnings Quality. Journal of Accounting,Auditing & Finance, 1-28.

- Capkun, V., Collins, D., & Jeanjean, T. (2016). The effect of IAS/IFRS adoption on earnings management (smoothing): A closer look at competing explanations. Journal of Accounting and Public Policy, 1- 43.
- Dechow, P. M., Sloan, R. G., & Sweeney, A. P. (1995). Detecting Earnings Management. The Accounting Review, 193-225.
- Doukakis, L. C. (2014). The effect of mandatory IFRS adoption on real and accrual-based earnings management activities. Journal of Accounting and Public Policy, 551–572.
- Evans, M. E., Houston, R. W., Peters, M. F., & Pratt, J. H. (2015). Reporting Regulatory Environments and Earnings Management: U.S. and Non-U.S. Firms Using U.S. GAAP or IFRS. The accounting review, 1969–1994.
- Ferentinou, A. C., & Anagnostopoulou, S. C. (2016). Accrual-based and real earnings management before and after IFRS adoption. Journal of Applied Accounting Research, 2-23.
- Gray, S. J., Kang, T., Lin, Z., & Tang, Q. (2015). Earnings Management in Europe Post IFRS: Do Cultural Influences Persist? Management International Review, 827–856.
- Habbash, M., & Alghamdi, S. (2017). Audit quality and earnings management in less developed economies: the case of Saudi Arabia. Journal of Management and Governance, 351–373.
- Habbash, M., & Alghamdi, S. (2017). Audit quality and earnings management in less developed economies: the case of Saudi Arabia. Journal of Management and Governance, 351–373.
- Healy, P. M. (1985). The Effect of Bonus Schemes on Accounting. Journal of Accounting and Economics, 85-107.
- Ho, L.-C. J., Liao, Q., & Taylor, M. (2015). Real and Accrual-Based Earnings Management in the Pre- and Post-IFRS Periods: Evidence from China. Journal of International Financial Management & Accounting, 294-335.
- Houqe, M. N., Zijl, T. V., Dunstan, K., & Karim, A. K. (2012). The Effect of IFRS Adoption and Investor Protection on Earnings Quality Around the World. The International Journal of Accounting, 333–355.
- Ipino, E., & Parbonetti, A. (2017). Mandatory IFRS adoption: the trade-off between accrual-based and real earnings management. Accounting and Business Research, 91-121.
- Jeanjean, T., & Stolowy, H. (2008). Do accounting standards matter? An exploratory analysis of earnings management before and after IFRS adoption. Journal of Accounting and Public Policy, 480–494.
- Jones, J. J. (1991). Earnings Management During Import Relief Investigations. Journal of Accounting Reasearch, 193-228.
- Kothari, S. P., Leone, A., & Wasley, C. E. (2005). Performance Matched Discretionary Accrual Measures. Journal of Accounting and Economics, 163-197.
- Liu, C., Yao, L. J., Hu, N., & Liu, L. (2011). The Impact of IFRS on Accounting Quality in a Regulated Market: An Empirical Study of China. Journal of Accounting,Auditing & Finance, 659–676.

- Maijoor, S. J., & Vanstraelen, A. (2006). Earnings management within Europe: the effects of member state audit environment, audit firm quality and international capital markets. Accounting and Business Research, 33-52.
- Marra, A., Mazzola, P., & Prencipe, A. (2011). Board Monitoring and Earnings Management Pre- and Post-IFRS. The International Journal of Accounting, 205–230.
- Mongrut, S., & Winkelried, D. (2019). Unintended effects of IFRS adoption on earnings management: The case of Latin America. Emerging Markets Review, 377–388.
- Nalarreason, K. M., T, S., & Mardiati, E. (2019). Impact of Leverage and Firm Size on Earnings Management in Indonesia. International Journal of Multicultural and Multireligious Understanding, 19-24.
- Pelucio-Grecco, M. C., Geron, C. M., Grecco, G. B., & Lima, J. P. (2014). The effect of IFRS on earnings management in Brazilian non-financial public companies. Emerging Markets Review, 42–66.
- Sellami, M., & Fakhfakh, H. (2014). Effect of the mandatory adoption of IFRS on real and accruals-based earnings management: Empirical evidence from France. International Journal of Accounting and Economics Studies, 22-33.
- Sellami, Y. M., & Slimi, I. (2016). The effect of the manadatory adoption of IAS/IFRS on earnings management: Empirical evidence from South Africa. International Journal of Accounting and Economics Studies, 87-95.
- SOCPA. (2015). SOCPA Project for Transition to International Accounting Auditing Standards. Retrieved from SOCPA: https://socpa.org.sa/Socpa/About-Socpa/SOCPA-Projects.aspx?lang=en-us
- Soderstrom, N. S., & Sun, K. J. (2007). IFRS Adoption and Accounting Quality: A Review. European Accounting Review, 675–702.
- Tadawul. (2020a). About Tadawul. Retrieved from Tadawul: https://www.tadawul.com.sa/wps/portal/tadawul/about/company/about-tadawul?locale=ar
- Tadawul. (2020b). Market Watch Today. Retrieved from Tadawul: https://www.tadawul.com.sa/wps/portal/tadawul/markets/equities/market-watch/market-watch-today?locale=ar
- Tendeloo, B. V., & Vanstraelen, A. (2005). Earnings Management under German GAAP versus IFRS. European Accounting Review, 155–180.
- Turegun, N. (2016). Effects of borrowing costs, firm size, and characteristics of board of directors on earnings management types: a study at Borsa Istanbul. Asia-Pacific Journal of Accounting & Economics, 1-15.
- Wijayana, S., & Gray, S. J. (2019). Institutional Factors and Earnings Management in the Asia-Pacific: Is IFRS Adoption Making a Difference? Management International Review, 307–334.

- Yasar, A. (2013). Big Four Auditors' Audit Quality and Earnings Management: Evidence from Turkish Stock Market. International Journal of Business and Social Science, 153-163.
- Zeghal, D., Chtourou, S., & Sellami, Y. M. (2011). An analysis of the effect of mandatory adoption of IAS/IFRS on earnings management. Journal of International Accounting, Auditing and Taxation, 61– 72.

Appendices

Panel data "A" of variables collected from 16 firms from 2014 to 2019

Company	t	NET_INC	NET_CFOP	TA	ASSETS	VAR_REV	VAR_RECV
PETRO RABIGH	2014	681429	3963478	-3282049	45593819	512572	-3407010
	2015	-758507	2603947	-3362454	40935791	-1364605	-5736909
	2016	2696175	2696175	0	51341049	846014	3273791
	2017	1422977	3092911	-1669934	58130053	1580047	2418406
	2018	668560	3943474	-3274914	61674977	-298229	1422504
	2019	-544151	1828764	-2372915	64093967	-636309	-711678
MAADEN	2014	1357341201	3233945149	-1876603948	63951228302	267731072	570031987
MAADEN	2015	605173945	2214224825	-1609050880	84541381858	-696069859	791018882
MAADEN	2016	2189006123	2189006123	0	89377625854	-299986086	-841145229
MAADEN	2017	714841886	3017632732	-2302790846	97073302267	1880389979	728127256
MAADEN	2018	1847917080	3979588954	-2131671874	95116996310	1304398129	423002137
MAADEN	2019	-739463938	3105459521	-3844923459	98029266012	-2707250096	668759149
YANSAB	2014	2477739	4036403	-1558664	22900762	-155826	-116189
YANSAB	2015	1207324	3431342	-2224018	22467430	-1314619	-436091
YANSAB	2016	3161187	3161187	0	20968257	1013793	37768
YANSAB	2017	2376365	3235901	-859536	20192763	236542	740368
YANSAB	2018	2413978	3928161	-1514183	19764530	13126	-525987
YANSAB	2019	1089772	2552493	-1462721	19072059	-1393518	-421809
ALMARAI	2014	1674339	3198763	-1524424	23279970	604086	366374
ALMARAI	2015	1915691	4931941	-3016250	23948915	727331	-67350
ALMARAI	2016	4393591	4393591	0	27371035	550349	124683
ALMARAI	2017	2182286	4614147	-2431861	29022740	-249973	300582
ALMARAI	2018	2008869	3557726	-1548857	31895849	-138277	227574
ALMARAI	2019	1811753	4732081	-2920328	32318420	-78688	-61054
MOUWASAT	2014	240118457	285922325	-45803868	1474847935	51644217	-13369166
MOUWASAT	2015	208801895	207329382	1472513	1695539220	-66478408	51224658
MOUWASAT	2016	306353542	306353542	0	1871499625	132798488	71836333
MOUWASAT	2017	336733241	451557291	-114824050	2104179886	136285534	67461312
MOUWASAT	2018	360206736	385836489	-25629753	2479400651	57941118	325182034
MOUWASAT	2019	421029467	641100900	-220071433	3053385966	42883783	65048137

Company	t	NET_INC	NET_CFOP	TA	ASSETS	VAR_REV	VAR_RECV
ETIHAD ETISALAT	2014	-1575805	6171451	-7747256	46515239	-6222460	-4229049
	2015	-1093125	4958067	-6051192	46644027	1096301	-2455306
	2016	4017012	4017012	0	42376375	-578591	-694811
	2017	-708941	3594414	-4303355	41192713	-937145	-327792
	2018	-122666	3492396	-3615062	40468162	112515	-237625
	2019	31183	3509106	-3477923	38564869	1166755	-929294
SAUDI ELECTRICITY	2014	3606594	31081040	-27474446	276787644	1376880	243838
	2015	1543642	30979777	-29436135	317908193	-2286550	3942499
	2016	31717327	31717327	0	358029949	412095	7213825
	2017	6908249	33614227	-26705978	402970775	11075364	-4696454
	2018	1757133	25140946	-23383813	445760460	-6918602	4556617
	2019	1387557	25705157	-24317600	464555844	424220	10445835
JARIR	2014	745364	808745	-63381	2200923	102418	119497
JARIR	2015	828471	909941	-81470	2462142	87542	-119079
JARIR	2016	937631	937631	0	2410992	-92073	-16886
JARIR	2017	867659	928423	-60764	2636940	153031	50306
JARIR	2018	959992	695947	264045	2877130	100012	204687
JARIR	2019	984731	972840	11891	3214914	143927	-54218
SARCO	2014	20926323	13356920	7569403	579876935	4832471	515000
SARCO	2015	7462227	10857622	-3395395	483899615	-9383162	8994942
SARCO	2016	989102	989102	0	309984124	-15839358	-4046939
SARCO	2017	7317568	4325307	2992261	374481568	16172226	3476674
SARCO	2018	14556249	8579075	5977174	386904717	2977349	-2021868
SARCO	2019	17170699	20056377	-2885678	441016247	2918266	-588661
ALBABTAIN	2014	102386623	201176679	-98790056	1979702932	57022854	-126171120
ALBABTAIN	2015	132818533	281512565	-148694032	1806681311	57903927	-21555109
ALBABTAIN	2016	393826161	393826161	0	1698496476	-62646530	-124491357
ALBABTAIN	2017	147165134	98902727	48262407	1585997437	-11047633	84108423
ALBABTAIN	2018	69745673	69690288	55385	1649859960	-98394788	15047162
ALBABTAIN	2019	86009470	-55290730	141300200	1707973997	4282442	174424103
ARDCO	2014	189365817	177102967	12262850	1858782234	-61916400	22918207
ARDCO	2015	294427928	222849641	71578287	2355910619	130487040	-12129009
ARDCO	2016	218419620	218419620	0	2573473918	-29126794	12147832
ARDCO	2017	210161467	295995640	-85834173	2645886570	-53067053	-5960215
ARDCO	2018	203926466	197092258	6834208	2350641569	-32716049	10500196
ARDCO	2019	165801211	190345425	-24544214	2411602280	-24190509	-7349269
QACCO	2014	563609990	612013676	-48403686	2193271254	-19918095	11427209
QACCO	2015	586435360	655779777	-69344417	2182832231	17228830	28691336
QACCO	2016	445589228	445589228	0	2113206525	-181161497	33492676

Company	t	NET_INC	NET_CFOP	TA	ASSETS	VAR_REV	VAR_RECV
QACCO	2017	251790527	273123592	-21333065	2043719437	-184228052	-18268661
QACCO	2018	120798213	129947355	-9149142	1988883670	-126819891	-47355563
QACCO	2019	360735095	450882818	-90147723	1898687555	268273491	-4356253
HERFY FOODS	2014	205803844	225816088	-20012244	790436009	25662034	28242888
	2015	202681713	292120138	-89438425	975957957	18084528	9446381
	2016	300406677	300406677	0	1189229270	23805852	18744599
	2017	200042140	237931957	-37889817	1352190460	2071959	26335154
	2018	204169509	365484699	-161315190	1390676887	3704565	10576678
	2019	196087640	277391756	-81304116	1442399996	52719487	-35769725
DALLAH HEALTH	2014	147114745	149436728	-2321983	1478642768	68652021	34851793
	2015	165057068	214313937	-49256869	1672927233	9569035	37834873
	2016	341570910	341570910	0	2000628373	140847569	4105805
	2017	294976212	353070125	-58093913	2249562846	2516537	24215355
	2018	141758455	204680012	-62921557	2528034344	-111151968	44854826
	2019	146915952	307126808	-160210856	2697691244	25481826	-18145210
CARE	2014	93558375	70504592	23053783	1070540920	24183344	139599836
CARE	2015	130718315	51109687	79608628	1258114284	78583402	175063671
CARE	2016	105392873	105392873	0	1413353294	-30081704	3172239
CARE	2017	85296444	110721280	-25424836	1405525570	4644946	1114001
CARE	2018	62182388	317767726	-255585338	1425135605	-32369104	-205093620
CARE	2019	80089715	161829658	-81739943	1392412609	5283667	-8526765
ANAAM HOLDING	2014	-25722483	38340515	-64062998	340049802	14664690	-8609410
	2015	20952204	55120088	-34167884	245780014	24205539	-4106853
	2016	57462871	57462871	0	249162339	-20186893	-562489
	2017	-27764744	10456161	-38220905	247378780	-28186608	-6242620
	2018	-15003014	8673904	-23676918	188388426	7781588	-2675868
	2019	-97755802	2526150	-100281952	162148491	-5057540	-1197146

Panel data "B" of variables collected from 16 firms from 2014 to 2019

Company	t	IMMO t	TA it /At-1	1 / Ait-1	(ΔCAit-ΔVc it)/A it	IMMO it / Ait-1	RESID(D)
PETRO RABIGH	2014	24526088	-0.071984516	2.19328E-08	0.085967398	0.537925722	-0.0848816
PETRO RABIGH	2015	40535527	-0.08213971	2.44285E-08	0.106808831	0.990222151	-0.1266532
PETRO RABIGH	2016	43389614	0	1.94776E-08	-0.04728725	0.845125194	-0.0849869
PETRO RABIGH	2017	43971487	-0.02872755	1.72028E-08	-0.014422127	0.756432942	-0.0808237
PETRO RABIGH	2018	44628314	-0.053099558	1.6214E-08	-0.027900019	0.723604875	-0.0682256
PETRO RABIGH	2019	46110807	-0.037022439	1.56021E-08	0.001175914	0.719425075	-0.078536
MAADEN	2014	38376128047	-0.029344299	0	-0.004727054	0.6000843	-0.0610578
MAADEN	2015	36682188547	-0.019032701	0	-0.017590069	0.43389625	-0.0465097

Company	t	IMMO t	TA it /At-1	1 / Ait-1	(ΔCAit-ΔVc it)/A it	IMMO it / Ait-1	RESID(D)
MAADEN	2016	48887551021	0	0	0.00605475	0.546977508	-0.0646859
MAADEN	2017	44450932788	-0.023722185	0	0.011870027	0.457910999	-0.0591884
MAADEN	2018	66482353144	-0.022411051	0	0.009266441	0.698953454	-0.0783544
MAADEN	2019	64496438656	-0.0392222	0	-0.034438789	0.657930446	-0.0608917
YANSAB	2014	14589734	-0.068061665	4.36667E-08	-0.001730816	0.637085089	-0.043019
YANSAB	2015	14356900	-0.098988536	4.45089E-08	-0.039102292	0.639009446	-0.035584
YANSAB	2016	13557085	0	4.76911E-08	0.046547741	0.646552787	-0.0724642
YANSAB	2017	12953931	-0.042566537	4.95227E-08	-0.02495082	0.641513546	-0.0386053
YANSAB	2018	12617436	-0.076611131	5.05957E-08	0.027276793	0.63838786	-0.0494255
YANSAB	2019	11848879	-0.076694446	5.24327E-08	-0.05094935	0.621268999	-0.0271397
ALMARAI	2014	16176354	-0.065482215	4.29554E-08	0.01021101	0.694861463	-0.0653784
ALMARAI	2015	18696071	-0.125945163	4.17555E-08	0.033182338	0.780664636	-0.0767664
ALMARAI	2016	21138370	0	3.6535E-08	0.015551695	0.772289758	-0.0712954
ALMARAI	2017	22401692	-0.083791572	3.44557E-08	-0.01896978	0.771866888	-0.0621612
ALMARAI	2018	22606542	-0.04855983	3.1352E-08	-0.011470176	0.708761256	-0.0592454
ALMARAI	2019	22576888	-0.090361101	3.09421E-08	-0.000545633	0.698576477	-0.0627932
MOUWASAT	2014	1091892861	-0.031056672	6.78036E-10	0.044081414	0.740342672	-0.0537791
MOUWASAT	2015	1212212035	0.000868463	5.89783E-10	-0.069419253	0.714941902	-0.0223175
MOUWASAT	2016	1381310201	0	5.34331E-10	0.032573961	0.738076665	-0.0578341
MOUWASAT	2017	1633978036	-0.054569503	4.75245E-10	0.032708336	0.776539139	-0.0583172
MOUWASAT	2018	1910684112	-0.010337076	4.03323E-10	-0.107784483	0.770623381	-0.0193618
MOUWASAT	2019	2075538020	-0.072074554	3.27505E-10	-0.007258943	0.679749643	-0.0412178
ETIHAD ETISALAT	2014	24072527	-0.166553073	2.14983E-08	-0.042855009	0.517519151	-0.0129123
	2015	24466197	-0.129731337	2.1439E-08	0.076142804	0.524530118	-0.0931501
	2016	24406393	0	2.35981E-08	0.002742566	0.575943388	-0.0775058
	2017	23428341	-0.104468841	2.42761E-08	-0.014792738	0.568749648	-0.0667027
	2018	22183775	-0.089331015	2.47108E-08	0.008652234	0.548178467	-0.0742904
	2019	21651369	-0.090183711	2.59303E-08	0.054351254	0.561427267	-0.0826316
SAUDI ELECTRICITY	2014	215373390	-0.099261823	3.61288E-09	0.004093543	0.778117791	-0.0832093
	2015	229993769	-0.092593194	3.14556E-09	-0.019593861	0.72345971	-0.072557
	2016	267527943	0	2.79306E-09	-0.018997657	0.747222247	-0.0767259
	2017	404289536	-0.066272741	2.48157E-09	0.039138863	1.003272597	-0.1127357
	2018	418102025	-0.052458249	2.24336E-09	-0.025743017	0.937952247	-0.0882785
	2019	422968974	-0.052345913	2.15259E-09	-0.021572466	0.910480364	-0.0902623
JARIR	2014	1048419	-0.028797464	4.54355E-07	-0.007759926	0.476354239	-0.0084119
JARIR	2015	1131200	-0.033089074	4.0615E-07	0.083919205	0.459437352	-0.0239137
JARIR	2016	1228255	0	4.14767E-07	-0.031185089	0.509439683	0.0109251
JARIR	2017	1075688	-0.023043376	3.79227E-07	0.038956139	0.407930404	-0.0128679
JARIR	2018	1115297	0.091773747	3.47569E-07	-0.036381742	0.387642199	0.0160097

Company	t	IMMO t	TA it /At-1	1 / Ait-1	(ΔCAit-ΔVc it)/A it	IMMO it / Ait-1	RESID(D)
JARIR	2019	1102036	0.003698699	3.1105E-07	0.061633064	0.342788641	-0.002087
SARCO	2014	5788	0.013053465	1.7245E-09	0.007445495	9.98143E-06	-0.0122086
SARCO	2015	14333	-0.007016734	2.06654E-09	-0.037979166	2.96198E-05	0.0034468
SARCO	2016	10551	0	3.22597E-09	-0.03804201	3.40372E-05	-0.0020906
SARCO	2017	9048	0.007990409	2.67036E-09	0.033901674	2.41614E-05	-0.0295904
SARCO	2018	11101	0.015448698	2.58462E-09	0.012921055	2.86918E-05	-0.0159855
SARCO	2019	59310	-0.006543246	2.26749E-09	0.007951922	0.000134485	-0.0107389
ALBABTAIN	2014	287539741	-0.049901455	5.05126E-10	0.092536093	0.145243883	-0.0372953
ALBABTAIN	2015	344036517	-0.082302303	5.53501E-10	0.04398066	0.190424573	-0.0290789
ALBABTAIN	2016	328284714	0	5.88756E-10	0.036411513	0.193279597	-0.0213431
ALBABTAIN	2017	367454539	0.030430318	6.30518E-10	-0.05999761	0.231686717	0.0051634
ALBABTAIN	2018	409995831	3.35695E-05	6.06112E-10	-0.068758533	0.248503413	0.0027774
ALBABTAIN	2019	388159199	0.082729714	5.85489E-10	-0.099616072	0.227262944	-0.0016123
ARDCO	2014	569091	0.006597249	5.37987E-10	-0.045639885	0.000306163	0.0313625
ARDCO	2015	1179831	0.030382429	4.24464E-10	0.060535424	0.000500796	-0.0100045
ARDCO	2016	976597	0	3.8858E-10	-0.016038486	0.000379486	0.0184476
ARDCO	2017	1276181	-0.03244061	3.77945E-10	-0.017803801	0.000482326	0.0144644
ARDCO	2018	896017	0.00290738	4.25416E-10	-0.018384872	0.00038118	0.0118973
ARDCO	2019	764249	-0.010177555	4.14662E-10	-0.006983423	0.000316905	0.0077323
QACCO	2014	986109386	-0.022069174	4.5594E-10	-0.014291577	0.449606671	0.0226947
QACCO	2015	900970835	-0.031768093	4.5812E-10	-0.005251208	0.41275313	0.0212282
QACCO	2016	840781132	0	4.73215E-10	-0.10157747	0.397869835	0.0515906
QACCO	2017	836972174	-0.010438353	4.89304E-10	-0.081204586	0.409533794	0.0236724
QACCO	2018	778267947	-0.004600139	5.02795E-10	-0.039954236	0.391308933	-0.0059173
QACCO	2019	734392562	-0.047478967	5.2668E-10	0.143588524	0.38678958	-0.0684007
HERFY FOODS	2014	741284792	-0.025317981	1.26512E-09	-0.003265102	0.937817589	-0.029127
HERFY FOODS	2015	937171348	-0.091641678	1.02463E-09	0.008850942	0.96025791	-0.042923
HERFY FOODS	2016	1038254566	0	8.40881E-10	0.00425591	0.873048278	-0.045789
HERFY FOODS	2017	1043330764	-0.028021065	7.39541E-10	-0.017943622	0.771585657	-0.0343341
HERFY FOODS	2018	1059855196	-0.115997606	7.19074E-10	-0.00494156	0.762114626	-0.0415423
HERFY FOODS	2019	1043497337	-0.056367246	6.93289E-10	0.061348594	0.723445189	-0.0550911
DALLAH HEALTH	2014	1013529175	-0.001570348	6.76296E-10	0.022858955	0.685445597	-0.0563911
DALLAH HEALTH	2015	1144907276	-0.029443522	5.97755E-10	-0.016896036	0.684373626	-0.0478322
	2016	1403607239	0	4.99843E-10	0.068349408	0.701583192	-0.0717245
	2017	1771525773	-0.025824534	4.44531E-10	-0.009645793	0.787497792	-0.0549339
	2018	1953199081	-0.024889518	3.95564E-10	-0.06171071	0.772615722	-0.0362611
	2019	2102520973	-0.059388137	3.70687E-10	0.01617199	0.779377914	-0.0741758
CARE	2014	592066477	0.021534705	9.34107E-10	-0.107811378	0.553053569	-0.0147254

Company	t	IMMO t	TA it /At-1	1 / Ait-1	(ΔCAit-ΔVc it)/A it	IMMO it / Ait-1	RESID(D)
CARE	2015	650539287	0.06327615	7.9484E-10	-0.076686411	0.517074876	-0.0226625
CARE	2016	606608990	0	7.07537E-10	-0.023528401	0.429198412	-0.0229352
CARE	2017	651643714	-.018089202	7.11478E-10	0.002512188	0.463629925	-0.0171653
CARE	2018	596263711	-0.179341066	7.01688E-10	0.121198653	0.41839086	-0.0667301
CARE	2019	536536503	-0.058703823	7.18178E-10	0.009918347	0.385328673	-0.040968
ANAAM HOLDING	2014	171609304	-0.188392987	2.94075E-09	0.06844321	0.504659326	-0.1057749
	2015	171457816	-0.139018155	4.06868E-09	0.115194037	0.697606828	-0.1364409
	2016	165793092	0	4.01345E-09	-0.078761518	0.665401893	-0.0324177
	2017	168886642	-0.154503571	4.04238E-09	-0.088706024	0.682704644	0
	2018	149766563	-0.125681383	5.30818E-09	0.055510077	0.794988133	-0.1424872
	2019	143119294	-0.61845751	6.16719E-09	-0.02380777	0.882643391	-0.1150653

Panel data "C" of variables collected from 16 firms from 2014 to 2019

Company	t	NDA	SIZE	AQ	ROA	EM	Debt ratio	IFRS* AQ	IFRS
PETRO RABIGH	2014	3282048.915	17.63528272	1	0.016646289	15.00397845	0.47	0	0
	2015	3362453.873	17.52751532	1	-0.01477389	15.02818158	0.68	0	0
	2016	0.0849869	17.75400117	1	0.000630741	-2.465258152	0.66	0	0
	2017	1669933.919	17.87819335	1	0.023072193	14.32829461	0.611514959	1	1
	2018	3274913.932	17.93738885	1	0.010430935	15.00180215	0.447188641	1	1
	2019	2372914.921	17.9758608	1	-0.046022237	14.67962968	0.48686071	1	1
MAADEN	2014	1876603948	24.88138657	1	0.016055347	21.35272957	0.52	0	0
MAADEN	2015	1609050880	25.16050698	1	0.00677	21.19891033	0.51	0	0
MAADEN	2016	0.0646859	25.21613622	1	0.00413	-2.73821203	0.56	0	0
MAADEN	2017	2302790846	25.29873222	1	0.00752	21.55738764	0.555705916	1	1
MAADEN	2018	2131671874	25.27837351	1	0.01885	21.48017243	0.546230539	1	1
MAADEN	2019	3844923459	25.3085319	1	0.00584	22.07001953	0.519213243	1	1
YANSAB	2014	1558663.957	16.94668074	1	0.11028	14.25933957	0.19	0	0
YANSAB	2015	2224017.964	16.92757726	1	0.057578653	14.61482601	0.14	0	0
YANSAB	2016	0.0724642	16.85852028	1	0.113981578	-2.624662632	0.07	0	0
YANSAB	2017	859535.9614	16.82083483	1	0.120233823	13.66414794	0.035616987	1	1
YANSAB	2018	1514182.951	16.79939948	1	0.126571442	14.23038654	0.02477441	1	1
YANSAB	2019	1462720.973	16.76373494	1	0.006429794	14.19580894	0.04287878	1	1
ALMARAI	2014	1524423.935	16.96310389	1	0.069912938	14.23712715	0.35	0	0
ALMARAI	2015	3016249.923	16.99143358	1	0.069989717	14.91952487	0.36	0	0
ALMARAI	2016	0.0712954	17.1249959	1	0.071684651	-2.64092347	0.37	0	0
ALMARAI	2017	2431860.938	17.18359022	1	0.068419123	14.70416734	0.352506685	1	1
ALMARAI	2018	1548856.941	17.27798643	1	0.062158639	14.25302776	0.383569587	1	1
ALMARAI	2019	2920327.937	17.2911479	1	0.011052659	14.88720648	0.366967949	1	1

Company	t	NDA	SIZE	AQ	ROA	EM	Debt ratio	IFRS* AQ	IFRS
MOUWASAT	2014	45803867.95	21.11182073	1	0.141617755	17.6398791	0.19	0	0
MOUWASAT	2015	1472513.022	21.25126665	1	0.111569296	14.20248104	0.2	0	0
MOUWASAT	2016	0.0578341	21.35000588	1	0.121607107	-2.850176712	0.18	0	0
MOUWASAT	2017	114824049.9	21.46719163	1	0.135812355	18.55891151	0.213177737	1	1
MOUWASAT	2018	25629752.98	21.63128269	1	0.117969605	17.05926446	0.223187626	1	1
MOUWASAT	2019	220071433	21.83951696	1	-0.00379456	19.20946275	0.208022592	1	1
ETIHAD ETISALAT	2014	7747255.987	17.65529054	1	-0.03378364	15.86284927	0	0	0
	2015	6051191.907	17.65805544	1	-0.025795623	15.61576582	0.2	0	0
	2016	0.0775058	17.56210157	1	-0.004927571	-2.557402507	0.19	0	0
	2017	4303354.933	17.53377193	1	-0.017518488	15.27490549	0.353306681	1	1
	2018	3615061.926	17.5160261	1	-0.003180771	15.10061954	0.340707549	1	1
	2019	3477922.917	17.46785229	1	-0.107712275	15.06194581	0.359060783	1	1
SAUDI ELECTRICITY	2014	27474445.92	19.43876114	1	0.011344766	17.12876689	0.67	0	0
	2015	29436134.93	19.5772732	1	0.004311488	17.19773356	0.66	0	0
	2016	0.0767259	19.6961272	1	0.005222672	-2.567515948	0.61	0	0
	2017	26705977.89	19.8143746	1	0.015497671	17.10039799	0.497426196	1	1
	2018	23383812.91	19.91529228	1	0.003782393	16.96755459	0.49531553	1	1
	2019	24317599.91	19.95659233	1	0.000508176	17.00671092	0.502741813	1	1
JARIR	2014	63380.99159	14.60438738	1	0.302729899	11.05691928	0.06	0	0
JARIR	2015	81469.97609	14.71654226	1	0.343622459	11.30798984	0.05	0	0
JARIR	2016	0.0109251	14.69554884	1	0.279835339	-4.516692385	0.05	0	0
JARIR	2017	60763.98713	14.78512971	1	0.30157101	11.01475258	0.051591343	1	1
JARIR	2018	264044.984	14.87230383	1	0.29860581	12.48387476	0.047121323	1	1
JARIR	2019	11891.00209	14.98331117	1	0.02986285	9.383537266	0.20123018	1	1
SARCO	2014	7569403.012	20.17832646	0	0.043245174	15.83962476	0	0	0
SARCO	2015	3395395.003	19.99738804	0	0.024072933	15.03793066	0	0	0
SARCO	2016	0.0020906	19.55203164	0	0.010796203	-6.170304173	0	0	0
SARCO	2017	2992261.03	19.74105314	0	0.018913101	14.91153986	0.000811076	0	1
SARCO	2018	5977174.016	19.77368901	0	0.033006151	15.60345844	0.000855479	0	1
SARCO	2019	2885677.989	19.90459227	0	0.001107475	14.87527044	0.001164561	0	1
ALBABTAIN	2014	98790055.96	21.40621264	0	0.056671103	18.40850751	0.21	0	0
ALBABTAIN	2015	148694032	21.31475747	0	0.078197709	18.81740128	0.17	0	0
ALBABTAIN	2016	0.0213431	21.25300927	0	0.100024761	-3.847026777	0.09	0	0
ALBABTAIN	2017	48262406.99	21.18447934	0	0.089198561	17.69216349	0.149883411	0	1
ALBABTAIN	2018	55384.99722	21.22395625	0	0.040835325	10.92206403	0.117591677	0	1
ALBABTAIN	2019	141300200	21.25857371	0	0.064185271	18.76639726	0.090139535	0	1
ARDCO	2014	12262849.97	21.3431874	0	0.080379033	16.32208492	0.19	0	0
ARDCO	2015	71578287.01	21.58019316	0	0.114408748	18.08630233	0.18	0	0
ARDCO	2016	0.0184476	21.66852254	0	0.098935578	-3.992820998	0.12	0	0

Company	t	NDA	SIZE	AQ	ROA	EM	Debt ratio	IFRS* AQ	IFRS
ARDCO	2017	85834173.01	21.69627203	0	0.089406003	18.26792777	0.003992472	0	1
ARDCO	2018	6834207.988	21.57795414	0	0.084560571	15.73745115	0.004227247	0	1
ARDCO	2019	24544214.01	21.60355721	0	0.009755551	17.0159867	0.027905491	0	1
QACCO	2014	48403686.02	21.50865999	0	0.258201241	17.69508653	0.01	0	0
QACCO	2015	69344417.02	21.50388906	0	0.277509724	18.0545962	0.02	0	0
QACCO	2016	0.0515906	21.47147231	0	0.200537598	-2.964415794	0.02	0	0
QACCO	2017	21333065.02	21.43803724	0	0.126598921	16.87576878	0.019774174	0	1
QACCO	2018	9149141.994	21.41083935	0	0.063621954	16.02917066	0.021879538	0	1
QACCO	2019	90147722.93	21.36442872	0	0.005556168	18.31696025	0.022639837	0	1
HERFY FOODS	2014	20012243.97	20.48809526	0	0.210873678	16.81185484	0.17	0	0
	2015	89438424.96	20.69893007	0	0.170431151	18.30906096	0.21	0	0
	2016	0.045789	20.89657126	0	0.160847252	-3.083711391	0.22	0	0
	2017	37889816.97	21.02499168	0	0.143845161	17.45019295	0.183350515	0	1
	2018	161315190	21.05305643	0	0.141548468	18.89887071	0.146198267	0	1
	2019	81304115.94	21.08957423	0	0.013889061	18.2137072	0.30851815	0	1
DALLAH HEALTH	2014	2321982.944	21.11439046	1	0.08793852	14.6579321	0.07	0	0
	2015	49256868.95	21.23784076	1	0.082502613	17.71255939	0.17	0	0
	2016	0.0717245	21.41672715	0	0.100389461	-2.634922888	0.19	0	0
	2017	58093912.95	21.53400174	0	0.116682043	17.87757145	0.223444476	0	1
	2018	62921556.96	21.6507079	0	0.052548065	17.95739938	0.2521024	0	1
	2019	160210855.9	21.71566215	0	0.011951654	18.89200136	0.333759646	0	1
CARE	2014	23053783.01	20.79142989	1	0.074363972	16.95334044	0.14	0	0
CARE	2015	79608628.02	20.95287984	1	0.092488068	18.19263304	0.2	0	0
CARE	2016	0.0229352	21.06923094	0	0.145542519	-3.775082431	0.19	0	0
CARE	2017	25424835.98	21.06367714	0	0.059851458	17.05123705	0.176931167	0	1
CARE	2018	255585337.9	21.07753281	0	0.044658018	19.35906692	0.163747659	0	1
CARE	2019	81739942.96	21.05430377	0	0.102931166	18.21905334	0.132884187	0	1
ANAAM HOLDING	2014	64062997.89	19.64460264	0	0.104656528	17.9753775	0.08	0	0
	2015	34167883.86	19.31994744	0	0.084090574	17.34679669	0.04	0	0
	2016	0.0324177	19.33361521	0	0.015022315	-3.429050709	0.026319206	0	0
	2017	38220905	19.32643124	0	0.147380307	17.45889318	0.02961993	0	1
	2018	23676917.86	19.05401649	0	-0.092526387	16.9800112	0.017908683	0	1
	2019	100281951.9	18.90402308	0	-0.056989117	18.4234963	0.020281116	0	1