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The Methods of Measuring the Quality of Accounting Information: A Comparative Study

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Abstract

This study aims to examine some of the different methods used in measuring the quality of accounting information, where these methods use different approaches and classified according to these approaches. Each approach consists of different methods, and each method gives different result to the quality of accounting information in order to find the most suitable method to measure the accounting information in the Iraqi environment. By using a time series from 2005 to 2016 for 7 industrial companies listed in the Iraqi stock market. The study found that both of Francis et al. (2004) model and Kormendi and Lipe (1997) model are suitable for the Iraqi environment.

1. Research Problem

This research aims to study the methods of measuring the quality of accounting information because of the role of accounting information in making rational decision, since good decisions need high quality information.

In measuring the quality of accounting information there are many measurers but no one study identify the best method to measure accounting information. This wide range of measures and the different result they give make researchers confused in selecting the appropriate method. In addition, most previous studies related to the quality of accounting information done in the Iraqi environment use a questionnaire. This study tries to identify the suitable method (methods) to the Iraqi environment, thus why it is important in addition to the importance of the quality of accounting information.

2. The aims of the study

This study aims to:

1. Identify the most common methods used in measuring the quality of accounting information.
2. Classify the methods into approaches (groups of the same categories) according to their characteristics.
3. Identify the suitable method (methods) to the Iraqi environment.

3. Introduction

The quality of accounting information means the efficiency and quality of this information. The quality of accounting information is a vague concept as Penman and Zhan (1999) says, because it has been used in different explanations by the researchers, such as the value relevance of financial information, value relevance of accounting data, Earnings quality, Accounting quality, Quality of financial reporting, quality of accounting information, quality of accounting standers… etc.

The quality of accounting information may influence the usefulness of accounting earnings as the studies of Atiase & Tse (1986) and Holthausen & Verrecchia (1988) found. Moreover, there are many factors affecting the quality of accounting information, such as the accounting standards, the institutional factors, the manger chooses and the quality of auditing.

The high quality information has many benefits to the users of accounting information; it is important to measure the risks, it is impo rtant to the accounting practitioners and the accounting authorities, it helps in the efficient assignment of the capital as it reduces the cost of capital and many other benefits.

The accounting information is the output of the accounting system, Ugbede et. al (2013: 2) stated, "a healthier economy cannot exist without a well-functioning financial system". (Mehran & Mollineaux, 2012)

The quality of accounting information is measured in many different methods some of them use the sequential properties in time series to measure the continuous of profits, the predictability of profits and the profit changes. Other methods use the cash flow and the accounting accrual and others use the asymmetric recognition of loss and profits. Some methods use the unusual items of earnings and expenditures or what is called "the extra ordinary items".

4. Previous Studies

Many studies measure the quality of accounting information in its different names and features, these studies can be classified into many groups as follow:

1. Studies measure the quality of accounting information by time series such as Thai et al, 2006, Kormendi and Lipe 1987, Penman and Zhang 2002, Francis et. al. 2003 and many other studies.
2. Studies measure the quality of accounting information by cash flow and accounting accruals such as Leuz et al (2003), Bowen et al (2003), Jones (1991), Dechow et al. (1995) and many others.
3. Studies measures the quality of accounting information by the assematric recognition of loss and profit such as Ball et al.(2003), Abu el khear (2007) and many other studies.

5. The Methodology

The study use SPSS application to measure the quality of accounting information in its different measures depending on the available financial statements for 7 industrial companies listed in Iraqi exchange stock market for a series from 2005 to 2016.

6. The meaning and origin of the term Quality:

Aristotle formulated the first clear idea of the term quality, he consider it as a species difference of essence. Then many scientists and philosophers investigated it as a philosophical category like Hegel, Kant, Karl Marx, Engels and others.

In its general terms, quality means the validity of the object for the purpose that it was prepared for or the conformity of the good or service with the required specifications. (Al orfali 2012: 55)

7. The meaning and origin of the term quality of accounting information:

In business entities, accounting is the pure and clear part of the comprehensive information system that coverts the raw data recorded in the documents into a management product. Such a product is processed information, which has all the properties of the product. From this point of view, Pushkar (2007) says, "accounting is the means of production of goods of a special kind - information that has value, cost, price and other categories of commodity production, including quality".

Financial statements are the most important output of an accounting system. The purpose of financial reporting is to provide information that can be useful for business decisions (Schipper & Vincent, 2003). To Sloan (2001) the financial information is the first source of independent and valid, communication about the performance of company managers.

In accounting, the term quality of accounting information used to reflect efficiency and usefulness of accounting information.

At the beginning, the term quality of accounting information was discussed by economists of the driving economic countries as part of the creation of international financial reporting standards (IFRS) (Renkas et al., 2016: 2). Then the term introduced to the accounting literature. Thus, at the beginning the term quality of accounting information used as an economic category. As time pass, the attention changed from material production to the domain of information and information systems.

Nowadays much attention given to Earnings Quality and the quality of financial reporting in general and they are the center of debate for investors, regulators as well as researchers. This attention to the subject partially due to the wave of scandals in the early 2000s due to the practices of adapting the accounting numbers. These scandals as Giroux (2004) says put a big question mark on the financial reporting quality of the publicly listed companies in stock market (Mohammady, 2010:1).

In the resent years, both foreign and domestic scientists examined the term "quality of financial information". Furthermore, the case of assessing the quality of accounting information has a considerable attention in the International Financial Reporting Standards and the Accounting National Policy (Standards) of many countries all over the world and high quality of accounting information have an important role for a large number of users, as it influences the quality of the decisions made.

Al-Haj (2013: 35) points out that the features of the shift of interest from principles to the focus on the usefulness of accounting information provided to users emerged in 1966 by the American Accounting Association (AAA), where it recognized four qualities for assessing the quality or usefulness of accounting information; Verifiable, freedom from bias and quantifiable.

8. Users of accounting information needs and the quality:

Many accounting numbers has an importance in their own, one of them is earnings[*]. Dechow (1994: 4) stated, "Earnings are important since they are used as the summary measure of firm

[*] Mohammady (2010) stated, Earnings is the most important accounting item prepared and presented in financial reports and it is considered as a key factor in setting the dividends policy, a guideline for investment and decision making, a core measure of a firm's performance, an effective guide in the stock pricing and finally an instrument utilized in making predictions.

performance by wide range of users". Graham et. al (2005) stated, Earnings is the single most important output of the accounting system widely used by internal and external financial statement users in decision-making. Chan et al. (2006: 1041) stated, "Security analysts, firm managers and investors all devote a great deal of attention to firms' reported earnings".

Furthermore (Mohammady, 2012) stated, earnings is treated as a key factor in determining the dividend policy, a guideline for investment and decision making, a core measure of a firm's performance, an influential criterion in the stock pricing and finally an instrument utilized to make predictions. It is also important for credit agencies, suppliers. That's why earnings are very important to the different users of accounting information, although they differ in their reasons, maybe because they are the summary measure of firm's performance. But the mere exclusive focus on the bottom-line information (earnings) make the accounting information miss an important information contained in accruals* about earnings quality thus why researchers pay attention to accruals. Earnings increases accompanied by high accruals, suggest low-quality earnings are associated with poor future returns. Chan et al. (2006).

Focusing on decision usefulness, the quality of financial reporting have an interest to those who use financial reports for contracting purposes and for investment decision-making (Ugbede et. al (2013: 2) and we can describe that as follows:

- For managers earnings are important because the dividend policy and their compensations often tied to their firms' earnings.
- For both current and future investors earnings are important because they usually take their investing decisions depending on forecasts of earnings, also the market price of the share or return will be effected by accounting information.
- For government agencies and regulators earnings are important because many strategic decisions made depending on it such as taxes.
- For employees and employees unions' earnings are important because they depend on it in determining wages and salaries.
- For creditors earnings are important in making decisions about lending money.
- For all these parties and many others earnings are important, but as a mere number, it has no meaning. The most important is the quality of those earnings.

9. The definition of Earnings Quality:

The different users with different purposes combined with the absent of a formal definition to earnings quality leads to the embraces of several definitions of earnings quality in the accounting literature. That make the term "earnings quality" in itself with no established meaning and as researchers notice it is a rather nebulous concept.

Some users see the "earnings quality" in the earnings persistence; time-series properties of earnings and that means the firm has to maintain its earnings in the long term and maintained earnings require that: they are sustainable and current earnings provide a good indication of future earnings.

Other users see the "earnings quality" in the accurate representation of underlying economic transactions and events. Others seek for the relation between accruals and cash flows.

Pratt (2003) see earnings quality as the extent to which reported earnings on the income statement differ from true earnings.

Chan et al. (2004) view earnings quality as the degree to which reported earnings reflect operating fundamentals. For Kirschenheiter and Melumad (2004) earnings have high quality when they are more informative and closer to the long run value of the firm.

* Chan et al. (2006) says that such single-minded attention fails to recognize that reported net income is the final result of an extended accounting process with considerable room for managerial discretion at every step.

10. Methods of measuring the quality of accounting information

The first attempts to estimate the usefulness of accounting earnings to investors documented in the literature in 1968 when Ball & Brown (1968) and Beaver (1968), they indicated that the association between returns and earnings can be regarded as a benchmark of the earnings information usefulness[*].

From Bernstein (1993)[i] point of view earnings quality "arose out of a need to provide a basis of comparison among the earnings of different entities as well as from the need to recognize such differences in "quality" for valuation purposes" (Bernstein 1993: 737-738).

Many approaches used in measuring and assessing financial reporting quality and new approaches are still being developed (Herath & Albarqi, 2017: 11). The literature document that there are multiple measures used to measure the earnings quality with no one generally accepted approach to measure it. In addition, the researchers differ in classifying these methods. In the rest of this section, we will review some classifications[†].

Beginning with Bernstein (1993) who classifies earnings quality measures into three broad classes according to the factors that comprise the quality. The first category relates to the accounting and computational discretion of management and certified accountants in choosing between the different accounting principles. His second category related to the extent to which adequate provision made for the maintenance and enhancement of present and future earning power. Finally, cyclical and economic forces have also an impact on earnings, on their stability and of course on their variability.

At 2003 Schipper and Vincent (2003) classified the measures in four categories: The first concerns with the concepts of persistence, variability and predictability, the second is derived from the relations between cash, accruals and income, the third relates to qualitative concepts in the FASB's "conceptual framework". While the fourth category is derived from implementation decisions.

At 2005 Williams (2005) classified the measures of accounting quality as like Bernstein (1993) did in three categories, but he used a different methodology in classifying, he classified them into: the persistence of earnings, the sustainability of earnings and earnings management.

Perotti and Wagenhofer (2014) selected eight measures for earnings quality that widely used in the empirical literature. They classified these measures into accounting-based and market-based measures.[‡]

Scaltrito (2015) divided the methods of measuring the quality of accounting information or "what he called the Level of Disclosure" into two categories: Subjective tools and Objective tools; Subjective tools includes survey, questionnaire, external rating and analyst opinion; all the "tools" that are used directly without relying on the analysis of the original source of the information

[*] By useful information (Tsoncheva 2014: 52) means the kind of information that, because of its consumer features, is necessary and needed by its users; is provided on time and is used for performing a particular activity and for the implementation of direct or indirect link/feedback between the creators and the users of accounting information.

[†] Listing all the classifications is not one of the objectives of this study.

[‡] Accounting-based measures use accounting earnings and components only, while market-based measures use both accounting earnings and market returns. Within the first group, Perotti and Wagenhofer 2014 treat measures that relies on the time series of earnings, on their volatility or smoothness, and on the unexpected part of accounting accruals. The second set of measures reflects smoothness of earnings. They use operating cash flows as the reference proxy for performance, which assumes that cash flows are not subject to earnings management. The third set focuses on accruals. One common approach is to divide accruals into "normal" and "abnormal" accruals, according to a forecast model for total accruals (as done by Jones, 1991). A second common accruals measure is accruals quality (Dechow and Dichev, 2002). This measure assigns working capital accruals into lagged, contemporaneous and future cash flows from operations. The empirical literature suggests accruals quality is a better measure than other accounting-based measures, and therefore it is used in many studies. While the widespread measure of the market-based measures is value relevance. This is measured by the earnings response coefficient, which is the slope coefficient in a regression of the market returns on earnings, sometimes enhanced by changes in earnings, or by the R^2 of such a regression.

studies. Objective tools includes content analysis, disclosure index, event frequencies; these categories of tools based on the direct study of the original information source*.

Yurt and Ergun (2015: 62) classified the accounting quality measures into: Based on Accruals, Specific Accruals and Frequency Distribution and they listed the most common models.

Herath & Albarqi (2017) classified the measurements into direct measures and indirect measures. They stated, "In the literature and prior studies, the reason behind the large reliance upon using indirect measures (e.g. proxies for the financial reporting quality or stock prices) is that some of the financial reporting qualities are unobservable". they use six methods, they are Standardized Score, Accrual-based models (or Accruals Quality), Beneish model's (M-Score), Indices (or scores) method of Internal Control, Persistence of Accruals and the degree of Accounting Conservatism.

11. The models of measuring the quality of accounting information:

In this section, the most common methods used in measuring the quality of accounting information will be discussed because listing all the measurers is not one of the aims of this study.

1. Time series measures

The time-series measures include two approaches they are: earnings persistence and predictability. Marinovic (2013) stated, "persistence is a useful measure, whereas predictability and smoothness do not reflect earnings quality" (Marinovic (2013):145–67.

a. The earnings persistence:

A measure of the continuity and durability of the current earnings, there are many models to measure the persistence the common of them are:

I. Kormendi and Lipe model:

Earnings persistence measured by net income before extraordinary items (*NIBE*) this measure first introduced by Kormendi and Lipe (1987) and followed by many other researchers.

Persistence is equal to the slope coefficient β of the following regression:

$$NIBE_{i,t} = \alpha + \beta\ NIBE_{i,t-1} + \varepsilon_{i,t}$$

Where *NIBE* is scaled by total assets at the beginning of period *t*.

If the values of estimated β is close to one (or greater than one) that, indicates high persistence of earnings while values close to zero reflects highly transitory earnings.

II. Lev model

Earnings persistence measured by regressing the current ROA_t on the previous $ROA_{t-1,}$ the model is:

$$ROA_{i,t} = \alpha_0 + \alpha_1\ ROA_{i,t-1} + \varepsilon_{i,t}$$

Where: *ROA* represents the return on assets in period *t*. Regression coefficient α_1 indicates the level of earnings persistence, with a larger α_1 indicating a higher earnings persistence. (Zhai & Wang 2016:256)

b. Predictability

Predictability describes the ability of a company's current earnings to predict its future earnings, it is measured by the R^2 of this regression:

$$NIBE_{i,t} = \alpha + \beta\ NIBE_{i,t-1} + \varepsilon_{i,t}$$

2. Smoothness Measures

There are many Smoothness measures include two approaches they are

a. Francis et al. (2004) model

According to Francis et al. (2004) model smoothness is measured by the ratio of the standard deviation of earnings over the standard deviation of cash flow from operations, of the following equation:

* From our point of view, there is no big difference between the classification of Scaltrito (2015) and Perotti and Wagenhofer (2014).

$$\frac{\delta\ (NIBE\mathrm{i,t})}{\delta\ (CFO\mathrm{i,t})}$$

Where *NIBE* and *CFO* are scaled by total assets at the beginning of period *t*. Greater value of the equation indicate lower smoothness.

b. The second smoothness measure is based on the correlation of accruals and cash flow from operations.

The growing interest of cash flow measure can be expressed by 'A growing number of portfolio managers and analysts insist that cash flows is a more meaningful measure of a company's value than reported earnings' (Institutional Investor, August 1988: 55).

$\rho\ (ACC_{\mathrm{i.t}}, CFO_{\mathrm{i.t}})$

Where cash flow from operations (*CFO*) is calculated as:

CFO = NIBE – ACC.

ACC and *CFO* are scaled by total assets at the beginning of period *t*. Greater value of the equation indicates lower smoothness.

3. Accruals Measures

The popular press often expresses the view of accrual accounting as: 'Many financial analysts regard operating cash flow as a better gauge of corporate financial performance than net income, since it is less subject to distortion from differing accounting practices' (Chemical Week, May 8, 1991, p. 28).

The empirical literature offers accruals as a better measure of the quality of accounting information than other accounting-based measures and therefore it is used in many studies in measuring earnings quality[*].

There is a wide set of measures focusing on accruals; there is a measure for total accruals, normal accruals and abnormal accruals. These measures will be discussed in the rest of this section.

Abnormal accruals equals actual accruals minus expected accruals. Higher (absolute) abnormal accruals are commonly interpreted as meaning lower earnings quality.

a. Total accruals

Total accruals calculated in two ways: balance sheet-based approach and cash flow statement-based approach.

1. Balance sheet-based measures

In the studies that uses the balance sheet-based measures total accruals are measured according to the model developed[†] by Dechow and Dichev (2002)[‡] and calculated as[§]:

$ACC = \Delta CA - \Delta CL - \Delta CASH + \Delta STDEBT - DEPR$

Where the variables are:

ΔCA = change in current assets,

ΔCL = change in current liabilities,

$\Delta CASH$ = change in cash,

$\Delta STDEBT$ = change in short-term debt,

DEPR = depreciation in the fiscal year ending at *t*.

[*] Yurt and Ergun (2015: 37) stated, "Most of the models that constitute the accounting quality and earnings management theory which is the most important indicator of this quality focus on accruals because in essence accrual (as a system) can be more easily managed as compared to profit and cash flows.

[†] The first studies that measure total accruals are Healy (1985) and Jones (1991).

[‡] Some empirical literature suggests that accruals quality measures, essentially the Dechow and Dichev (2002) measure, are superior measures (Perotti and Wagenhofer 2014: 552).

[§] Since its existence in 2002, the Dechow and Dichev model has been firmly determined as one of the primary earnings earnings quality measures, used to study a wide range of topics in accounting and finance.

2. Cash flow statement-based measures:

In the studies that use the cash flow statement-based measures. Total accruals calculated following Dechow et al. (1995) measure and calculated as:

TA = NI − CFO

Where;

NI = Net Income

CFO = Cash from operating activities

b. Abnormal accruals and accruals quality.

In the recent years, abnormal accruals have been the focus of many empirical researches in accounting. Almost more than one hundred papers used ‘‘abnormal’’ accruals generated from an accruals model as a measure of earnings quality (Islam, 2015). Researchers use abnormal accruals as a proxy for earnings quality to test predictions in almost all of the determinants and consequences categories[*]. The term ‘‘discretionary accruals’’ is interchangeably used with abnormal accruals. These measures are primarily suitable to accounting researchers as they attempt to identify directly the problems with the accounting measurement system.

a) Abnormal accruals estimated based on balance sheet statement using the following regression:

$$ACC_{i,t} = \alpha + \beta_1(\Delta REV_{i,t} - \Delta AR_{i,t}) + \beta_2 PPE_{i.t} + \varepsilon_{i,t}$$

Where ΔREV is the change in revenues, ΔAR the change in accounts receivable and *PPE* is gross property, plant and equipment. All variables scaled by total assets at the beginning of period *t*.

b) The abnormal accruals measure estimated based on cash flow statement:

According to this approach abnormal accruals is estimated as the absolute residuals, $|\varepsilon_{i,t}|$, multiplied by negative one.

Accruals quality is based on the residuals of the following regression of current accruals on cash flow from operations:

$$CACC_{i,t} = \alpha + \beta_1 CFO_{i,t-1} + \beta_2 CFO_{i,t} + \beta_3 CFO_{i,t+1} + \varepsilon_{i,t}$$

All variables scaled by total assets at the beginning of period *t*.

Current accruals (*CACC*) is computed as:

$CACC = \Delta CA - \Delta CL - \Delta CASH + \Delta STDEBT$.

4. value relevance measures[†]

According to the value relevance measure the quality of accounting information is estimated using the following regression:

$$RET_{i,t} = \alpha + \beta NIBE_{i,t}/P_{i,t} + \varepsilon_{i,t}$$

Where:

RET denotes the 12-month return ending 3 months after the end of the fiscal year.

P is the market value of equity at the beginning of period *t*.

12. Research method

As the literature didn’t determine which method of measuring the quality of accounting information listed above is the most relevant to be used, two models were used in this study to measure the quality of accounting information in the Iraqi environment to determine its usefulness. They are Francis et al. (2004) model and Kormendi and Lipe (1997). Data were obtained from the Iraqi stock exchange. Ten industrial companies were chosen to be examined; the available data reduced the sample to 7 companies through the years 2005 to 2016[‡].

[*] Healy (1985) was the first whom use discretionary accruals in an attempt to detect earnings management.

[†] The most common of the market-based measures is value relevance.

[‡] The available database of the Iraqi stock market (http://www.isx-iq.net) starts from 2004.

13. Sample and descriptive statistics:

Descriptive Statistics of Main Variables are shown in table 1. Each unique measurement calculated for all firm-year observation and then sorted by companies.

Table 1: Descriptive Statistics of Main Variables

	Mean	Median	Std. dev.
Δ Total Current Assets	0.024414	0.026145	0.201942
Δ CASH	0.003311	0.000550	0.192037
ΔCA	0.021103	0.032753	0.165006
Δ Total Current Liabilities	0.003083	0.007709	0.093047
ΔSTDEBT	-0.000357	0	0.023117
ΔCL	0.003440	0.009071	0.090719
DEP	0.021178	0.015827	0.016074
$NIBE_{i,t-1}$	0.011918	0.020397	0.138427
$NIBE_{i,t}$	0.004349	0.013522	0.119475
$CFO_{i.t}$	0.007864	0.009033	0.176676
$ACC_{i,t}$	-0.003515	0.001439	0.165869

Notes: The above table reports the mean, the median and the standard deviation for the main variables used. The sample period consists of the years 2005-2016 for 7 companies that means 84 firm–year observations were comprised for which all the earnings quality measures under consideration computed.

- NIBE = Net income before extraordinary items.
- CFO= Cash flow from operations.
- ACC = Total accruals.
- Δ Total Current Assets: Change in total current assets.
- Δ CASH: change in cash (# 18).
- ΔCA: The change in the difference between total current assets and cash.
- Δ Total Current Liabilities: The change in current liabilities.
- ΔSTDEBT: change in short-term debits (#242).
- ΔCL: The change in the difference between total current liabilities and cash short-term debits.
- DEP: depreciation (#37).

All the above variables scaled by total assets at the beginning of the period.

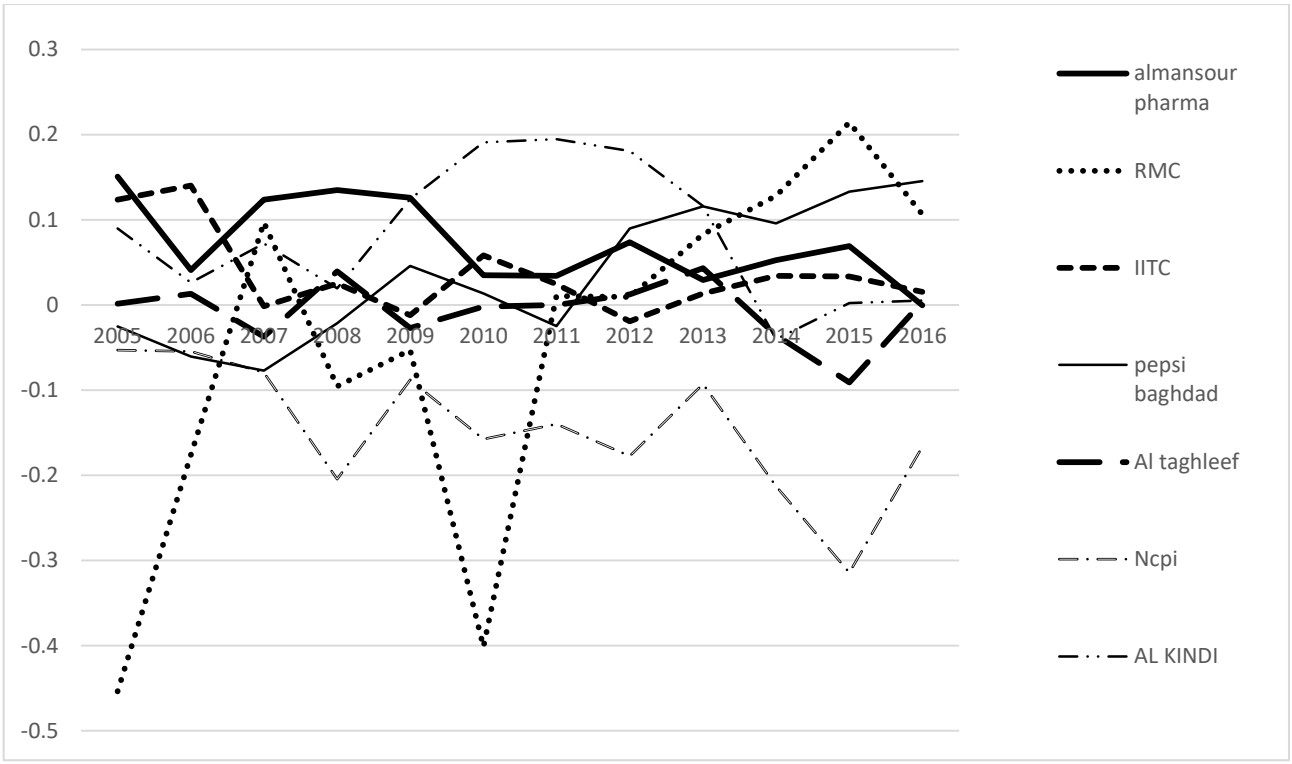

Figure 1: Shows the $NIBE_{i,t}$ trend for the chosen companies

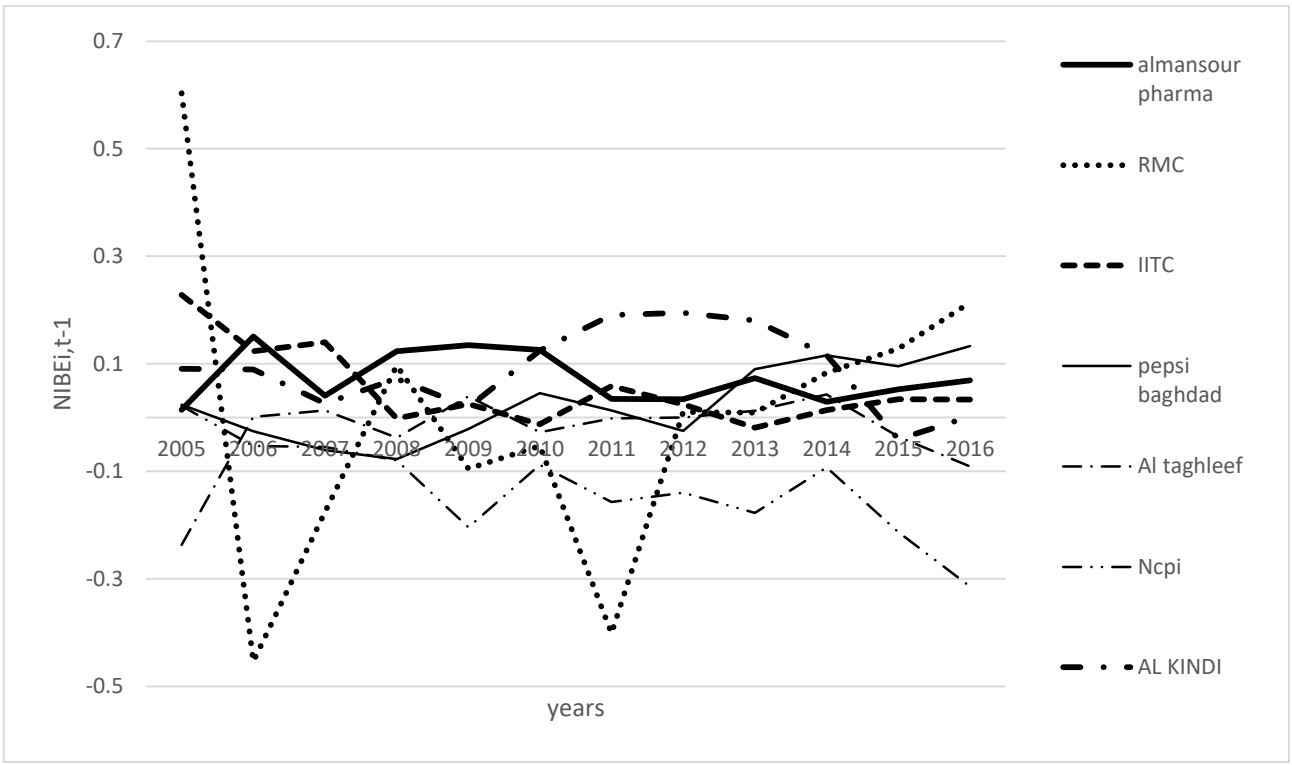

Figure 2: Shows the $NIBE_{i,t-1}$ trend for the chosen companies

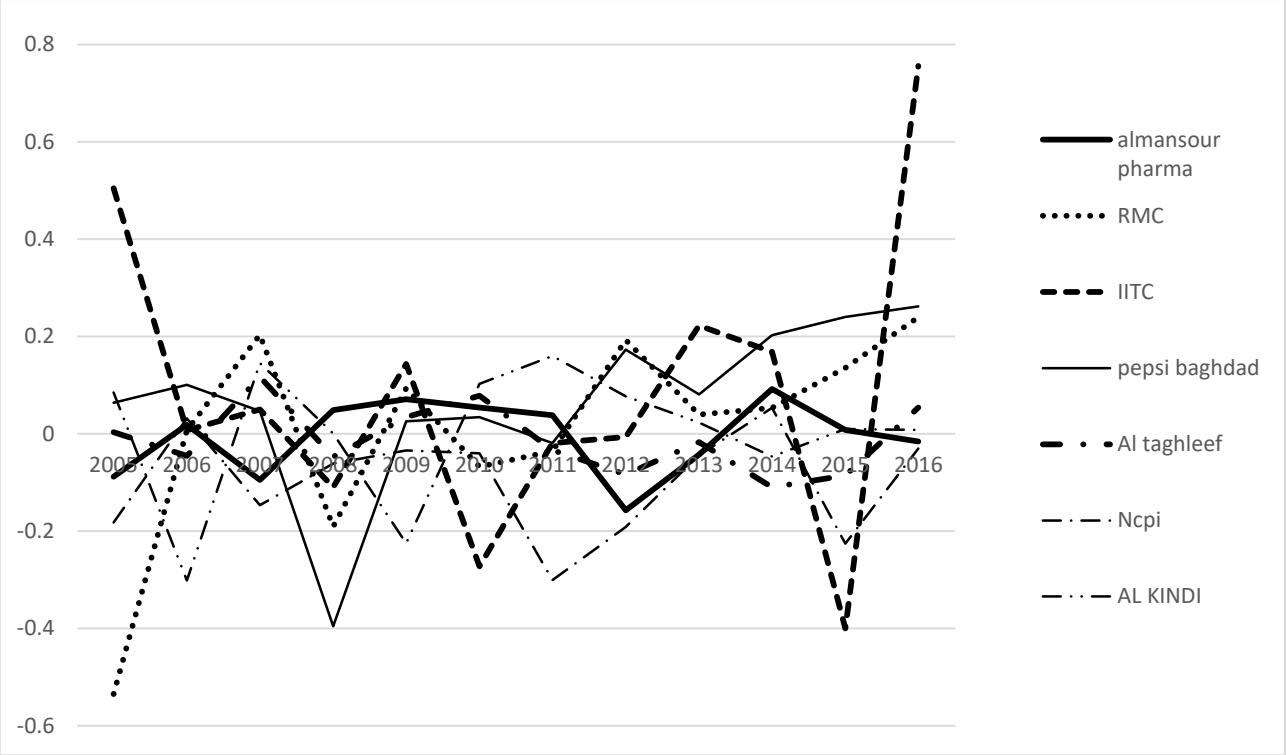

Figure 3: Shows the CFOi,t trend for the chosen companies

14. Summery and results

Table 2 shows the outputs of running SPSS. First, the quality of accounting information for each company was calculated through the years 2005-2016. Then the companies ranked according to the mean of their results.

Table 2: Shows the calculated quality of accounting information and the rank for each of the chosen companies

The companies	Francis et al. (2004) model		Kormendi and Lipe (1997)vmodel	
	$\delta (NIBE_{i,t}) / \delta (CFO_{i,t})$	rank	$NIBE_{i,t}= \alpha + \beta NIBE_{i,t-1} + \varepsilon_{i,t}$	rank
almansour pharma	0.773	7	.004	7
RMC	1.488	2	.047	5
IITC	1.558	1	.344	3
Pepsi Baghdad	1.207	3	.594	1
Al Taghleef	0.904	5	.013	6
Ncpi	0.894	6	.167	4
AL KINDI	1.064	4	.364	2

Notes: This table shows the results obtained from running the SPSS program to the chosen models for our sample; Francis et al. (2004) model and Kormendi and Lipe (1997) model. The sample period consists of the years 2005-2016 for 7 companies that means 96 firm–year observations was comprised. For each measure, the average value to each company used to compare between companies. All the variables scaled by the total Assets at the beginning of each year for each company.

15. Conclusion

In this paper, two methods of measuring the quality of accounting information was tested. One is Francis et al. (2004) model and the second is Kormendi and Lipe (1997) model. No

significant differences between the two models found especially for the companies with high and low results. It was also found that both models can be applied easily in the Iraqi environment, wherefore researchers are recommended to apply any of the two models instead of the questionnaires which most of the Iraqi researches and studies depend on.

Exhibit 1 Table 1: The changes in Current Asset, Cash, Current liabilities, Short Term Debits and Depreciation for the years 2005 to 2016

Δ Total Current Asset	Δ CASH	ΔCA	Δ Total Current Liabilities	ΔSTDEBT	ΔCL	DEP
0.425018	0.059403	0.365615	0.006351	-0.092361	0.098712	0.028409
-0.048781	-0.108420	0.059639	0.000921	0.000000	0.000921	0.035948
0.112572	-0.002943	0.115515	-0.067466	0.082447	-0.149913	0.047252
0.197731	0.055214	0.142517	-0.042938	-0.063457	0.020519	0.036162
0.170230	0.009700	0.160530	0.069392	0.000000	0.069392	0.036160
-0.001503	-0.046654	0.045150	0.024227	0.000000	0.024227	0.039951
0.145411	0.100402	0.045008	0.016367	0.000000	0.016367	0.032510
0.248257	-0.079464	0.327721	0.172399	0.107751	0.064647	0.032622
0.326500	0.260560	0.065941	-0.097433	-0.070154	-0.027278	0.021415
0.046483	0.010409	0.036074	0.054269	0.000000	0.054269	0.021141
-0.031484	-0.060471	0.028988	-0.053944	0.000000	-0.053944	0.021934
-0.005416	-0.066793	0.061378	0.019588	0.000000	0.019588	0.026560
-0.824830	-0.562412	-0.262418	-0.359270	0.000000	-0.359270	0.015701
-0.207788	-0.038421	-0.169367	-0.005769	0.000000	-0.005769	0.019359
0.128480	0.176301	-0.047820	0.037218	0.000000	0.037218	0.021229
0.082403	-0.221750	0.304153	0.183547	0.000000	0.183547	0.025186
-0.295949	0.027644	-0.323593	-0.210427	0.000000	-0.210427	0.033480
-0.246189	-0.002313	-0.243876	0.055173	0.000000	0.055173	0.034464
-0.211690	-0.031811	-0.179879	-0.245434	0.000000	-0.245434	0.019644
-0.012579	0.163481	-0.176060	-0.003610	0.000000	-0.003610	0.011065
0.116865	0.054178	0.062687	0.008982	0.000000	0.008982	0.010178
0.029798	-0.049731	0.079529	-0.003725	0.000000	-0.003725	0.008683
0.196215	-0.009526	0.205741	0.118992	0.000000	0.118992	0.008116
-0.005721	0.029352	-0.035073	0.076906	0.000000	0.076906	0.021377
0.178672	0.396547	-0.217875	0.154356	0.000000	0.154356	0.008724
0.007141	-0.212321	0.219462	0.077909	0.000000	0.077909	0.008663
0.086551	0.046688	0.039862	0.083915	0.000000	0.083915	0.007501
0.044575	-0.045622	0.090197	-0.052610	0.000000	-0.052610	0.007447
0.137913	0.222878	-0.084965	0.063942	0.000000	0.063942	0.006823
0.003228	-0.297747	0.300975	-0.035968	0.000000	-0.035968	0.006737
0.138915	0.002755	0.136160	0.086696	0.000000	0.086696	0.006355
-0.040202	0.014775	-0.054977	-0.049116	0.000000	-0.049116	0.006654
0.123558	0.224804	-0.101246	0.101330	0.000000	0.101330	0.005912
-0.094373	0.147084	-0.241457	-0.113996	0.000000	-0.113996	0.006598
-0.133088	-0.462511	0.329423	-0.111122	0.000000	-0.111122	0.007474
-0.007620	0.699093	-0.706713	0.026015	0.000000	0.026015	0.007657
0.164164	0.016563	0.147601	0.218193	0.000000	0.218193	0.018422
-0.090137	-0.121294	0.031158	0.169208	0.000000	0.169208	0.023405
-0.021195	0.030887	-0.052082	0.047199	0.022478	0.024721	0.046669
0.096086	-0.008784	0.104870	-0.364235	-0.021751	-0.342484	0.073464
0.066711	-0.001178	0.067889	0.065624	0.065851	-0.000228	0.048434
0.055037	0.038802	0.016235	-0.082735	-0.060807	-0.021928	0.059168
0.071333	0.022376	0.048956	-0.000886	0.000000	-0.000886	0.055345

0.089423	0.098173	-0.008750	0.018414	0.000000	0.018414	0.055922
0.087601	-0.033931	0.121532	0.033427	0.000000	0.033427	0.053567
-0.004903	0.071277	-0.076180	-0.025131	0.000000	-0.025131	0.055961
0.073587	0.115749	-0.042162	0.010410	0.000000	0.010410	0.054691
-0.143373	-0.147353	0.003980	0.060485	0.000000	0.060485	0.059834
0.640471	0.640125	0.000346	-0.006133	0.000000	-0.006133	0.008469
-0.468265	-0.523657	0.055391	-0.011871	0.000000	-0.011871	0.008473
-0.259734	-0.128681	-0.131053	0.010875	0.000000	0.010875	0.012076
0.139145	0.036959	0.102186	0.003409	0.000000	0.003409	0.012078
-0.025227	-0.034333	0.009106	0.057536	0.000000	0.057536	0.012831
0.018249	0.036159	-0.017910	0.049822	0.000000	0.049822	0.012450
0.411394	0.393230	0.018163	-0.022154	0.000000	-0.022154	0.006947
-0.180959	-0.252830	0.071872	-0.034356	0.000000	-0.034356	0.010529
0.381389	0.316362	0.065027	-0.000357	0.000000	-0.000357	0.005374
-0.112360	-0.201187	0.088827	0.011896	0.000000	0.011896	0.002758
-0.174134	-0.159141	-0.014994	-0.012878	0.000000	-0.012878	0.003421
-0.076734	-0.060030	-0.016704	0.030288	0.000000	0.030288	0.003305
0.172628	-0.024565	0.197192	0.052393	0.000000	0.052393	0.015313
0.101409	0.067061	0.034348	0.105676	0.000000	0.105676	0.014332
-0.182808	-0.145894	-0.036914	-0.120045	0.000000	-0.120045	0.016216
-0.142549	-0.045144	-0.097405	0.029687	0.000000	0.029687	0.015954
-0.050297	-0.011913	-0.038384	-0.001873	0.000000	-0.001873	0.017128
-0.126952	-0.027618	-0.099334	0.004743	0.000000	0.004743	0.013008
0.240099	0.042366	0.197734	0.028951	0.000000	0.028951	0.008537
0.013659	0.046292	-0.032633	-0.054518	0.000000	-0.054518	0.008113
0.001316	0.033097	-0.031781	0.009161	0.000000	0.009161	0.008101
-0.329181	-0.008538	-0.320643	-0.066564	0.000000	-0.066564	0.012019
-0.197431	-0.193347	-0.004084	0.070352	0.000000	0.070352	0.014185
-0.149702	0.001625	-0.151327	-0.032359	0.000000	-0.032359	0.016929
0.257264	0.212428	0.044835	0.026624	0.000000	0.026624	0.013342
-0.039398	-0.343400	0.304002	-0.043753	0.000000	-0.043753	0.020053
0.057821	0.112922	-0.055100	-0.003669	0.000000	-0.003669	0.021738
0.076017	0.018221	0.057796	0.017518	0.000000	0.017518	0.021589
0.471118	0.102393	0.368725	0.006436	0.000000	0.006436	0.013084
0.081641	-0.060999	0.142640	0.042341	0.000000	0.042341	0.012106
0.116124	0.040064	0.076060	0.027667	0.000000	0.027667	0.013374
0.128334	0.013354	0.114980	0.003794	0.000000	0.003794	0.007605
0.095264	-0.003687	0.098951	-0.015967	0.000000	-0.015967	0.021613
-0.071907	-0.085158	0.013251	-0.018095	0.000000	-0.018095	0.024993
-0.011022	-0.007507	-0.003515	-0.020711	0.000000	-0.020711	0.024905
0.022492	-0.000525	0.023017	-0.000550	0.000000	-0.000550	0.026034

Exhibit 2 Table 1: Model Summary

Companies	R	R Square	Adjusted R Square	Std. Error of the Estimate
Al Mansour pharma	.061[a]	.004	-.096	.0517922823
RMC	.216[a]	.047	-.049	.2130827034
IITC	.587[a]	.344	.279	.0420692319
Pepsi Baghdad	.771[a]	.594	.554	.0523731780
Al Taghleef	.115[a]	.013	-.086	.0383283026
Ncpi	.409[a]	.167	.084	.0738173659
Al Kindi	.603[a]	.364	.300	.0675360690
a. Predictors: (Constant), NIBEi,t-1 (1)				

Exhibit 2 Table 2: ANOVA[a]

Companies		Sum of Squares	Df	Mean Square	F	Sig.
Al Mansour pharma	Regression	.000	1	.000	.037	.850[b]
	Residual	.027	10	.003		
	Total	.027	11			
RMC	Regression	.022	1	.022	.491	.500[b]
	Residual	.454	10	.045		
	Total	.476	11			
IITC	Regression	.009	1	.009	5.250	.045[b]
	Residual	.018	10	.002		
	Total	.027	11			
Pepsi Baghdad	Regression	.040	1	.040	14.645	.003[b]
	Residual	.027	10	.003		
	Total	.068	11			
Al Taghleef	Regression	.000	1	.000	.134	.722[b]
	Residual	.015	10	.001		
	Total	.015	11			
Ncpi	Regression	.011	1	.011	2.004	.187[b]
	Residual	.054	10	.005		
	Total	.065	11			
Al Kindi	Regression	.026	1	.026	5.718	.038[b]
	Residual	.046	10	.005		
	Total	.072	11			
a. Dependent Variable: NIBEi,t (1)						
b. Predictors: (Constant), NIBEi,t-1 (1)						

Exhibit 2 Table 3: Coefficients [a]

Companies		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
Al Mansour pharma	(Constant)	.077	.028		2.713	.022
	NIBEi,t-1 (1)	-.063	.328	-.061	-.193	.850
IMOS	(Constant)	-.045	.062		-.726	.484
	NIBEi,t-1 (2)	-.162	.231	-.216	-.701	.500
IITC	(Constant)	.015	.015		.977	.352
	NIBEi,t-1 (3)	.395	.172	.587	2.291	.045
Pepsi Baghdad	(Constant)	.014	.016		.851	.415
	NIBEi,t-1 (4)	.858	.224	.771	3.827	.003
Al Taghleef	(Constant)	-.008	.012		-.685	.509
	NIBEi,t-1 (5)	-.056	.153	-.115	-.365	.722
Ncpi	(Constant)	-.100	.038		-2.604	.026
	NIBEi,t-1 (6)	.349	.246	.409	1.416	.187
Al Kindi	(Constant)	.026	.031		.838	.421
	NIBEi,t-1 (7))	.632	.264	.603	2.391	.038
a. Dependent Variable: NIBEi,t (1)						
b. Predictors: (Constant), NIBEi,t-1 (5)						

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طرق قياس جودة المعلومات المحاسبية: دراسة مقارنة

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المستخلص

تهدف هذه الدراسة إلى اختبار بعض الطرق المختلفة المستخدمة في قياس جودة المعلومات المحاسبية حيث تختلف المناهج التي تعتمدها تلك الطرق ويمكن تصنيفها تحت العديد من المداخل المختلفة. فكل مدخل يضم طرقاً مختلفة وكل طريقة تظهر نتيجة مختلفة لجودة المعلومات المحاسبية من أجل إيجاد الطريقة الأنسب لقياس جودة المعلومات المحاسبية في البيئة العراقية من خلال استخدام سلسلة زمنية تمتد من 2005 لغاية 2016 تضم 7 شركات صناعية مدرجة في سوق العراق للأوراق المالية. توصلت الدراسة إلى ملاءمة كل من نموذجي Francis et al. (2004) وKormendi and Lipe (1997) للبيئة العراقية

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