The Usefulness of Different Accounting Earnings Measures: The Case of Egypt

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***Abstract*— The objective of this paper is to investigate which measure of accounting income (comprehensive income, operating income, or net income) is more useful to equity investors in explaining future earnings, future cash flows, and stock returns. This study proposes that different measures of income are more useful for different uses. The research is undertaken within the Egyptian environment that allows considerable asset revaluations and holds the reporting of extraordinary items. Therefore, such environment provides a rich ground for testing the expected effects of reporting comprehensive income and its components on the Egyptian investors. The results do not support the superiority of comprehensive income measures in explaining the following period's net income compared to net income. None of the four tested measures of earnings is able to explain the following period's cash flows. Operating income is superior to the other three measures of income in explaining stock return.**

***Index Terms*—Net Income, Comprehensive Income, Operating Income, Statement of Financial Accounting Standards No. 130, Egyptian Accounting Standards**

I. Introduction

The argument of whether accounting income should be reported on a comprehensive (clean surplus) basis, or on a current operating income basis has been continuing over the past seven decades [1]. Proponents of the all inclusive concept of income (comprehensive income) argue that financial statements prepared under that concept improve investors' ability to predict future earnings and cash flows of the firm in a way that makes them capable of estimating the value of that firm more accurately. On the other hand, proponents of the current operating income approach argue that reporting dirty surplus items in the income statement may decrease the reliability of earnings [2-7]. Reference [8] highlighted the need for identifying the measure of earnings that is more relevant to investors and suggested that knowing the relative information content of alternative earnings measures may be useful for this identification.

The aim of many studies was to reduce the confusion arising from multiple earnings definitions by providing evidence on their relevance to investors. The R^2 is said to be an appropriate measure of usefulness [8]. The logic of comparing the explanatory power of income numbers is that the one with the highest association with stock returns is more consistent with the information that investors use in setting stock prices. This conclusion is derived from the theory that views accounting as supplying inputs to equity valuation. Investors can use the estimated relation between a stock price and income to obtain an estimate of the equity value from the income number that is most highly associated with the price [9].

According to Statement of Financial Accounting Concept number 1 investors may use reported earnings and information about the elements of financial statements to assess the prospects for cash flow and predict future earnings [10]. According to the literature, usefulness of an accounting item is defined as "the goodness of fit (adjusted R^2) in the regression of residual stock returns on earnings" [8], p.195). Thus, the objective of this research is to investigate which measure of income (comprehensive income, operating income, or net income) is more useful to equity investor in explaining future earnings, future cash flows, and in explaining a firm's stock returns.

In addition, few studies have investigated the issue of reporting comprehensive income data in developing countries. The Egyptian case provides interesting setting for investigating the usefulness of comprehensive income and its component. Unlike in the UK and USA where comprehensive income has already been disclosed for several years and where the stock markets are well developed, the Egyptian stock market is in a relatively early stage of development as in similar developing countries. Thus, the results of this study can be generalized to other developing countries than are studies analyzing UK or USA. Many other countries may be in a similar stage as Egypt on this matter (for e.g. China, Iran, and Turkey).

The remainder of this paper is organized as follows. Section II is devoted to the literature review. The empirical study design is presented in Section III. Section IV reports the empirical study results. Section V concludes the study.

II. Literature Review

Several approaches were utilized to assess the usefulness of accounting income (such as relative association, incremental association, and event studies). Within each approach, different research designs were applied (i.e. different return variables, earnings variables, additional independent variables, and returns windows). Most of these studies pointed out to the existence of a significant statistical association between stock prices on one hand and net income on the other. Thus, these studies confirmed the usefulness of accounting earnings in explaining stock returns [2, 11-16], future earnings [17], and future cash flows [18, 19]. Other studies confirmed the usefulness of

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accounting earnings in conveying new information to the market [20-24]. Most of the studies that focused on assessing the usefulness of accounting earnings components have confirmed that usefulness regarding explaining stock returns [25, 26], future earnings [27], and future cash flows [28].

Evidence on the usefulness of comprehensive income as a firm performance measure is not clear yet although comprehensive income was formally introduced by the Financail Accounting Standards Board (FASB) in the Statement of Financial Accounting Standards no. 130 (SFAS 130) since 1997. Several studies regarding that issue have showed mixed results. While some studies found no evidence that comprehensive income is more useful than the traditional measures of accounting earnings such as operating income and net income [2, 7, 8], other studies found that comprehensive income is useful to investors [29-31].

Some empirical studies were conducted using pre-SFAS 130 data [7, 8], other studies used Post-SFAS 130 data [30], and a third group of studies used both pre- and post-SFAS 130 data [2, 15, 31]. The pre-SFAS 130 studies cannot be viewed as empirical evidence of the effects of SFAS 130 on market value. This current study uses both pre- and post-SFAS 130 data.

While the empirical evidence is mixed, the experimental studies suggest that the method of reporting comprehensive income may affect the investors' decisions. One of these experimental studies showed that comprehensive income influences financial analysts' decision-making only when it is disclosed in a separate statement rather than included as part of changes in stockholders' equity [32]. Another experimental study found that non-professional investors use comprehensive income information regardless of the presentation format [33]. Although the efficient markets hypothesis predicts that rearranging information within financial statements would have no impact on value, psychological studies suggest that enhancing the transparency of information can affect whether information is actually used by investors.

There is a little empirical evidence on investors' use of comprehensive income in countries except the USA. That issue has been rarely studied with international data. This study seeks to fill this gap by investigating the usefulness of comprehensive income in the Egyptian stock market. The significance of this study stems from the lack of alternative information sources in Egypt. Thus, this research expects that the main and may be the sole source of financial information available to the Egyptian investor is the published financial reports. This study adds additional empirical evidence to the literature by examining the Egyptian stock market which is descried as an emergent market. Comparing the results of this study to more sophisticated markets, where accounting information has relatively more usefulness, may urge financial market regulators to call for additional disclosures that may make published accounting reports to become more useful to investors.

This study builds directly on and extends prior research on the usefulness of comprehensive income. Inconsistent results, competing explanations of findings, different variables, data constrains, and timing of the studies provide the background of this research.

The period immediately following the implementation of a standard that calls for reporting comprehensive income is examined to see if the market values the required disclosures. Also, data immediately before and after that implementation are compared to determine if there is any difference in the usefulness of comprehensive income information between the two periods. Inferences drawn from studying the period after the adoption of the standard are more suitable for assessing the usefulness of reporting the components of other comprehensive income.

While most of the prior researches define the usefulness of an accounting number according to its ability to explain stock returns, this research defines the usefulness of an accounting number depending on its ability to explain future earning, future cash flows, and stock returns. The approach followed in this study is that one measure of income may be more useful in one aspect and other measure may be more useful in another aspect. The importance of this paper stems from the expected effect of its results in directing the attention of the Egyptian accounting researchers and standard setters toward the performance measure that that investors find most relevant.

III. Research Design

The methodology used in this research is a cross-sectional regression of each of firms' performance measure (the following period' net income, the following period's cash flows, and stock returns) on the four different measures of earnings. A linear association study is used to evaluate the usefulness of the four measures of income. Usefulness in the context of this research is defined as the ability to explain future earnings, future cash flows, and stock returns. The analysis is conducted from a relative usefulness perspective which compares the explanatory power of the competing earnings definitions.

This research is undertaken within the Egyptian environment that allows considerable asset revaluations and holds the reporting of extraordinary items. Therefore, this environment provides a rich ground for testing the expected effects of reporting comprehensive income on the Egyptian investors. Extending the empirical analysis to the Egyptian stock market allows observing if there are any differences between countries regarding the usefulness of different measures of earnings.

The technique used in this research to compare the usefulness of the four measures of income is the Vuong (1989) test. This test assesses the significance of the incremental R^2 between each pair of models (measures of income). This research is not interested in observing whether the R^2 of each model is increased or decreased in the period after the standard compared to the period before

the standard. This research is interested in observing the change in the relative usefulness of each model compared to the other models and to find out which model outperforms the other models in this context for each level of the analysis.

A. Research Hypotheses

1) Assessing the Usefulness of Each Earnings Measure in Explaining Future Earnings

In determining which measure of income is significantly more or less useful in explaining future earnings, the follwing hypothesis is tested:

***H1*$_0$: There are no significant differences in the usefulness of the four earnings measures in explaining future earnings.**

The sub-hypotheses related to $H1_0$ are:

$$H11_0: \quad R^2CI130 - R^2OI = 0$$
$$H12_0: \quad R^2CI130 - R^2NI = 0$$
$$H13_0: \quad R^2CI130 - R^2CIbroad = 0$$
$$H14_0: \quad R^2OI - R^2NI = 0$$
$$H15_0: \quad R^2OI - R^2CIbroad = 0$$
$$H16_0: \quad R^2NI - R^2CIbroad = 0$$

Sub-hypotheses $H11_0$ to $H16_0$ are tested by computing (using the Multiple Regression model) and comparing (using the Vuong test) the R^2 for the following models:

$$NI_{i,t+1} = \alpha + \beta(CI130_{i,t}) + \varepsilon_{i,t} \quad (1)$$

Model (1) is used to assess the usefulness of *CI*130 in explaining the following period's earnings. Where $NI_{i,t+1}$ is net income of company *i* in period *t*+1. So, that variable represents the following period's net income; and $CI130_{i,t}$ is comprehensive income calculated under SFAS 130 of company *i* in period *t*. That item is calculated as follows:

$$CI130_{i,t} = NI_{i,t} + SEC_{i,t} + FCT_{i,t}$$

Where $SEC_{i,t}$ is the adjustment for available for sale securities of company *i* in period *t* and $FCT_{i,t}$ is the adjustment for financial statement translation of company *i* in period *t*.

$$NI_{i,t+1} = \alpha + \beta(OI_{i,t}) + \varepsilon_{i,t} \quad (2)$$

Model (2) is used to assess the usefulness of operating income (*OI*) in explaining the following period's earnings. Where $OI_{i,t}$ is the operating income of company *i* in period *t*. $OI_{i,t}$ is calculated as the operating income before depreciation less depreciation.

$$NI_{i,t+1} = \alpha + \beta(NI_{i,t}) + \varepsilon_{i,t} \quad (3)$$

Model (3) is used to assess the usefulness of net income (*NI*) in explaining the following period's earnings. Where $NI_{i,t}$ is net income after extraordinary items and discontinued operations of company *i* in period *t*.

$$NI_{i,t+1} = \alpha + \beta(CIbroad_{i,t}) + \varepsilon_{i,t} \quad (4)$$

Model (4) is used to assess the usefulness of the broader measure of comprehensive income (*CIbroad*) in explaining the following period's earnings. $CIbroad_{i,t}$ is the comprehensive income that is calculated broadly of company *i* in period *t*. This item is calculated as the change in retained earnings plus cash dividends-common.

2) Assessing the Usefulness of Each Earnings Measure in Explaining Future Cash Flows

In determining which measure of income is more or less useful in explaining future cash flows, the following hypothesis is tested:

***H2*$_0$: There are no significant differences in the usefulness of the four earnings measures in explaining future cash flows.**

The sub-hypotheses related to $H2_0$ are:

$$H21_0: \quad R^2CI130 - R^2OI = 0$$
$$H22_0: \quad R^2CI130 - R^2NI = 0$$
$$H23_0: \quad R^2CI130 - R^2CIbroad = 0$$
$$H24_0: \quad R^2OI - R^2NI = 0$$
$$H25_0: \quad R^2OI - R^2CIbroad = 0$$
$$H26_0: \quad R^2NI - R^2CIbroad = 0$$

Sub-hypotheses $H21_0$ to $H26_0$ are tested by computing (using the Multiple Regression model) and comparing (using the Vuong test) the R^2 for the following models:

$$CFOP_{i,t+1} = \alpha + \beta(CI130_{i,t}) + \varepsilon_{i,t} \quad (5)$$

Model (5) is used to assess the usefulness of *CI*130 in explaining the following period's cash flows. $CFOP_{i,t+1}$ are cash flows from operations of company *i* in period *t*+1 (the following period's cash flows from operations).

$$CFOP_{i,t+1} = \alpha + \beta(OI_{i,t}) + \varepsilon_{i,t} \quad (6)$$

Model (6) is used to assess the usefulness of *OI* in explaining the following period's cash flows.

$$CFOP_{i,t+1} = \alpha + \beta(NI_{i,t}) + \varepsilon_{i,t} \quad (7)$$

Model (7) is used to assess the usefulness of *NI* in explaining the following period's cash flows.

$$CFOP_{i,t+1} = \alpha + \beta(CIbroad_{i,t}) + \varepsilon_{i,t} \quad (8)$$

Model (8) is used to assess the usefulness of *CIbroad* in explaining the following period's cash flows.

3) Assessing the Usefulness of Each Earnings Measure in Explaining Stock Returns

In determining which measure of income is more or less useful in explaining stock returns, the following hypothesis is tested:

***H3*$_0$: There are no significant differences in the usefulness of the four earnings measures in explaining stock returns.**

The sub-hypotheses related to $H3_0$ are:

$$H31_0: \quad R^2CI130 - R^2OI = 0$$
$$H32_0: \quad R^2CI130 - R^2NI = 0$$
$$H33_0: \quad R^2CI130 - R^2CIbroad = 0$$
$$H34_0: \quad R^2OI - R^2NI = 0$$
$$H35_0: \quad R^2OI - R^2CIbroad = 0$$
$$H36_0: \quad R^2NI - R^2CIbroad = 0$$

Sub-hypotheses $H31_0$ to $H36_0$ are tested by computing

(using the Multiple Regression model) and comparing (using the Vuong test) the R^2 for the following models:

$$CRR_{i,t} = \alpha + \beta(CI130_{i,t}) + \varepsilon_{i,t} \quad (9)$$

Model (9) is used to assess the usefulness of *CI130* in explaining stock returns. Where $CRR_{i,t}$ is the cumulative raw return of company *i* in period *t*. Raw returns are accumulated over 12 months extending from 9 months prior to through 3 months after each firm's respective fiscal year end. Where the raw return is calculated as follows:

$$R_{i,t} = \frac{(P_{i,t} - P_{i,t-1})}{P_{i,t-1}}$$

Where $R_{i,t}$ is the raw return of company *i* in period *t*; $P_{i,t}$ is the stock price of company *i* in period *t*; and $P_{i,t-1}$ is the stock price of company *i* in period *t*-1 (the previous period). Then the raw returns are accumulated as follows:

$$CRR_{i,t} = \sum_{i=1}^{n} R_{i,t}$$

$$CRR_{i,t} = \alpha + \beta(OI_{i,t}) + \varepsilon_{i,t} \quad (10)$$

Model (10) is used to assess the usefulness of *OI* in explaining stock returns.

$$CRR_{i,t} = \alpha + \beta(NI_{i,t}) + \varepsilon_{i,t} \quad (11)$$

Model (11) is used to assess the usefulness of *NI* in explaining stock returns.

$$CRR_{i,t} = \alpha + \beta(CIbroad_{i,t}) + \varepsilon_{i,t} \quad (12)$$

Model 12 is used to assess the usefulness of *CIbroad* in explaining stock returns.

All variables in this study except for stock returns are scaled by the fiscal year's beginning market value of equity

B. *Levels of Analysis*

The empirical analysis is performed for the periods before and after issuing the accounting standard that calls for reporting comprehensive income. The objective of this analysis is to assess the effect of issuing the standard on the usefulness of different measures of accounting earnings.

C. *Comparing Models*

In this research, operating income, net income, and comprehensive income are set up as competing models to explain future earnings, future cash flows, and stock returns. The explanatory power of the models is compared using the traditional adjusted R-squared, and the Vuong (1989) Z-statistic.

The Vuong (1989) test is a test of the difference between the adjusted explanatory powers of two models, each with one (set of) explanatory variable(s), but with the same dependent variable in both models. The Vuong (1989) test is a log-likelihood ratio test that provides an indication of which of the competing models better explains the data (depending on comparing the R^2 of the two models) and showing that these two models are not statistically different from each other. Vuong (1989) test indicates which model better explains the data without assuming that the null for either model is true. Thus, Vuong (1989) test's statistic allows both models to have explanatory power, but provides an indication concerning which of the two is closer to the true data generating process [34].

For the Vuong (1989) test , which is based on the Kullback-Leibler Information Criterion **(KLIC)**, the null hypothesis is that the two models are equivalent and therefore the probability of rejecting the null should approach 1 if the null is false, while it should approach 0.05 if the null is true [35]. The Vuong (1989) test is based on comparing whether the log-likelihood of one model is significantly larger than the log-likelihood of the rival model [36]. The null hypothesis of the Vuong (1989) test is [37]:

$H_0 : Z \xrightarrow{D} N(0,1)$ where:

$$Z = \frac{LR_n(\hat{\beta}_n, \hat{\gamma}_n)}{(\sqrt{n})\hat{\omega}_n}$$

$$LR = \log\left(\frac{L(R_E)}{L(R_C)}\right) = \log[L(R_E)] - \log[L(R_C)] = \frac{n}{2}\left(\log(\hat{\sigma}_C^2) - \log(\hat{\sigma}_E^2)\right) + \sum_{i=1}^{n}\left(\frac{1}{2}\frac{(e_{Ci})^2}{\hat{\sigma}_C^2} - \frac{1}{2}\frac{(e_{Ei})^2}{\hat{\sigma}_E^2}\right)$$

An estimate of the variance, ω^2, of LR is given by:

$$\hat{\omega}^2 = \frac{1}{n}\sum_{i=1}^{n}\left(\frac{1}{2}\log(\hat{\sigma}_C^2) - \frac{1}{2}\log(\hat{\sigma}_E^2) + \frac{1}{2}\frac{(e_{Ci})^2}{\hat{\sigma}_C^2} - \frac{1}{2}\frac{(e_{Ei})^2}{\hat{\sigma}_E^2}\right) - \left(\frac{1}{n}LR\right)^2$$

where:

LR: Is the likelihood ratio where the likelihood is the probability of obtaining a set of observations given the parameters of a model fitted to those observations.

$\hat{\beta}$ and $\hat{\gamma}$: $\hat{\gamma}$ in model C is analogous to $\hat{\beta}$ in model E.

$\log[L(R)]$: Shows the Log-likelihood that represents a measure of error, or unexplained variation, in categorical models. It is based on summing the probabilities associated with the predicted and actual outcomes and is analogous to the residual sum of squares in the Multiple Regression models in that it is an indicator of how much unexplained information there is after the model has been fitted. Large value of the log-likelihood statistic indicate poorly fitted model, because the larger the value of the Log-likelihood, the more unexplained observation there are. The Log-likelihood is the logarithm of the likelihood [38].

$\hat{\sigma}^2$: Represents the Variance which is an estimate of average viability (spread) of a set of data. It is the sum of square divided by the number of values on which the sum of squares is based minus 1 [38].

e: Represents the unpredicted or unexplained variation in the response variable; it is conventionally called the "error" whether it

is really a measurement error or not.

Vuong (1989) test is directional in the sense that, if the Z-statistic is positive and significant, the test indicates that model (C) is the model of choice, whereas if the Z-statistic is negative and significant, the opposite conclusion can be drawn. That is if the Z-statistic is negative and significant, the test indicates that model (E) is the model of choice [34].

D. Samples and Data Collection

The sample period spans five years (2000 - 2004), two years before and two years after the introduction of the Egytian Accounting Standard No. 1 **(EAS 1)**. As the focus is on the pre- and post-EAS 1 adoption period and some companies could gradually adopt that accounting standard which requires reporting a statement of the change in owners' equity (a form of reporting comprehensive income components) prior to the mandatory implementation, the year 2002 is excluded when comparing the pre- and post-periods. Reason for depending on data related to the Egyptian accounting standards package issued in 2002 is that this package is the first package of standards that was issued after the issuance of SFAS 130.

The study depends on a small but still representative sample of Egyptian firms (the **CASE** 30 index firms). For these firms the required data of the different accounting earnings measures are obtained manually using the annual reports obtained from Egypt for Information Dissemination **(EGID)**. Stock prices, required to calculate the cumulative raw returns, are obtained from the Datastream database. The descripitive statistics are reported in Tables 1, 2 and 3 respectively.

TABLE 1
ALL FIRMS (SAMPLE SIZE: 106)

	CRR_{it}	NI_{it}	$CI130_{it}$	$CI_{BROADit}$	$CFOP_{it+1}$	NI_{t+1}	OI_{it}
Mean	0.1912	0.1045	0.0994	0.1022	0.1977	0.1567	0.1591
Std. Error	0.0522	0.0208	0.0224	0.0347	0.0462	0.0226	0.0185
Median	0.1086	0.1292	0.1335	0.0723	0.2004	0.1508	0.1150
Std. Dev.	0.5378	0.2139	0.2309	0.3574	0.4759	0.2332	0.1903
Var.	0.2892	0.0457	0.0533	0.1277	0.2265	0.0544	0.0362
Min.	-1.0656	-1.2842	-1.3836	-0.7527	-1.2837	-0.4976	-0.3649
Max.	1.8153	0.6752	0.6751	3.0126	1.7065	1.0368	0.8611

TABLE 2
ALL FIRMS PRE-EAS 1 (SAMPLE SIZE: 35)

	CRR_{it}	NI_{it}	$CI130_{it}$	$CI_{BROADit}$	$CFOP_{it+1}$	NI_{t+1}	OI_{it}
Mean	-0.1282	0.1101	0.1097	0.0513	0.1704	0.1154	0.0913
Std. Error	0.0608	0.0172	0.0184	0.0152	0.0372	0.0166	0.0133
Median	-0.0373	0.1242	0.1242	0.0597	0.1636	0.1190	0.0708
Std. Dev.	0.3595	0.1015	0.1087	0.0898	0.2198	0.0982	0.0788
Var.	0.1292	0.0103	0.0118	0.0081	0.0483	0.0096	0.0062
Min.	-1.0479	-0.1726	-0.1891	-0.1520	-0.3900	-0.1425	-0.1014
Max.	0.5838	0.2558	0.2810	0.2410	0.7128	0.2813	0.3099

TABLE 3
ALL FIRMS POST-EAS 1 (SAMPLE SIZE: 42)

	CRR_{it}	NI_{it}	$CI130_{it}$	$CI_{BROADit}$	$CFOP_{it+1}$	NI_{t+1}	OI_{it}
Mean	0.5407	0.1309	0.1266	0.1970	0.2388	0.2077	0.2197
Std. Error	0.0781	0.0225	0.0242	0.0809	0.0978	0.0353	0.0299
Median	0.5709	0.1487	0.1441	0.1088	0.2693	0.2077	0.1938
Std. Dev.	0.5064	0.1456	0.1568	0.5240	0.6339	0.2289	0.1935
Var.	0.2564	0.0212	0.0246	0.2746	0.4019	0.0524	0.0374
Min.	-1.0656	-0.4964	-0.5343	-0.3699	-1.2813	-0.1380	-0.1412
Max.	1.8153	0.4860	0.4861	3.0126	2.4424	1.0368	0.7958

IV. THE EMPIRICAL RESULTS

A. Results of Assessing the Usefulness of Different Earnings Measures in Explaining Future Earnings

The usefulness of four different earnings measures to explain the following period's net income (models 1 to 4) is reported in Tables 4 and 5. Table 4 reports the coefficients of the univariate regression and the adjusted R^2. Table 5 reports both the incremental adjusted R^2 and the likelihood ratio test described in [37]. Numbers written in the rows labelled 'Vuong' in Table 5 are the Z-statistics associated with the Vuong (1989) test.

In the all firms' sample (sample A), SFAS 130 comprehensive income (*CI130*) and net income (*NI*) (models 1 and 3) are superior to operating income (*OI*) and the broader measure of comprehensive income (*CIbroad*) in explaining the following period's net income. *NI* is the measure of income that can best explain the following period's earnings. The coefficients of the four models are significant at the 1% level except for the coefficient of *CIbroad* (model 4) which is insignificant, as reported in Table 4. *CIbroad* is significantly dominated by the other three measures in explaining the following period's earnings as it is the only model with insignificant coefficient. The R^2 for the *NI* (model 3) is the highest among the four models (40.5%). The difference in R^2 between the *CI130* and *NI* models (models 1-3), as reported in Table 5, is insignificant. The difference in R^2 between the *OI* and *NI* (models 2-3), is significant at the 1% level. The difference in R^2 between the *NI* and *CIbroad* models (models 3-4), is significant at the 1% level. Although the difference in R^2 between the *CI130* and *NI* measures is not significant, *NI* can be considered marginally better than *CI130* since the R^2 of the *NI* model (40.5%) is higher than that of the *CI130* model (39.1%). This result is consistent with Dhaliwal, et al. [7] who concluded that there was no clear evidence that comprehensive income is better than net income in explaining future earnings. This result is also consistent with Kanagaretnam, et al. [2] who found that net income is a better predictor of future net income and cash flows from operations than comprehensive income.

In all firms before EAS 1 (sample B), *CI130* and *NI* (models 1 and 3) are superior to *OI* and *CIbroad* in explaining the following period's net income. *NI* is the measure of income that can best explain the following period's earnings. The coefficients of the four models are significant at the 1% level as reported in Table 4. The R^2 for *OI* (model 2), as reported in Table 4, is the smallest among the four models (26.6%). The difference in R^2 between the *CI130* and *OI* models (models 1-2), as reported in Table 5, is significant at the 1% level. The difference in R^2 between the *OI* and *NI* models (models 2-3) is significant at the 1% level. The difference in R^2 between *OI* and *CIbroad* (models 2-4) is significant at the 1% level. In all firms pre-EAS 1, *OI* is less relevant than the other three models as it is significantly dominated by all of them. R^2 for *NI* (model 3) is the highest among the four models (72.2%). The

difference in R^2 between the *CI130* and *NI* models (models 1-3), as reported in Table 5, is insignificant. The difference in R^2 between the *NI* and *CIbroad* models (models 3-4), is significant at the 1% level. Although the difference in R^2 between the *CI130* and *NI* measures is not significant, *NI* can be considered marginally better than *CI130* since R^2 of the *NI* model (72.2%) is higher than that of the *CI130* model (71.4%). That result is consistent with Dhaliwal, et al. [7] and Kanagaretnam, et al. [2].

In all firms post-EAS 1 (sample C), no measure of earnings is superior to the other models in explaining the following period's net income. As reported in Table 4, the coefficients of the *CI130* and *OI* models are significant at the 10% level, the coefficient of the *NI* model is significant at the 1% level, and the coefficient of the *CIbroad* model is insignificant. The *CIbroad* model is less relevant than the other three models in explaining the following period's net income as it is the only insignificant model. The R^2 for *NI* (model 3), as reported in Table 4, is the highest among the four models (13.3%). According to the Vuong (1989) test reported in Table 5, there are no significant differences in R^2 between the four models. For all firms post-EAS 1, if there is a need to determine only one measure to be the best of the four measures of income in explaining the following period's net income, the R^2 of the different models will be used in ranking them. In that case, *NI* is better than the other three measures as it has the highest R^2 compared to the other three models.

In all firms' samples (samples A, B and C), the overall results do not support the superiority of comprehensive income in explaining the following period's net income compared to net income, a result that is inconsistent with Choi and Das [39] and consistent with Dhaliwal, et al. [7] and Kanagaretnam, et al. [2]. In the all firms' sample (sample A) and all firms pre-EAS 1 (sample B) *NI* (model 3) is superior to *CI130* (model 1) in explaining the following period's net income, a result that is consistent with Kanagaretnam, et al. [2]. The usefulness of both *CI130* and *NI* in explaining the following period's earnings is declined in the post-EAS 1 period compared to the pre-EAS 1 period. In the pre-EAS 1 period, the *CI130* and *NI* models (models 1 and 3) significantly dominate the other two models in explaining the following period's net income. In the post-EAS 1 period, there are no significant differences in R^2 between the four models in that context.

TABLE 4
THE USEFULNESS OF THE DIFFERENT EARNINGS MASURES IN EXPLAINING FUTURE EARNINGS

Sample	Model	Dep.	Int.	$CI130_{i,t}$	$OI_{i,t}$	$NI_{i,t}$	$CIbroad_{i,t}$	Adj. R^2	Size
Sample	(1)	$NI_{i,t+1}$	0.09[a]	0.64[a]				39.10%	
(A)	(2)	$NI_{i,t+1}$	0.06[b]		0.60[a]			23.00%	106
All firms	(3)	$NI_{i,t+1}$	0.08[a]			0.70[a]		40.50%	
	(4)	$NI_{i,t+1}$	0.16[a]				0.02	0.00%	
Sample	(1)	$NI_{i,t+1}$	0.03[b]	0.77[a]				71.40%	
(B)	(2)	$NI_{i,t+1}$	0.05[b]		0.67[a]			26.60%	35
All firms	(3)	$NI_{i,t+1}$	0.02[c]			0.83[a]		72.20%	
Before	(4)	$NI_{i,t+1}$	0.07[a]				0.79[a]	51.30%	
Sample	(1)	$NI_{i,t+1}$	0.15[a]	0.46[c]				7.50%	
(C)	(2)	$NI_{i,t+1}$	0.12[b]		0.38[c]			8.10%	42
All firms	(3)	$NI_{i,t+1}$	0.13[a]			0.62[a]		13.30%	
After	(4)	$NI_{i,t+1}$	0.23[a]				-0.10	2.90%	

[a] Significant at the 1% level. [b] Significant at the 5% level. [c] Significant at the 10% level.

TABLE 5
RELATIVE EXPLANATORY POWER OF EARNINGS MEASURES IN EXPLAINING FUTURE EARNINGS[1]

1. $NI_{i,t+1} = \alpha + \beta(CI130_{i,t}) + \varepsilon_{i,t}$ 2. $NI_{i,t+1} = \alpha + \beta(OI_{i,t}) + \varepsilon_{i,t}$ 3. $NI_{i,t+1} = \alpha + \beta(NI_{i,t}) + \varepsilon_{i,t}$ 4. $NI_{i,t+1} = \alpha + \beta(CIbroad_{i,t}) + \varepsilon_{i,t}$

Models	Hypothesis[1]	Size	106	35	42
		Sample	(A)	(B)	(C)
1-2	$H11_0$	Inc. R^2	0.16	0.45	-0.01
		Vuong	3.75[a]	5.59[a]	0.37
1-3	$H12_0$	Inc. R^2	-0.01	-0.01	-0.06
		Vuong	1.12	0.71	1.19
1-4	$H13_0$	Inc. R^2	0.39	0.20	0.05
		Vuong	5.98[a]	3.57[a]	1.03
2-3	$H14_0$	Inc. R^2	-0.18	-0.46	-0.05
		Vuong	3.96[a]	5.75[a]	1.12
2-4	$H15_0$	Inc. R^2	0.23	-0.25	0.05
		Vuong	4.07[a]	3.00[a]	1.10
3-4	$H16_0$	Inc. R^2	0.41	0.21	0.10
		Vuong	6.17[a]	3.69[a]	1.59

[a] Significant at the 1% level.

B. *Results of Assessing the Usefulness of Different Earnings Measures in Explaining Future Cash Flows*

The usefulness of four different earnings measures in explaining the following period's cash flows (models 5 to 8) are reported in Tables 6 and 7 .In all firms (sample A), all firms pre-EAS 1 (sample B) and all firms post-EAS 1 (sample C), there is no measure of earnings that is able to explain the following period's cash flows since the coefficients of the four models are insignificant as reported in Table 6. In all firms' samples (samples A, B and C), the usefulness of the four models in explaining the following period's cash flows remains unchanged in the period after EAS 1 compared to the period before it. In both periods the four models have no usefulness in explaining the following period's cash flows.

TABLE 6
THE USEFULNESS OF DIFFERENT EARNINGS MEASURES IN EXPLAINING FUTURE CASH FLOWS

Sample	Model	Dep.	Int.	$CI130_{i,t}$	$OI_{i,t}$	$NI_{i,t}$	$CIbroad_{i,t}$	Adj. R^2	F-test	Size
Sample	(5)	$CFOP_{i,t+1}$	0.17[a]	0.33				1.60%	2.66	
(A)	(6)	$CFOP_{i,t+1}$	0.14[b]		0.38			1.30%	2.41	106
All firms	(7)	$CFOP_{i,t+1}$	0.17[a]			0.26		0.40%	1.44	
	(8)	$CFOP_{i,t+1}$	0.20[a]				-0.04	0.00%	0.09	
Sample	(5)	$CFOP_{i,t+1}$	0.13[b]	0.34				0.00%	0.97	
(B)	(6)	$CFOP_{i,t+1}$	0.14[b]		0.39			0.00%	0.66	35
All firms	(7)	$CFOP_{i,t+1}$	0.13[b]			0.33		0.00%	0.79	
before	(8)	$CFOP_{i,t+1}$	0.16[a]				0.23	0.00%	0.29	
Sample	(5)	$CFOP_{i,t+1}$	0.23[c]	0.05				0.00%	0.01	
(C)	(6)	$CFOP_{i,t+1}$	0.36[b]		-0.55			0.40%	1.17	42
All firms	(7)	$CFOP_{i,t+1}$	0.27[b]			-0.26		0.00%	0.14	
after	(8)	$CFOP_{i,t+1}$	0.26[b]				-0.08	0.00%	0.2	

[a] Significant at the 1% level. [b] Significant at the 5% level. [c] Significant at the 10% level.

TABLE 7
THE RELATIVE EXPLANATORY POWER OF EARNINGS MEASURES IN EXPLAINING FUTURE CASH FLOWS[2]

[1] A significant result reported in the raw labeled 'Vuong' referrers to rejecting the null hypothesis.

[2] A significant result reported in the raw labeled 'Vuong' referrers to rejecting the null hypothesis.

5. $CFOP_{i,t+1} = \alpha + \beta(CI130_{i,t}) + \varepsilon_{i,t}$ 6. $CFOP_{i,t+1} = \alpha + \beta(OI_{i,t}) + \varepsilon_{i,t}$ 7. $CFOP_{i,t+1} = \alpha + \beta(NI_{i,t}) + \varepsilon_{i,t}$ 8. $CFOP_{i,t+1} = \alpha + \beta(CIbroad_{i,t}) + \varepsilon_{i,t}$

Models	Hypothesis[1]	Size	106	35	42
		Sample	(A)	(B)	(C)
5-6	$H21_o$	Inc. R^2	0.00	0.00	0.00
		Vuong	0.35	0.40	0.78
5-7	$H22_o$	Inc. R^2	-0.01	0.00	0.00
		Vuong	0.78	0.30	0.27
5-8	$H23_o$	Inc. R^2	-0.02	0.00	0.00
		Vuong	1.15	0.60	0.32
6-7	$H24_o$	Inc. R^2	-0.01	0.00	0.00
		Vuong	0.70	0.26	0.73
6-8	$H25_o$	Inc. R^2	-0.01	0.00	0.00
		Vuong	1.09	0.44	0.71
7-8	$H26_o$	Inc. R^2	0.00	0.00	0.00
		Vuong	0.83	0.51	0.17

C. *Results of Assessing the Usefulness of Different Earnings Measures in Explaining Stock Returns*

The usefulness of four different earnings measures in explaining stock returns (models 9 to 12) are reported in Tables 8 and 9. In the all firms' sample (sample A), *OI* is superior to the other three measures of income in explaining stock returns. *CIbroad* is dominated significantly by *OI* and marginally by *CI130* and *NI* in this context. *CIbroad* can be thought of as less relevant than the other three measures of income in explaining stock returns. *OI* can be considered as the best measure of earnings in explaining stock returns since it significantly dominates the other three models in this context. This result is consistent with Cheng, et al. [8] who concluded that both operating income and net income dominated comprehensive income in information content. This result is also consistent with Kanagaretnam, et al. [2].

In all firms pre-EAS 1 (sample B), no measure of earnings is able to explain stock returns since the coefficients of the four models are insignificant as reported in Table 8. In all firms post-EAS 1 (sample C), the coefficients of all the models are insignificant except for the coefficient of the *OI* model which is significant at the 10% level as reported in Table 8. No measure of earnings is superior to the others in explaining stock returns. According to the Vuong (1989) test reported in Table 9, there are no significant differences in R^2 between the four models. For this sample, if there is a need to determine only one measure to be the best of the four models in explaining stock returns, the *OI* model will be choosenas it is the only model with significant coefficient.

In the all firms' samples (samples A, B and C), the usefulness of *OI* in explaining stock returns is relatively improved in the period post-EAS 1 compared to the pre-EAS 1 period. Before EAS 1 the four models, including *OI*, are insignificant. In the period after the standard, the *OI* model is the only significant model. Nevertheless, in the period after EAS 1, no measure is able to show superiority to the other models in explaining stock retunes.

TABLE 8
THE USEFULNESS OF DIFFERENT EARNINGS MEASURES IN EXPLAINING STOCK RETURNS

Sample	Model	Dep.	Int.	$CI130_{i,t}$	$OI_{i,t}$	$NI_{i,t}$	$CIbroad_{i,t}$	Adj. R^2	F-Test	Size
Sample (A) All firms	(9)	$CRR_{i,t}$	0.14[b]	0.52[b]	1.10[a]	0.56[b]	0.27[c]	4.00%	5.35[b]	106
	(10)	$CRR_{i,t}$	0.02					14.30%	18.54[a]	
	(11)	$CRR_{i,t}$	0.13[b]					4.00%	5.39[b]	
	(12)	$CRR_{i,t}$	0.16[a]					2.40%	3.56[c]	
Sample (B) All firms before	(9)	$CRR_{i,t}$	-0.23[a]	0.92	0.41	0.93	0.82	4.90%	2.75	35
	(10)	$CRR_{i,t}$	-0.17[c]					0.00%	0.26	
	(11)	$CRR_{i,t}$	-0.23[b]					4.10%	2.45	
	(12)	$CRR_{i,t}$	-0.17[b]					1.30%	1.43	
Sample (C) All firms after	(9)	$CRR_{i,t}$	0.58[a]	-0.33	0.75[c]	-0.25	0.06	0.00%	0.42	42
	(10)	$CRR_{i,t}$	0.38[a]					5.90%	3.58[c]	
	(11)	$CRR_{i,t}$	0.57[a]					0.00%	0.20	
	(12)	$CRR_{i,t}$	0.53[a]					0.00%	0.18	

[a] Significant at the 1% level. [b] Significant at the 5% level. [c] Significant at the 10% level.

TABLE 9
THE RELATIVE EXPLANATORY POWER OF EARNINGS MEASURES IN EXPLAINING STOCK RETURNS[1]

9. $CRR_{i,t} = \alpha + \beta(CI130_{i,t}) + \varepsilon_{i,t}$ 10. $CRR_{i,t} = \alpha + \beta(OI_{i,t}) + \varepsilon_{i,t}$ 11. $CRR_{i,t} = \alpha + \beta(NI_{i,t}) + \varepsilon_{i,t}$ 12. $CRR_{i,t} = \alpha + \beta(CIbroad_{i,t}) + \varepsilon_{i,t}$

Models	Hypothesis[1]	Size	106	35	42
		Sample	(A)	(B)	(C)
9-10	$H31_o$	Inc. R^2	-0.10	0.05	-0.06
		Vuong	2.53[b]	1.14	1.28
9-11	$H32_o$	Inc. R^2	0.00	0.01	0.00
		Vuong	0.14	0.38	0.34
9-12	$H33_o$	Inc. R^2	0.02	0.04	0.00
		Vuong	0.94	0.82	0.36
10-11	$H34_o$	Inc. R^2	0.10	-0.04	0.06
		Vuong	2.53[b]	1.07	1.33
10-12	$H35_o$	Inc. R^2	0.12	-0.01	0.06
		Vuong	2.72[a]	0.78	1.33
11-12	$H36_o$	Inc. R^2	0.02	0.03	0.00
		Vuong	0.95	0.72	0.11

[a] Significant at the 1% level. [b] Significant at the 5% level.

V. CONCLUSIONS

The results of this research indicates that SFAS 130 comprehensive income and net income significantly dominate the broader measure of comprehensive income and operating income in explaining the following period's net income. Net income is marginally better than SFAS 130 comprehensive income in this context. None of the four measures is able to explain the following period's cash flows. Operating income is superior to the other three measures of income in explaining stock returns. In the pre-EAS 1 period, SFAS 130 comprehensive income and net income significantly dominate the broader measure of comprehensive income and operating income in explaining the following period's net income. Net income is marginally better than SFAS 130 comprehensive income in this context. None of the four measures of income is able to explain the following period's cash flows and stock returns.

In the post-EAS 1 period, net income is marginally better than the other three measures in explaining the following period's earnings. None of the four measures of income is able to explain the following period's cash flows. Operating income is the only model that can explain stock returns.

The overall results, regarding the Egyptian firms, show that net income dominates comprehensive income as a firm performance metric. This conclusion suggests that (for the Egyptian market) the International Accounting Standards Board **(IASB)**'s decision to extend the recognition of income beyond traditional realization concepts will not necessarily achieve the objectives of enhanced visibility and increased value relevance. If applied in the Egyptian

[1] A significant result reported in the raw labeled 'Vuong' referrers to rejecting the null hypothesis.

environment, the proposed IASB comprehensive income performance report is a presentation format that may add noise rather than value relevant information.

The claim that income measured on a comprehensive basis is a better measure of a firm's performance rather than other measures of income is not supported by the results of this research. The results show that net income is still a better measure of a firm's performance rather than comprehensive income. It can be suggested that the Egyptian investors are fixated on net income. That is, earnings items between net income and operating income (other net income items) are found to have incremental information content because they have been a part of net income for a quite long time. Thus, if the comprehensive income definition is persistently adopted, it would appear more relevant for the investors. Inferences drawn in this study are subject to some limitations. Samples sizes are relatively small which means that the results are sensitive to outliers. Thus, the results should be viewed with caution. An additional limitation, regarding the study samples, is the non-randomness of these samples which may lead to estimation biases. That problem can be resolved when comprehensive income's data become available for all listed firms in computer readable form. Future research might more directly to test the usefulness of the defferent measures of accounting income by using the experimental methodology or by conducting interviews to explore further why investors prefer or depend more on net income as a better measure of a firm's performance.

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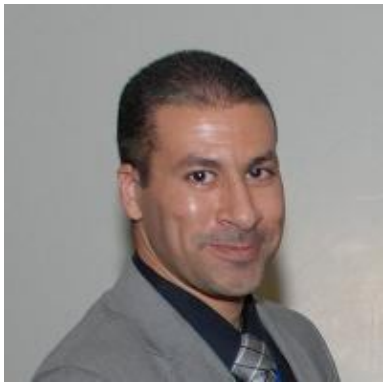

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