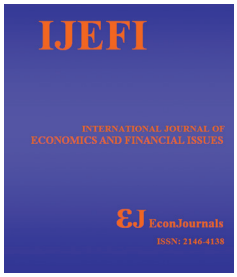

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The Value Relevance of Comprehensive Income in Nigerian: A Pilot Test

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ABSTRACT

This study is motivated by the need to provide contextual evidence to a decade-long debate regarding accounting standard that require firms to measure certain financial assets and liabilities at fair value and to recognize the effect thereof in a statement of comprehensive income (*CI*). Nigerian public interest listed firms switch-over to the International Financial Reporting Standards in 2012. Upon this transition, entities are required to report a new summary financial performance indicator known as the *CI*. This paper investigates the relative value relevance of traditional net income (*NI*) and the total *CI* (*TCI*). We analyzed a sample of 189 firms-year observations comprising of 84 companies listed on the Nigeria Stock Exchange for the period of 2010-2014. While we observed a price and return reactions to the magnitude of both the traditional *NI* and *TCI*, our test reveals the supremacy of *NI* over *TCI*. By implication, each summary measure is value relevant on an individual basis hence we conclude that both measures reflect information used by investors.

Keywords: Comprehensive Income, Net Income, Stock Return, Share Price
JEL Classification: M

1. INTRODUCTION

Commencing 1 January 2012, the adoption of International Financial Reporting Standards (IFRS) in Nigeria requires firms to present a statement of comprehensive income (*CI*) in which the total and other *CI* (*OCI*) items are recognized (Pricewaterhousecoopers [PwC], 2011). Based on this promulgation, reporting firms' may present a single statement of profit or loss and *CI* partition into two sections. Alternatively, an entity may present the profit or loss and *CI* in two separate statements, where a statement of profit or loss immediately precedes the statement presenting *CI*. Whichever format of presentation elected by a reporting firm, a mark-to-market values of the revaluation surplus, gains and losses on re-measuring available-for-sale financial assets, foreign currency translation adjustments, actuarial gains and losses on defined benefit plans and effective portion of gains and losses on cash flow hedge should be made visible on the face of the primary statement (Kanagaretnam et al., 2009; PwC, 2011). The rationale for this is to enhance the level of disclosure and transparency of financial statements and to provide the users with different financial performance indicators that could be viewed and evaluated discretely (Hirst and Hopkins, 1998; Kanagaretnam et al., 2009). This approach, according to some psychology-based financial reporting theorist will reduce: The cost of information processing, the propensity of losing vital information and earnings management (Hirst and Hopkins 1998; Kanagaretnam et al., 2009). While empirical evidences on whether *CI* represent information used by the investors is abound from other contexts, such evidence is lacking in Nigerian. One possible reason could be that, prior to 2012, presenting *CI* statement has been purely voluntary since Statement Accounting Standards (SAS-NG-GAAP) does not require firms to make such disclosures and presentations. Effective from 2012, Nigerian reporting firms are mandated to mark-to-market the components of *OCI*. Hence, there is a need to provide both classical and original evidence for sample of Nigeria companies. This paper takes a contextual pioneering step in investigating the relative value relevance of net income (*NI*) and total *CI* (*TCI*) in Nigeria.

The remainder of this paper is organized as follows: Section two presents the review of related works and hypothesis development. Research method is presented in Section three. Section four presents our findings; and section five is the conclusion of the study.

2. RELATED LITERATURE AND HYPOTHESIS DEVELOPMENT

The ongoing debate on the relative value relevance between the *NI* and *TCI* is partially driven by the concerns on whether the recognized changes in the wealth of the owners should be treated as clean surplus or dirty surplus income (Kanagaretnam et al., 2009). The proponent of current operating performance (*NI*) argued that, temporary changes (dirty surplus) arising from non-core operations should bypass the income statement and should be reported under the owners' equity section of the balance sheet. The premise of their argument is that, allowing these temporary and less persistent "dirty surplus flows" to go through the income statement would only increase the volatility of earnings (Biddle and Choi, 2006; Kanagaretnam et al., 2009). On the other hand, the supporters of "all inclusive" (*CI*) approach contends that, all changes in the value of assets and liabilities measured at the market value should pass through the income statement. Part of the argument put forward to favor all inclusive approach is the arbitrary manner in which substantial accounting earnings eludes disclosure on the face of the primary income statement (Cahan et al., 2000; Kanagaretnam et al., 2009). Again, direct adjustment of dirty surplus flows to the balance sheet may induce managers to opportunistically manage earnings (Kanagaretnam et al., 2009; Lee and Park, 2013). Hence, misleading inferences can be drawn by the users of accounting information (Kanagaretnam et al., 2009; Lee and Park, 2013). Considering the magnitude of *OCI* items, the proponents of all inclusive approach calls for the disclosure of these dirty surplus flows as part of the primary financial statement to allow these components to be assessed separately (Hirst and Hopkins, 1998; Kanagaretnam et al., 2009).

Sequel to these concerns, many empirical studies have emerged comparing the relative value relevance of *NI* and *TCI*. Generally, relative association studies in value relevance research, compare the association between the market value of equities (share price or stock returns) and alternative income measures (*NI* or *CI*) (Dhaliwal et al., 1999; Cahan, et al., 2000, Biddle and Choi, 2006; Chambers et al., 2007; Jones and Smith, 2011; Mechelli and Cimini, 2014). These studies examine the difference in the relative value relevance between *NI* and *TCI*. They interpreted financial performance indicator with the highest coefficient of determination (R^2) or most significant earnings response coefficient as the most value-relevant. So far, empirical evidence indicates that both financial performance indicators represent value relevance information, nevertheless, is not clear which one is more informative to investors. For instance, some evidence in some previous studies are suggestive of the supremacy of net *NI* over the *TCI* (Dhaliwal et al., 1999; O'Hanlon and Pope, 1999). While *NI* was found to be a good explanatory variable of the market value of equities, Dhaliwal et al. (1999) and O'Hanlon and Pope (1999) failed to find evidence that *TCI* was more strongly associated with returns for sample of US and UK firms. O'Hanlon and Pope (1999) expressed that, contrary to the perceived increase in the level of clarity and transparency, fair value accounting induced creative accounting among UK firms.

On this wave of argument, literature reveals that *NI* is more value relevant than the *TCI* (Goncharov and Hodgson, 2011; Jones and Smith, 2011; Turen and Hussiny, 2012; Mechelli and Cimini, 2014; Firescu, 2015; Marchinia and Esteb, 2015). One stream of research demonstrates that *NI* is more value relevant than *TCI* for both valuation and forecasting purposes as it explains stock price, stock return and operating cash flow proxies better than *TCI* (Goncharov and Hodgson, 2011; Turen and Hussiny, 2012; Mechelli and Cimini, 2014; Firescu, 2015). Examining the potential impact of dirty surplus flows on firms' returns on equity (calculated using either *NI* or *TCI*), Marchinia and Esteb (2015) documented that first time adoption of *CI* positively influence accounting numbers reported by Italian firms, but *NI* was more important in the years before and after the adoption period. Being a permanent and generated from core operations of the entity, the dominance of *NI* over *TCI* in the above studies is not surprising . Based on these literatures, it is arguable that the IASB's proposal of *TCI* does not seem to enhance the firm's ability to summarize financial performance beyond *NI*.

By contrast, some studies also found that *TCI* is a better explanatory variable than the *NI*, suggesting that *TCI* has higher value relevance over *NI*. For instance, Cahan et al. (2000) found evidence to support the dominance of *TCI* over *NI*. Biddle and Choi (2006) and Kanagaretnam et al. (2009) found that *TCI* is more strongly associated with stock prices and returns compared to traditional *NI* for the US and Canadian firms respectively. One viewpoint of these studies is the expression of comprehensive nature of *TCI*, as it combines the earnings from operating performance and earnings generated by the fair value difference between the end and the beginning balance sheet values. Overall, even though our review does not present exhaustive literature on *CI* reporting, available evidence seems to suggest that the proportion of studies that demonstrate the superiority of *NI* over *TCI* in terms of relevance, particularly in the west outnumbered argument in favor of *TCI*.

To keep pace with the global accounting language, Nigerian government announces her official adoption of IFRS in 2011. By this announcement, all Nigerian publicly listed entities and significant public interest entities have been obliged to publish their financial statements for financial year-end 2012 based on the endorsed IFRS (NASB, 2010). The transition from NG-GAAP to IFRS provides different accounting requirements for Nigerian reporting entities. This event necessitated an accounting standard change toward fair value measurement instead of historical cost accounting (NASB, 2010). One major requirement brought about by IFRS is the presentation of a *CI* statement as one of the elements of primary financial statements. So far, results from other countries discussed in this paper are quite new in Nigeria and have not been tested to the best of our knowledge. Prior

value relevance studies in Nigeria are based on the summary measure of the book value of equity (*BVE*), earnings per share and cash flow from operation (Mgbame and Ikhatua, 2013; Olugbenga and Atanda, 2014; Enofe et al., 2014; Ernests and Oscar, 2014). Therefore, there is dearth literature on the utility of IFRS accounting numbers, especially the valuation of a more historical earnings measure and fair value measure. Since we cannot draw a clear hypothesis on earnings definition that is more value relevant to investors based on previous studies in our context, our anticipation is that *NI* could be more value relevant than *TCI*. We assumed this position because *NI* is a permanent earnings derived from core-business activities. Thus, we therefore hypothesize that:

H: *TCI* is less value relevant than the *NI* in the Nigerian capital market.

3. SAMPLE SELECTION AND RESEARCH DESIGN

The sample of this study consists of 189 firm-year observations from 84 non-financial Nigerian firms whose market equity data are on the Thomson Reuters DataStream and those we had access to their annual reports over the period of 2010-2014. For these firms, data were collected on share price, dividend and *BVE* from the DataStream and all other accounting data for firms with non-zero *OCI* were hand collected from the annual reports. Given the unequal size of the firms in our sample, skewed data and outliers cannot be avoided. To mitigate the scale effect and to reduce the probability that outliers did not bias our results, all the variables are winsorized at 2% consistent with previous studies Kubota et al. (2011) and Mechelli and Cimini (2014).

To test our research hypothesis on the relative value relevance of *NI* and *TCI*, we used the modified Ohlson (1995) price model and Eastons and Harris (1991) return model. Given the filing requirement of 90 days after the accounting year-end, we used 4 months share price on the assumption that market participants have access to all available information for decision-making. All accounting variables in the share price models are deflated using outstanding shares. To control for firms with negative earnings, we include a dummy variable (*LOSS*) which is assigned the value of 1 if *NI* or *TCI* is negative and 0 otherwise and its interactions consistent with Barth et al. (2012) and Mechelli and Cimini (2014). The models are as specified:

$$P_{it} = \beta_0 + \beta_1 BVS_{it} + \beta_2 NI_{it} + \beta_3 LOSS_{it} + \beta_4 NI_{it} * LOSS_{it} + \varepsilon_{it} \quad (1)$$

$$P_{it} = \alpha_0 + \alpha_1 BVS_{it} + \alpha_2 TCI_{it} + \alpha_3 LOSS_{it} + \alpha_4 TCI_{it} * LOSS_{it} + \varepsilon_{it} \quad (2)$$

To avoid scaling problems and bias inference, we employ a return model as a second approach of investigating the value relevance of *NI* and *TCI* following previous studies (Mechelli and Cimini, 2014) as follows:

$$R_{it} = \beta_0 + \beta_1 NI_{it} + \beta_2 \Delta NI_{it} + \beta_3 LOSS_{it} + \beta_4 NI_{it}{}^{*} LOSS_{it} + \beta_5 \Delta NI_{it}{}^{*} LOSS_{it} + \varepsilon_{itit} \quad (3)$$

$$R_{it} = \alpha_0 + \alpha_1 TCI_{it} + \alpha_2 \Delta TCI_{it} + \alpha_3 LOSS_{it} + \alpha_4 TCI_{it}{}^{*} LOSS_{it} + \alpha_5 \Delta TCI_{it}{}^{*} LOSS_{it} + \varepsilon_{itit} \quad (4)$$

R_{it} is measured as the annual stock return commencing 8 months before and ending 4 months after the fiscal year-end. All accounting variables in the model are deflated by the closing price of common equity at the beginning of the return year. Additional suffix "Δ" denotes a change between periods $t-1$ and t for each variable respectively.

As well established in the value relevance literature, we used the magnitude of the adjusted R^2 and the size of the regression coefficients as benchmarks for comparison of relative value relevance for both price and return estimation. We concluded that *NI* (*TCI*) is more value relevant than *TCI* (*NI*) if the R^2 and the regression coefficient of the *NI* models is higher than that of *TCI* and *viz*. In line with previous studies, we use the Vuong (1989) test of difference between these R^2 values to establish if they are statistically significant. The next section presents data description and result of the regression models estimated above.

4. EMPIRICAL ANALYSIS

4.1. Descriptive Statistics of the Sample

Panel A of Table 1 highlights the variables used to examine the association between the *PRICE*, *RETURN* and earnings components. Both the *PRICE* and *RETURN* have a positive means of 18.73% and 1.8%, suggesting that, on average, sample firms experienced positive share price and stock returns for period of 2010-2014.

The *NI* and *TCI* per share also exhibit positive means of 1.49% and 1.41%. The variation between the two classes of earning for the overall sample is relatively small. Also the means of *NI* and *TCI* deflated by the beginning market value of equity are positive at 0.24% and 0.22%.

4.2. Results of Relative Value Relevance

The results presented in Panel A and B indicate that the regression coefficient of the book value of common equity (*BVE_S*) is positive

Table 1: Sample description

Variables	Mean	Standard deviation	Min	Max
Panel A: Variables used in the price models				
$PRICE_{it}$	17.41	26.43	0.50	99.5
BVE_S_{it}	1.05	1.20	0.023	6.39
NI_S_{it}	0.79	1.52	−0.63	5.69
TCI_S_{it}	0.98	1.70	−0.66	6.14
Panel B: Variables used in the return models				
$RETURN_{it}$	2.35	2.18	−0.65	4.86
NI_MC_{it}	0.45	1.75	−0.77	5.41
TCI_MC_{it}	0.50	1.67	−0.73	4.20

CI: Comprehensive income, NI: Net income, TCI: Total comprehensive income, BVE: Book value of equity

and significant at 1% or better. The magnitude of the coefficient of *BVE_S* is 0.82 and 0.75 and both significant at 5%. Using the price model, the regression *NI*_S presented in Panel A of Table 2 is positive (0.39) and significant and significant at 1% or better. This coefficient is higher than that of *TCI* presented in the Panel B based on the regression coefficient of 0.36, which is also significant at 1% or better. The adjusted R^2 of the *NI_S* model explains 21.96% variation of the share price, again higher than 20.52% variation of share price explained by the *TCI_S*.

The Vuong (1989) test of difference between these R^2 values is statistically significant at 5% (Vuong V-statistic 1.96, $P < 0.051$). From the above analyses, it is apparent that the *NI* dominates the *TCI* for our sample. Even though our two benchmarks for comparison of the relative value relevance confirm the dominance of *NI* over the *TCI*, it is interesting to note that the difference in terms of the regression coefficients and coefficient of determination is relatively small. This is not surprising since *TCI* is derived when *NI* is adjusted for dirty surplus flows; hence, the explanatory power of the two financial performance indicators are closely related (Mechelli and Cimini, 2014). Nevertheless, we found evidence to reject the the null hypothesis of no difference in the information content between *NI_S* and *TCI_S*. Further, the sign for an indicator variable LOSS and it interaction with *NI_S* and *TCI_S* are negative as expected consistent with Barth et al. (2012) and Mechelli and Cimini (2014). Their inclusion into the analysis slightly improves *NI_S* and *TCI_S* models compared to when they are not controlled for (untabulated). We observed similar result when the variables are scaled by the beginning of the period market value of equities.

Our alternative test using a return model is presented in Table 3. Because we used a return model, which parameters include a change earnings between periods *t*−1 and *t*, we lose 64 firm-year observations. In Panel A of Table 3, the coefficient on the *NI_MC* is positive (0.79) and significant at 1%. Likewise, the regression

Table 2: Relative value relevance of *NI* and *TCI* (dependent variable=share price) for 2010 to 2014 when n=207

Variables	Expected signs	Coefficient	t-statistic	VIF
Panel A: Variables used in the *NI* models				
CONS	+/-	+0.63 (2.12)	0.038**	
BVE_S_{it}	+	+0.64 (2.10)	0.039**	1.05
NI_S_{it}	+	+0.55 (3.11)	0.003***	1.03
$LOSS_{it}$	-	−0.19 (−1.47)	0.147	1.03
$NI\_S_{it}*LOSS_{it}$	-	−0.14 (−1.47)	0.147	1.01
R^2=23.27%	F-value	6.55	0.000***	Mean VIF 1.03
Panel B: Variables used in the *TCI* models				
CONS	+/-	+0.62 (1.96)	0.054**	
BVE_S_{it}	+	+0.69 (2.28)	0.025**	1.06
TCI_S_{it}	+	+0.41 (2.51)	0.014**	1.05
$LOSS_{it}$	-	−0.15 (−1.21)	0.231	1.01
$TCI\_S_{it}*LOSS_{it}$	-	−0. 10 (−1.29)	0.200	1.01
R^2=19.44%	F-value	4.51	0.000***	Mean VIF 1.03
Vuong Z-statistic (test of difference in R^2)		2.04	0.041**	

The result of the relative value relevance between the net income and comprehensive income using the price model. BVE_S_{it}: Per share book value of common equity; NI_S_{it}: Net income per share; TCI_S_{it}: Total comprehensive income per share; $LOSS_{it}$ is an indicator variable equal 1 if negative earnings and 0 otherwise. NI_S*LOSS_{it} and TCI_S*LOSS_{it} are interaction terms for loss firms and *i* and *t* refer to firm and year. The variables are winsorized at 2% and standard errors were corrected by controlling for cross-sectional correlations, clustering by firms (Petersen, 2009). *.**.***Denotes significant at 10%, 5%, and 1%

Table 3: Relative value relevance of *NI* and *TCI* (dependent variable=stock returns) for 2010 to 2014 when n=143

Variabls	Expected signs	Coefficient	t-statistic	VIF
Panel A: Variables used in the *NI* models				
$CONS_{it}$	+/-	+2.02 (8.30)	0.000***	
NI_MC_{it}	+	+0.60 (4.32)	0.000***	1.09
ΔNI_MC_{it}	+	0.45 (0.79)	0.430	1.01
$LOSS_{it}$	-	−0.26 (−1.66)	0.100	1.08
$NI\_MC_{it}*LOSS_{it}$	-	−0.07 (−1.53)	0.130	1.02
R^2=19.19%	F-value	8.90	0.000***	Mean VIF 105
Panel B: Variables used in the *TCI* models				
$CONS_{it}$		+2.10 (11.35)	0.000***	
TCI_MC_{it}		+0.58 (3.72)	0.000***	1.03
ΔTCI_MC_{it}		0.51 (0.71)	0.480	1.00
$LOSS_{it}$		−0.51 (4.24)	0.000***	1.05
$TCI\_MC_{it}*LOSS_{it}$		−0.20 (−2.69)	0.009***	1.02
R^2=18.94%	F-value	11.25	0.000***	Mean VIF 103
Vuong Z-statistic (test of difference in R^2)		0.867	0.386	

NI_MC_{it}: Net income deflated by the beginning price, TCI_MC_{it}: Total comprehensive income deflated by the beginning price. Additional suffix "Δ" denotes a change between periods *t*-1 and *t* for each variable respectively, $LOSS_{it}$ is an indicator variables which equals one if earnings is negative and 0 otherwise. $NI\_MC*LOSS_{it}$ and $TCI\_MC*LOSS_{it}$ are interaction terms for loss firms; i and t refer to firm and year. The variables are winsorized at 2% and standard errors were corrected by controlling for cross-sectional correlations, *.**.***denotes significant at 10%, 5%, and 1%

coefficient of *TCI_MC* was positive given a value of 0.43 and statistically significant at 1%, but lower than the *NI_MC*. In all cases, the coefficients on the Δ*NI* and Δ*TCI* are negative and significant. This suggests that change earnings do not reflect information used by the investors. As expected, the explanatory powers of the return models when using *NI* model is 22.52%, which is larger compared to 13.39 explained by *TCI* model. This result, based on our two comparison benchmarks continues to support the superiority of *NI* over the *TCI*. The Voung (1989) test of difference between the R^2 is positive, but not statistically significant. The positive value of the Vuong Z-statistic suggests that *NI* is a better explanatory variable of stock returns than *TCI*. Overall, findings from the two regression baseline support our hypothesis, which predict *TCI* to be less value relevant than the *NI* in Nigerian capital market. This is consistent with previous studies on this wave of research (Goncharov and Hodgson, 2011; Jones and Smith, 2011; Turen and Hussiny, 2012; Mechelli and Cimini, 2014; Firescu, 2015; Marchinia and Esteb, 2015).

5. CONCLUSION

We examine whether a financial performance indicator measure as *NI* is more value relevant than *TCI*. A more obvious conclusion is stock market reactions to the magnitude of both the traditional *NI* and *TCI*. However, our test reveals that *TCI* is less value relevant compared to the traditional *NI*. This leads us to conclude that the two competing measures are value relevant on an individual basis. By providing an evidence to a decade-long debate from a jurisdiction which is in the process of transition, we have responded to the calls in the literature for contextual examination of *CI* to highlight whether it reflects information used by the users of financial statement.

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