

Does Book Values and Earnings Affect Equity Values of Corporate Entities in Nigeria?

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Abstract

Purpose of the article: In this study, we appraised the effect which book values and earnings would have on equity values of quoted corporate entities in Nigeria. In view of this, we obtained secondary data from the published reports of 105 firms selected for this study. The study period was 10 years (2005–2014).

Methodology/methods: The regression technique was employed to scrutinize the data sourced from sampled entities' annual accounts. Additionally, the Breusch-Pagan/ Cook-Weisberg Test was employed along with the VIF Test to verify whether the sourced data were normally distributed or whether there was the presence or otherwise of multicollinearity amid the explanatory (independent) variables.

Scientific aim: This study aims to empirically establish with available statistics, the extent in which variations in equity values of quoted corporate entities in Nigeria could be accounted for by changes in book values and earnings.

Findings: Results from our analysis revealed *inter alia*, that book value per share and earnings jointly had significant and positive effect on equity values of Nigerian quoted firms.

Conclusion: Since earnings was significant in attempting to ascertain equity values of Nigerian firms, it was thus recommend that regulatory bodies like the Financial Reporting Council of Nigeria among others should develop enforceable strategies and sanctions that would discourage and eliminate all forms of earnings manipulation that may distort the information reported in the financial statements of quoted corporate entities in Nigeria.

Keywords: book value, firm value, eps, accounting information, financial reporting

JEL Classification: M40, M41, M49

Introduction

Every quoted firm is expected to prepare financial reports, which by all standards, provide the necessary information on the performance of entities from one reporting period to another. By all reasonable standards, it is expected that various users and/or stakeholders can at anytime, rely on such information. On this note, Samaila, Abuh (2012) maintained that all the information disclosed in annual reports are a necessity for the functioning of stock markets since they provide the most widespread and extensive public data on firm's economic activities.

Since financial statements play key roles in summarizing business transactions plus other organizational events (Shehzad, Ismail, 2014), their relevance is therefore circumscribed in provisos of their capacity to capture or summarize firm value which is mostly proxied by equity values. It is on this note that earlier studies (see Liu, Liu, 2007; Tharmila, Nimalathasan, 2013; Halonen *et al.*, 2013) continually maintained that measuring the relevance of every information reported in companies' financial statements could be centered on the magnitude to which one could ascertain wholly or otherwise, the statistical relations inherent in the information so presented in the published financial reports of firms and the prices or returns of their equity stocks.

To date, distinguished empirical evidence exists on valuation studies (Takacs, 2012; Adaramola, Oy-erinde, 2014). While studies have proved the existence of a significant link between equity values and the information shown in annual accounts of entities (with emphasis on book values and earnings), though at varying degrees (Takacs, 2012; Pathirawasam, 2013; Shamki, 2013), studies have also argued that such information have either lost, or is experiencing a wane in its relevance. Based on the aforesaid, this study focused on uncovering the effect which book values and earnings may have on equity values, using quoted corporate entities in Nigeria.

1. Conceptual framework and literature review

According to Francis *et al.*, (2005), value relevance is one basic attributes of accounting quality. Quoting Liu, Liu (2007), Shehzad, Ismail (2014) maintained that value relevance is measured with regards to its ability to summarize the information underlying stock prices. In consonance with this argument, Gjerde *et al.*, (2005) opined that independent variables like earnings, dividend, book value, and re-

tained earnings are value relevant if they are related to (significantly) the dependent variable, mostly expressed by either of share price, return or abnormal return.

Value relevance refers to what Camodeca *et al.*, (2014) described as the explicatory power of accounting variables. These accounting variables include (but not limited to), book value per share and earnings (Feltham, Ohlson, 1995; Liu, Liu, 2007; Beisland *et al.*, 2010; and Tharmila, Nimalathasan, 2013), cash flows (Bartov *et al.*, 2001), or other relevant accounting variables that researchers may have selected to meet their research objectives (Göttsche, Schauer, 2011).

It is however noteworthy that the debate on the concept of value relevance as it affects accounting information cannot be pictured as a recent phenomenon. As noted earlier, studies have suggested that accounting information is either value relevant, not relevant, or is losing its value relevance. Supporting studies on the argument that accounting information could be deemed value relevant in the determination of stock prices include, but not limited to studies in China (Bao, Chow, 1999), Thailand (Graham, King, 2000), Europe (Arce, Mora, 2002), Kuwait (Shamy, Kaled, 2005), and Nigeria (Oshodin, Mgbame, 2014; Uthman, Abdul-Baki, 2014). The general consensus of these sets of studies is that earnings and book values were value relevant to the prices of stocks. Contrary to this argument, empirical resolve also indicate that given certain circumstances (for instance, a deliberate move by firms towards the adoption of high-technology and service oriented economy), accounting information have either lost, or is experiencing a wane or decline in their value includes studies like that of Francis, Schipper (1999), Lev, Zarowin (1999), Dontoh *et al.* (2007), and Cheng *et al.* (2008).

2. Value relevance of earnings and book values

Remarkable studies on value relevance over the years have focused majorly on book values of shares and earnings. These variables are believed to be two crucial measures that best summarize the content of firms' financial statements. While book value is considered the "bottom line" number in the statement of financial position of firms, Penman (2010) maintained that earnings on the other hand is considered, the "bottom line" number in the income statements of firms.

The idea that annual reports provide broad and publicly available data concerning the economic

activities of every firm is well captured in existing literatures (Akintoye, 2008; Samaila, Abuh, 2012; Razie *et al.*, 2014). In the light of the above, we shall discuss the value relevance of both items as follows:

3. Value relevance of earnings

One striking variable in the accounting domain, when analyzing issues on value relevance is earnings. Thus, an appraisal of extant literature shows clearly that early works on value relevance (Beaver, Dukes, 1972) focused on earnings ability to capture trends and behaviours of stock price movements. Relying on the premise of prior studies, Adaramola, Oyerinde (2014) opine that value relevance of earnings is ascertained by regressing stock returns on accounting earnings, or the abnormal stock returns on expected earnings. Analysing the connection amid stock prices and the contents of corporate reports by means of correlation analysis, Nichols, Wahlen (2004) and Dechow, Dichev (2002) observed that earnings information seem to provide more relevant and reliable information.

Researches on the value relevance of earnings show interesting results across jurisdictions, countries and industries. In a study by Ball *et al.* (2000), the value relevance of earnings in seven countries was examined. The result from their study revealed that in terms of timeliness, accounting earnings was significantly greater in common-law countries when compared to that of code-law countries. In the study of Dechow (1994), earnings was found to have a stronger relationship with returns than the cash flows. Based on this finding, Dechow (1994) thus concludes that at periods where available records of firms is indicating changes in working capital requirements and investing and financing activities, cash flows are expected to exhibit severe problems of matching and timing which would impinge on the ascertainment of the actual performance of the firms in question.

In a similar study conducted in the United States of America (USA), Hayn (1995), after scrutinising the relevance of earnings in predicting stock returns for a 29 year period, concluded that earnings were positively linked with stock returns. In the study of Pathirawasam (2010), amongst variables studied (earnings, book value and return on equity), it was discerned that the most significant accounting variable in Sri-Lanka was earnings. While other studies like Percy, Stokes (1992) and Cheng *et al.* (1996), show that earnings and cash flows provide incremental information when used together to determine stock price movement, it is interesting

to notice that several other studies have perceived changes in the level of value relevance of earnings. Notable among such studies are Amir, Lev (1996), Francis, Schipper (1999), and Lev, Zarowin (1999). For instance, the results from the analysis of data obtained from the US markets by Amir, Lev (1996), reveal that earnings were irrelevant in the wireless communication industrial sector. In addition to this, Lev, Zarowin (1999) also measured the statistical association between earnings change and stock return over a 20 year period and observed a decrease in the association between stock return and earnings which was measured by R^2 during the period, 1977–1996.

Interestingly, the perceived decrease in the value relevance of earning was also believed to have resulted to an increase in the value relevance of cash flows (Cheng *et al.*, 1996). This perceived trend according to Babalola (2012) is an indication that the market is seemingly faced with the choice of looking at cash flows as an alternative source of information where the suspicion is that earnings numbers have inadequate information needed for investment decisions. Babalola (2012) further asserted that where this is the case, book value may perhaps be used as an alternative source of information for the valuation of equity stocks of firms.

4. Value relevance of book value

In the panorama of the perceived lack of reliability of information generated with respect to earnings, there is this belief that investors now seek for an alternative source of measurement parameter which has been found in book value per share. In the views of Feltham, Ohlson (1995) and Ohlson (1995), under certain conditions, firm value may possibly be expressed as the weighted average of earnings and book value. Quoting Hayn (1995), Babalola (2012) maintained that book value can be viewed as a proxy for expected future earnings for loss of firms. Similarly, Berger *et al.* (1996) viewed book value as a proxy for the abandonment option for firms that are likely to cease operations. Findings from prior studies (Ohlson, Penman, 1992; Berger *et al.*, 1996; Dontoh *et al.*, 2004), have also shown that book value is relevant simply because it seem to have stronger association with share price when weighted.

Though the chore of earnings in the study of the presumed relevance of accounting information may be long settled, the same cannot be said of book value of equity (Subramanyam, Venkatachalam, 2007). This is because according to Oshodin, Mgbame (2014), the framework of the clean surplus valuation

is anchored on the residual income valuation model which is hinged on the argument that book value plays anchoring roles in valuation by representing the net stock of resources which the future earnings of firms depend on (Easton *et al.*, 1992; Collins *et al.*, 1998). Again, book value is believed to have the capacity of providing information on the liquidation or adaptation values of firms' net asset with poor financial performance (Burgashler, Dichev, 1997).

It was in line with the argument on the value relevance of book value that Barth *et al.*, (1998) conducted a study that examined the relevance of the balance sheet (statement of financial position of firms) in relation to the financial health of firms. Findings of Barth *et al.* (1998) implied that the sensitivity of equity book value to equity market value increased as the economic well being/financial health of firms decreased. The reverse appears to be the case for earnings because according to Adaramola, Oyerinde (2014), the incremental explanatory power of earnings tends to be positively related to the economic well being/financial health of firms. The implication of this assertion according to Adaramola, Oyerinde (2014) is that in explaining the movement of stock prices, book value of equity will only be relatively more critical than earnings in situations where the economic well being/financial health of firms tend to be on a decreasing or deteriorating trend.

Also in a different study of data extracted for a 12 year period (1994–2005) from the Korean stock market, Kwon (2009) discovered that book value was the most significant/value relevant accounting variable in Korea. The causes of this drift from the focus on earnings to book value have also attracted empirical investigations (Wild, 1992; Hayn, 1995; Amir, Lev, 1996; Berger *et al.*, 1996; Collins *et al.*, 1998; Burgstahler, Dichev, 1997 and Barth *et al.* 1998). The shift, as we are made to understand, resulted from a catalog of factors which include, but not restricted to a shrink in the size of firms (Wild 1992), the increasing incidence of disclosed losses among firms (Hayn, 1995), increase in intangibles (Amir, Lev, 1996), and the frequency and increasing level of extraordinary/abnormal items (Elliott, Hanna, 1996). Noteworthy, these factors which led to the increase in the relevance of book values were also linked to be the factors that contributed to a reduction in the value relevance of earnings.

5. Methodology

The regression technique was employed as the basic statistical tool for data analyses in this study. The

analyses were done in sections: descriptive statistics for the variables involving mean, standard deviation, minimum and maximum value; and the correlation analysis. The Breusch-Pagan/ Cook-Weisberg Test was also conducted to find out whether our data were normally distributed. In addition, the data were also tested to establish the presence or otherwise of multicollinearity amidst the explanatory (independent) variables. Analyses however were done via Stata 13.0 statistical package

6. Hypothesis and model specification

In this section, we formulated a research hypothesis to guide this study and the relationship between market value of equity and the combination of Earnings Per Share (*EPS*) and Book Value Per Share (*BVPS*) was estimated in a model which is specified in an implicit form. We therefore hypothesize as follows:

Ho: Accounting information measured by earnings and book value per share are not value relevant in determining the value of equities of quoted firms in Nigeria

In order to test the above hypothesis, the relationship between the dependent variable (*VEQ*) and the explanatory (independent) variables (*EPS* and *BVPS*) was estimated in the following models specified in Eqn. (1) and Eqn (2).

The models

$$VEQ = f(EPS, BVPS), \quad (1)$$

where:

VEQ Value of Equity (measured by the price of stocks at the entity's reporting date),
EPS Earnings per Share,
BVPS Book Value per Share.

We however restated the above equation (Eqn. (1)) in its explicit form taking into consideration, the individual firm and time dimension as follows:

$$VEQ_{it} = \beta_0 + \beta_1 EPS_{it} + \beta_2 BVPS_{it} + U_{it}, \quad (2)$$

where:

VEQ_{it} Value of Equity (measured by the price of stocks at the reporting date of entity *i* in year *t*),
EPS_{it} Earnings per Share of entity *i* in year *t*,
BVPS_{it} Book Value per Share of entity *i* in year *t*,
 $\beta_0, \beta_1, \beta_2$ Regression Coefficients,
U_{it} Error term.

7. Data analysis, results and discussions

7.1 Descriptive statistics

The result of the descriptive statistics showing the mean, standard deviation and the minimum and maximum values of this study's variables is summarised in Table 1 below.

The result in Table 1 gives an insight on the nature of the variables used in this study. The highest mean was recorded by value of equity (23.18337) which was followed by that of book value per share (6.06057). The variable that recorded the lowest mean was earnings per share (0.97761). Regarding the level of dispersion from the average, again, value of equity recorded the highest standard deviation (70.55784), followed by book value per share (12.19787), while the least was earnings per share (7.186075). The standard deviation of 70.55784 for value of equity is an indicant of the level dispersion of the dependent variable among the firms sampled in this study. Results from the table also reveal that *VEQ* ranged between 0 and 1,200 for the period covered by this study, while that of *EPS* and *BVPS* ranged between -211.99 and 28.05 and -9.03 and 149.2 respectively. This is an indication that negative *EPS* and *BVPS* were recorded at some point during the period under scrutiny.

7.2 Multicollinearity test

To confirm the dependability and reliability of the independent variables included in our model, we conducted the multicollinearity test. Below is the result of the test.

Going by the result of the test for the existence or otherwise, of multicollinearity using VIF, one could observe that the mean VIF obtained was 1.03. The inference from this result is that since the value of

the mean VIF is 1.03 (a value that is far below the maximum benchmark of 10), multicollinearity does not exist amid the explanatory (independent) variables of this study. This means that the expected result of this study's regression analysis could be adjudged reliable; thus guaranteeing that the conclusions to be made from such results would not be misleading.

7.3 Correlation analysis

To ascertain the direction of the statistical association and to verify the relatedness among the variables, the Pearson Correlation Coefficient (PCC) matrix was adopted and the result is summarised in Table 3.

From the result in Table 3, notice that the dependent variable (*VEQ*) is positively related to the independent variables (*EPS* and *BVPS*). With the value of 0.1679, the result also confirms that the explanatory variables are not perfectly correlated. This is a signal that further confirms the result of the multicollinearity test whose interpretation by the Mean Variance-Inflation-Factor (VIF) indicated that multicollinearity is not present amidst the explanatory (independent) variables.

7.3 Regression analysis and discussion

Having concluded the above tests and analysis, the data were also subjected to the normality test using the Breusch-Pagan/ Cook- Weisberg Test. The result of this test is presented along with the summary of the regression result as shown in Table 4.

Table 4 presents the model summary for *VEQ*, *EPS* and *BVPS* for a total of 1050 observations. The R^2 obtained is 0.0957. This suggests a 9.57% explanatory ability of the estimation for the systematic variations in the dependent variable with an adjusted value of 0.0940 (9.40%). Going by this result, *EPS* and *BVPS* are found to be statistically

Table 1. Descriptive Statistics (*VEQ*, *EPS*, *BVPS*).

Variables	Mean	Std. Dev.	Min. Value	Max. Value
Value of Equity (<i>VEQ</i>)	23.18337	70.557840	0.00	1,200.00
Earnings Per Share (<i>EPS</i>)	0.97761	7.186075	-211.99	28.05
Book Value Per Share (<i>BVPS</i>)	6.06057	12.197870	-9.03	149.20

Source: Stata Output, 2016.

Table 2. Results of The VIF Test.

Variables	VIF	1/VIF
<i>BVPS</i>	1.03	0.971803
<i>EPS</i>	1.03	0.971803
Mean VIF	1.03	

Source: Stata Output, 2016.

Table 3. Correlation Matrix (*VEQ*, *EPS*, *BVPS*).

Variables	<i>VEQ</i>	<i>EPS</i>	<i>BVPS</i>
<i>VEQ</i>	1.0000		
<i>EPS</i>	0.2226	1.0000	
<i>BVPS</i>	0.2492	0.1679	1.0000

Source: Stata Output, 2016.

Table 4. Model Summary (VEQ, EPS, BVPS).

Dependent variable: Value of equity (VEQ) Prob > F = 0.0000				
Observation included: 1050				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	13.75803	2.317224	5.94	0.000
Earnings per Share (EPS)	1.826147	0.292717	6.24	0.000
Book Value per Share (BVPS)	1.260622	0.172447	7.31	0.000
R-squared	0.0957	Mean dependent var		23.18337
Adjusted R-squared	0.094	S.D. dependent var		70.55784
Root MSE	67.161	Sum squared resid		4722578.96
F-statistic (2; 1,047)	55.40	Df		2/1047
Breusch-Pagan/ Cook- Weisberg Test chi(1)	782.73	Prob > chi2		0.0000

Source: Stata Output, 2016.

significant at 5% level in explaining movements in VEQ. The result of the t-test statistics was espoused to establish the statistical import of the variables under scrutiny. The result offers further evidence that both EPS (6.24) and BVPS (7.31) are statistically significant.

It should be noted that accounting information are said to be value relevant where their probable regression coefficient differ from zero significantly (Holthausen, Watts, 2001). Going by the above premise, since the computed F-Stat. is 55.40 with a p-value of $0.0000 < 0.05$, the relationship is deemed to be highly significant. The implication of the above is that a significant relationship exists amid the combination of earnings per share and book value per share (explanatory variables) and the value of equity (dependent variable) of firms quoted on the floor of the Nigerian Stock Exchange. Note that the with respect to the normality test, the Breusch-Pagan/Cook-Weisberg Test revealed that chi2 (1) is 782.73 with a p-value of 0.0000; thus signifying that the data set followed a normal distribution.

Given the above, we therefore conclude that a positive relationship was found between Value of Equity and the explanatory (independent) variables (EPS and BVPS), meaning that the value of equity of quoted corporate entities in Nigeria is influenced by earnings and book value per share. A relationship that is statistically significant at 5% level ($p = 0.000 < 0.05$). While this finding is consistent with that of some prior studies (Dechow, 1994; Hayn, 1995; Pathirawasam, 2010; Adaramola, Oyerinde, 2014), it is pertinent to note that it at the same time contradict the findings of Amir, Lev (1996), Francis, Schipper (1999) and Lev, Zarowin (1999).

8. Conclusion and recommendation

This study sought to confirm whether book values and earnings have significant effect on equity values Nigerian quoted firms. It was ascertained in this study that to date, remarkable empirical evidence exists on valuation studies, both within and outside the shores of Nigeria. While studies have maintained that significant and positive relationship exist at varying degrees between equity value and accounting information (book values and earnings), others maintained that accounting information have either lost, or is experiencing a decline in its relevance. The results from the data analyses and test of hypothesis have far reaching empirical evidence. On the whole, our conclusion is that book values of equity and earnings jointly have significant and positive effect on equity values of quoted Nigerian firms.

Resulting from the aforesaid, we thus recommend that given the level of significance of earnings in determining the value of equities of firms in the country, reporting entities must be made to present data that truly reflect their actual economic results which must not be deliberately distorted purportedly for tax purposes. Also, the supervisory role of regulatory bodies in Nigeria should be intensified. By this, the Financial Reporting Council of Nigeria among others should develop enforceable strategies and sanctions that would discourage and eliminate all forms of earnings manipulation that may in one way or the other distort the type and content of the information disclosed in the annual financial reports of companies in Nigeria.

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