

Financial Accounting Numbers and the Emerging Nigerian Stock Market

Adetula Formerly Oyerinde and Dorcas Titilayo
Department of Accounting, Covenant University, Ota, Ogun State, Nigeria

Abstract: Using the sample of companies quoted on the Nigeria Stock Exchange, we investigate the extent to which financial accounting numbers are reflecting in their stock price; indicating their value relevance. Accounting data is deemed value relevant if it is significantly connected with the stock price. The methods used for measuring information contents of various accounting numbers were Random Effects Model (REM), Fixed Effects Model (FEM) and Ordinary Least Squared (OLS). The findings reveal that there is a major correlation between financial accounting numbers and prices of the firms' stock compiled on the Nigerian Stock Exchange (NSE). Dividends, earnings and net book value are the most commonly used accounting information for making investment decisions in Nigeria. Dividends are more value relevant than earnings and net book value. The study therefore recommends that the quality of earnings of firms be enhanced as manipulated earnings (which have dividends as sub-sets) have large impact on prices of share. The study also has as its recommendation that all quoted companies on the Nigerian Stock Exchange publish Simplified Investor's Summary Accounts (SISA) emphasizing on the accounting information most widely used along the required obligatory thorough financial statements to fit Nigerian individuality.

Key words: Value relevance, accounting information, investors, financial statement, Nigeria

INTRODUCTION

Financial report is most relevant way of getting information about the Nigerian companies for the aim of decision making. However, the very rectitude and tenacity of accounting service's value relevance has been questioned due to the economic meltdown in 2008 which resulted in the nearly collapse of Nigerian Stock market where investment and retirement wealth worth billions of naira disappeared. Accounting numbers are said to be relevant if they may be summarized by price, return or abnormal return.

This study is motivated by the fact that companies quoted on Nigerian Stock market use financial report as main source of communication with their stakeholders (Vishnani and Shah, 2008). In Nigeria, for instance, the Directors of all companies compiled on the Nigerian Stock Exchange (NSE) list are required by Companies and Allied Matters Act (CAMA) (1990) to submit the declaration of the financial position of their organizations annually. Beyond this, all companies listed on first tier market of the Nigerian Stock Exchange are authorized to submit declarations of their financial position to the stock exchange quarterly, semi-annually and annually while companies listed on second tier market are required to submit the declarations of their accounts to the stock exchange annually. This study investigates whether these various items of declarations of financial position are

value relevant in Nigerian Stock Market. The Nigerian Stock Exchange (NSE) began operation in 1961 with only 19 securities worth N80 million. In 2007, the NSE hit an all-time high market capitalization of US \$82 billion at end of 2007. As at that time, the amount was double the foreign reserve of Nigeria. According to Oyerinde, during those years, there was a significant rise in stock market activity in Nigeria. This led to the rise of stock prices which was precipitously terminated in the second half of 2008. Prior to the diminution, the number of listed companies had boomed to 299, comprise of 86 Government Stocks with Industrial Loans Stocks and 213 Equity/Ordinary Shares (including emerging market) with a total market capitalization of N13.295 trillion. The study therefore concentrates on the pre and post-collapse period. This period covers from 2002-2008. This period is of interest because of the fast growth in the Nigerian stock market from 2002-2007 and the sudden collapse in 2008. Prior to this collapse, investors enjoyed the advancement in the Nigerian stock market as indicated by the high returns on investment.

This research is motivated to find out the extent to which prices of stock of firms listed on NSE is being influenced by information from accounting service as a gauge of value relevance. While there are a number of studies on this issue in advanced countries (Collins *et al.*, 1997; Francis and Schipper, 1999), there was no known extensive study on the topic of how relevant the

accounting data are in Nigeria. The study has not been expansively researched mainly as a result of data unavailability (Negash, 2008). The primary objective of the study, based on the discovered research problems is to investigate whether share prices of listed companies in Nigeria recapitulate accounting information.

Literature review: Early studies on capital market research in accounting focus mainly on the usefulness of information gotten from accounting service which can be measured by the degree of volume or price change following availability of data (Ball and Brown, 1968). Pirie and Smith (2008) noted that attention has turned in recent years to valuation models that include the book value of the equity. The residual income model has been used as a theoretical basis in some studies. The model has also been more frequently used in the business world to assess financial achievement.

Value relevance studies are designed to ascertain the extent to which information from accounting service is used by investors in valuing a firm's equity (Barth *et al.*, 2000). They further state that "usefulness" is not a well-defined concept in accounting research and as a result, studies on value relevance do not and are not designed to evaluate the usefulness of accounting numbers. Hence, measurement perspective which is based on the theoretical framework of equity valuation models (Ohlson, 1995). Value relevance is defined as "the degree of relationship between accounting numbers and stock prices" (Chang *et al.*, 2008). According to Ohlson (1995), the value of a firm can be expressed as a linear function of book value, earnings and other value relevant information. An accounting figure is value relevant when it is noticeably connected with the stock prices.

Value relevance can be measured in short term event studies (Ball and Brown, 1968). It can also be investigated in long term association studies. This study concentrates on long term association between accounting information and firms' market values. Yearly observations were used to conduct secondary data analysis.

Several researches on the connection between the stock market of Nigeria and the growth of her economy had been carried out (Babatunde and Mokuolu, 2005); however, no comprehensive research on the correlation between the growth of the stock market of Nigeria and accounting information had been done at the time of this research.

MATERIALS AND METHODS

In previous described studies, two significant approaches were employed to evaluate the value relevance

of the information from accounting service aggregate stock market response and individual investors' response to accounting information. These are likened to quantified and informatory viewpoints respectively. The study employed data from secondary source to ascertain the response to accounting numbers of the aggregate Nigerian stock market following Bernard (1995), Brief and Zarowin (1999). All the companies on the compiled Nigerian Stock Exchangelist consisted the study population. As at 2008, the Nigerian Stock Exchange had a compiled total number of two hundred and thirteen companies on her list. However, a total number of 68 companies on the compiled Nigerian Stock Exchange list during the period of 2002-2008 were considered in this study. The size of the study sample was capped at 68 companies because of the lack of availability of data. This problem resulted from missing data, accession or possible merge. The problem of missing data arose either as a result of removal from the compiled list (post-selection bias due, for instance, to insolvency) or incipient entry on the compiled list (ex-ante selection bias due to incipient listing in emerging market). The problems of missing data are particular with almost databanks but adjudged more in advancing economies (Negash, 2008).

In overcoming the problems resulting from missing data, Panel data were used (Negash, 2008). A total number of 476 observations resulted from the panel data of 68 companies over a period of 7 years. The bases for selection were determined by the following: if the company was on the compiled Nigerian Stock Exchange list between 2002 and 2008 and if the company has the data for the fundamental declaration of financial position.

Multi-phase sampling: Method was employed in this study. Here, at the different phases of sampling, some of the same sampling units are utilized. In its simplest definition, multiphase sampling is a method in which certain items of available processed data are drawn from the whole units of a sample and certain other items of available processed data are taken from the subsample. In this study, firstly, the firms were chosen if they were on the compiled Nigerian Stock Exchange list (between January, 2002 and December, 2008). Upon applying this initial selection basis, the size of the sample was 144 but later lowered to 68 firms when the selection basis of availability of data was applied.

Model specification: To evaluate the importance of accounting information in ascertaining the price of share in the Nigerian stock market, the model by Ohlson (1995) model was adapted. Changes of share price were specified to be explained by earnings per share, dividend per share

and net book value. Ohlson (1995) depicts in his work that the value of a firm can be expressed as a linear function of book value, earnings and other value relevant information.

Model 1; value relevance of accounting information across Nigerian industries:

$$LDSP_{it} = f(VRE_{it}, VRBV_{it}, COMD_{it}) \quad (1)$$

$$LDSP_{it} = f(VRD_{it}, VRBV_{it}, COMD_{it}) \quad (2)$$

Where:

COMD = The dummy variable to represent whether a company is a manufacturing or service sector

LDSP = Last day price per share

VRD = Dividends per share

VRBV = Book value per share

VRE = Earnings per share

t = Time dimension

i = Individual firm

Equations 1 and 2 can be expressed in explicit form as follows:

$$LDSP_{it} = \beta_0 + \beta_1 VRE_{it} + \beta_2 VRBV_{it} + \beta_3 COMD_{it} \quad (3)$$

where, COMD = 1 if the company is manufacturing, 0 otherwise for $i = 1, 2, \dots, N$ cross-section units and periods $t = 1, 2, \dots, T$. Where LDSP is the dependent variable; $\beta_0, \beta_1, \beta_2, \beta_3$ are regression coefficients with unknown values; VRE and VRBV are the independent variables; COMD is dummy variable and e is a random error component.

A priori expectation is such that $\beta_{0(1-2)}$: Optimistic correlation was assumed between accounting information and equity valuation because information from accounting service is presumed to be a crucial input into share valuation, it would be a surprise if no correlation or response could be measured (Penman, 1998). Equation 1 and 2 can be expressed in functional form as follows:

Method of analysis: In this study, our method of estimating information content of various accounting numbers panel as stated in Eq. 3 were Ordinary Least Square (OLS), Random Effects Model (REM) and Fixed Effects Model (FEM). OLS was used as a comparison criterion with the previous studies. Chang *et al.* (2008), claim that stock prices and earnings are usually non-stationary. As a result of non-stationarity of data, FEM and REM were utilised.

RESULTS AND DISCUSSION

Result and interpretation of difference in value relevance of information from accounting service across Industries; earnings, net book value and dummy variable:

The model summary in Table 1 presents the results of investigation of difference in value relevance of accounting information across industries using Ordinary Least Square (OLS), Fixed Effects (FE) and random effects (RE) to analyse “earnings” model 1.

In order to investigate difference in value relevance of accounting information across industries, dummy variable is introduced to separate manufacturing sector from service sector. When observing industries individually, grouping is preferable to running separate annual regressions because there are too few firms per cross-section, especially when we separate by permanent versus transitory earnings (Lev and Zarowin, 1999).

The results of OLS, FE and RE indicate that the explanatory Variable, Earnings (VRE) is highly significant at 1% level in explaining share in Nigerian stock market. The results show that earnings has a larger beta coefficient, absolute terms than Net Book Value (VRBV) after dummy variable is introduced to check difference in value relevance of accounting across the industries.

The coefficient of VRE is 0.104 when OLS is employed. It means that a unit change in earnings will lead to approximately 10 kobo change in share price. In other words, 1 kobo change in earnings will lead to approximately, 10 kobo change in share price. Note that share prices are stated in Naira while earnings are stated in kobo. However, earnings has higher beta coefficient under FE and RE. The beta coefficients of FE and RE are 0.10638 and 0.105337, respectively and are significant at 1% level. This implies that a unit (1 kobo) change in earnings will lead to approximately 11 kobo change in share price in both FE and RE. However, the beta coefficient of Net book value using OLS, FE and RE are: 0.000235, -0.000129 and 0.00049, respectively which are not significant. As mention earlier, the reason for the insignificance of VRBV could be that the share price does not portray the real situation for the firm. Another reason could be that most investors still depend on the earnings performance rather than the net book value. Besides, there may be other factors affecting a firm’s performance other than the variables.

The t-tests of VRE are 8.71 and 8.95 for OLS and FE, respectively while the t-tests of VRBV are 0.00024 and

Table 1: Result of model 1; value relevance of accounting information across industries; earnings, net book value and dummy variable

Dependent variable: LDSPE Estimator variable	OLS		FE		RE	
	Coef.	Prob.	Coef.	Prob.	Coef.	Prob.
VRE	0.1042 (8.71)	0.000	0.1064 (8.95)	0.000	0.1053 (8.86)	0.000
VRBV	0.00024 (0.28)	0.783	-0.00013 (-0.15)	0.879	0.00005 (0.06)	0.954
Comd.	9.231 (2.28)	0.023	9.108 (2.28)	0.023	9.169 (2.29)	0.022
Cons	2.864 (0.77)	0.440	3.0387 (0.83)	0.408	2.997 (0.75)	0.454
R ²	0.17	-	-	-	-	-
Adj R ²	0.164	-	-	-	-	-
Prob. F	0.000	-	0.0060	-	-	-
R ² within	-	-	0.2887	-	0.176	-
R ² between	-	-	0.0050	-	0.0164	-
R ² overall	-	-	0.2772	-	0.17	-
Wald Ch ²	-	-	-	-	93.12	-
Prb.Ch ²	-	-	-	-	0.000	-
No of obser.	449	449	449	-	-	-

Significant at the 1% level; numbers in parentheses are t-values; Z-test in prentices, face and italicized; LDSPE: Last trading Day Share Price; VRE: Earnings per share; VRBV: Net Book Value; Comd: Dummy for company difference; LDSPE are stated in naira while VRE and VRBV are in kobo

-0.00013 for OLS and FE, respectively. T-test of comd is 2.28 for both OLS and FE signifying difference in value relevance of accounting information across industries. This t is performed to check the individual significance of each explanatory variable. For t-test, any value <2 is not significant. The t-test further confirms that VRBV is not significant in explaining share price. Using OLS, R² and R² bar results indicate significant difference in value relevance of accounting information on share price (R² = 0.1699, R² bar = 0.1643, Pro>F = 0.0000). While the overall R² of FE and RE are equally significant (R² = 0.2772 and 0.17, respectively accounting information is value relevant if its estimated regression coefficient is significantly different from zero (Holthausen and Watts, 2001). F statistics measures the joint significance of all explanatory variables of the model used and in this case, it is highly significant. This provides to reject H₀. Using the model of “earnings” the value relevance of accounting information of manufacturing sector differs significantly across the industries in Nigeria. This may be due to high investors’ confidence in the earnings of manufacturing sector, though they have low dividends payout culture than service sector.

In all, accounting information of manufacturing sector is significant in explaining share price followed by accounting information of service sector. This is because the output of “earnings” improved when service sector is separated from manufacturing sector. The result is almost the same under OLS, FE and RE that is 9.231, 9.108 and 9.69, respectively.

Results and interpretation of value relevance of accounting information across industries; dividends, net book value and dummy variable: Table 2 shows the results

of “dividends” model 3 of difference in value relevance of accounting information across industries using Ordinary Least Square (OLS), Fixed Effects (FE) and Random Effects (RE) to determine the influence of accounting numbers (dividends per share [VRD] and net book value[VRBV]) on share prices. Dummy variable is introduced to investigate the difference across the industries by grouping the companies to manufacturing and service sector. This method is adopted because running separate annual regressions is not feasible since there are too few firms per cross-section following (Brief and Zarowin, 1999).

Using “dividends” model, the study finds appreciable deviation between the two industry sectors in terms of the mean explanatory power of accounting information. The beta coefficients of VRD using OLS, FE and RE are 5.742, 5.545 and 5.5633, respectively and are all significant at 5% levels. It means N1 change in dividends will lead to N5.74 change in share price using OLS and N1 change in dividends will N 5.55 to change share price under FE, while N1 change in dividends will lead to N5.56 change in share under RE. By implication, the contribution of accounting information of manufacturing sector to changes in share prices is more than that of service sector.

This model further confirms the insignificance of net book value in equity valuation in Nigerian stock market. The beta coefficient of Net book value using OLS, FE and Re are: 0.00073, -0.000328 and 0.00051, respectively which are not noticeable. As mentioned earlier, the reason for the insignificance of VRBV could be that the share price does not portray the real situation for the firm. Another reason could be that most investors still depend on the earnings performance rather than the net book

Table 2: Result of model 2; value relevance of accounting information across industries; dividends, net book value and dummy variable

Dependent variable: LDSPE Estimator variable	OLS		FE		RE	
	Coef.	Prob.	Coef.	Prob.	Coef.	Prob.
VRD	0.22297* (12.41)	0.000	0.22257* (12.75)	0.000	0.22245* (12.64)	0.000
VRBV	0.00073 (0.94)	0.350	0.000328 (0.42)	0.672	0.00051 (0.65)	0.512
Comd	5.7422 (1.52)	0.130	5.545 (1.49)	0.137	5.633 (1.51)	0.132
Cons	4.4134 (1.28)	0.202	4.7159 (1.39)	0.166	4.6117 (1.23)	0.220
R ²	0.2777	-	-	-	-	-
Adj R ²	0.2728	-	-	-	-	-
Prob. F	0.000	-	0.0015	-	-	-
R ² within	-	-	0.2887	-	0.2886	-
R ² between	-	-	0.005	-	0.0018	-
R ² overall	-	-	0.2772	-	0.2775	-
Wald Ch ²	-	-	-	-	176.62	-
Prb. Ch ²	-	-	-	-	0.0000	-
No of obser.	450	450	450	-	-	-

*Significant at the 1% level; numbers in parentheses are t-values; Z test in Prentices, face and italicize

value. Besides, there may be other factors affecting a firm's performance other than the variables included in the model. T-tests for VRD are 12.41 and 12.75 for OLS and FE, respectively.

The t-test of the individual significance of each explanatory variable for comdare 1.528 and 1.49 for both OLS and FE. This means there is no significant individual difference in value relevance of accounting information across industries. For t-test, any value <2 is not significant. The t-test of net book value (0.94 and 0.42 for OLS and FE) further verifies that VRBV is not appreciable in explaining share price.

However, the R² results of OLS, FE and RE show that the explanatory variables VRD, VRBV and comdare significant (0.2777, 0.2772 and 0.2245, respectively P>F = 0.000). Accounting information is value relevant if its estimated regression coefficient is noticeably different from zero (Holthausen and Watts, 2001). F statistics measures the joint significance of all explanatory variables of the model used and in this case, it is highly significant. This may be due to high investors' confidence in the earnings of manufacturing sectors although; they have low dividends payout culture than service sector. It could be safer to invest in manufacturing sector in the Nigerian Stock Market.

In all, accounting information of manufacturing sector is significant in explaining share price followed by accounting information of service sector. This is because the output of "dividends" improved when service sector is separated from manufacturing sector. The result is almost the same under OLS, FE and RE that is 5.742, 5.545 and 5.633, respectively (Ariff *et al.*, 1997).

In all, using both "earnings" model and "dividends" model, the study finds there are noticeable deviations between the two sectors in terms of the mean explanatory power of accounting information. While "dividends"

model reveals low value relevance over time for manufacturing, there is appreciable increase for service sector.

CONCLUSION

The study finds out that there is a noticeable correlation between information from accounting service (earnings per share, dividends and net book value) and price of shares of companies compiled on the Nigerian Stock Exchange list. Dividends are the most extensively used accounting information for making decisions in investment in Nigeria followed by earnings and net book value. Accounting number is typically deemed to be value relevant if its estimated regression coefficient is noticeably different from zero (Holthausen and Watts, 2001). This may provide support for the proposition that: first, there is a optimistic correlation between earnings, dividends, book value and equity value in the Nigerian Stock Exchange (NSE). These results are in agreement with the results of previous studies such as Pourheydari *et al.* (2008) among others. Second, dividends have great information content (as compared to earnings and net book value). This is however in contradiction to the findings of studies in the developed world where it was found out that analysts used Earnings Per Share (EPS) as the main criterion for shares valuing (Blume and Husic, 1973).

RECOMMENDATIONS

Evidence signifies that accounting information plays an appreciable part in decision making as regards investment and by consequence, the development of the stock market. Following the results from the study, these recommendations are presented which may be of use to

the setters of national standard, accounting information preparers, Nigerian Stock Exchange Regulators, investors and other emerging stock market.

As a result of the worth of earnings, dividends and net book value in investment decisions, the study recommends that all companies compiled on the Nigerian Stock Exchange list should prepare Simplified Investor's Summary Accounts (SISA) with emphasis on the most extensively used accounting information along with the required obligatory thorough financial statements to fit Nigerian individuality. This is required to remove over-load of financial statements information particularly for non-accountants and non-financial analysts.

National accounting standard setters and accounting information preparers should direct effort toward ameliorating the quality of earnings of which dividends the most extensively used accounting numbers in Nigeria for investment decision is a sub-set. This could be done by carefully stating and simplifying earnings management by the national accounting standard setters and accounting information preparers, respectively. This is because earnings management can be defined in different ways thereby making room for creative accounting.

REFERENCES

- Ariff, M., A.L. Loh and P.M. Chew, 1997. The impact of accounting earnings disclosures on stock prices in Singapore. *Asia Pac. J. Manage.*, 14: 17-29.
- Babatunde, O.O. and J.O. Mokuolu, 2005. Stock market development and economic growth in Nigeria: An empirical analysis. *Nigerian J. Banking Financial Issues*, 6: 56-58.
- Ball, R.J. and P. Brown, 1968. An empirical evaluation of accounting income numbers. *J. Account. Res.*, 6: 159-178.
- Barth, M.E., W.H. Beaver and W.R. Landsman, 2000. The relevance of value relevance research. *J. Accounting Res.*, 26: 331-352.
- Bernard, V.L., 1995. The Feltham Ohlson framework: Implications for empiricists. *Contemp. Accounting Res.*, 11: 733-747.
- Blume, M.E. and F. Husic, 1973. Price, beta and exchange listing. *J. Finance*, 28: 283-299.
- Brown, S., K. Lo and T. Lys, 1999. Use of R2 in accounting research: Measuring changes in value relevance over the last four decades. *J. Accounting Econ.*, 28: 83-115.
- Callao, S., B. Cuellar and J.I. Jarne, 2006. International differences in value relevance of accounting data and explaining country factors. *Int. J. Accounting Auditing Perform. Eval.*, 3: 387-408.
- Carol, A., 1994. A comparison of the stock price response to earnings disclosures in the united states and the United Kingdom. *Contemp. Accounting Res.*, 11: 59-83.
- Chang, H.L., Y.S. Chen, C.W. Su and Y.W. Chang, 2008. The relationship between stock price and EPS: Evidence based on Taiwan panel data. *Econ. Bull.*, 3: 1-12.
- Collins, D.W., E.L. Maydew and I.S. Weiss, 1997. Changes in the value-relevance of earnings and book values over the past forty years. *J. Accounting Econ.*, 24: 39-67.
- Francis, J. and K. Schipper, 1999. Have financial statements lost their relevance? *J. Accounting Res.*, 37: 319-352.
- Hausman, J.A., 1978. Specification tests in econometrics. *Econometrica*, 46: 1251-1271.
- Holthausen, R.W. and R.L. Watts, 2001. The relevance of the value-relevance literature for financial accounting standard setting. *J. Accounting Econ.*, 31: 3-75.
- Lev, B. and P. Zarowin, 1999. The boundaries of financial reporting and how to extend them (Digest Summary). *J. Accounting Res.*, 37: 353-385.
- Negash, M., 2008. Liberalisation and the value relevance of accrual accounting information: evidence from the Johannesburg securities exchange. *Afro Asian J. Finance Accounting*, 1: 81-104.
- Nellor, D.C., 2008. The rise of Africa's frontier markets. *Finance Dev.*, 45: 30-33.
- Ohlson, J.A., 1995. Earnings, book values and dividends in equity valuation. *Contemporary Account. Res.*, 11: 661-687.
- Pankoff, L.D. and R.L. Virgil, 1970. Some preliminary findings from a laboratory experiment on the usefulness of financial accounting information to security analysts. *J. Accounting Res.*, 8: 1-48.
- Penman, S., 1998. Combining equity and book value in equity valuation. *Contemp. Accounting Res.*, 1: 291-323.
- Pirie, S. and M. Smith, 2008. Stock prices and accounting information: Evidence from Malaysia. *Asian Rev. Accounting*, 16: 109-133.
- Pourheydari, O., A. Aflooni and Z. Nikbakhat, 2008. The pricing of dividends and book value in equity valuation: The case of Iran. *Int. Res. J. Finance Econ.*, 13: 1450-2887.
- Vishnani, S. and B. Shah, 2008. International differences in the relation between financial reporting decisions and value relevance of published financial statements with special emphasis on impact of Cash Flow reporting. *Int. Res. J. Finance Econ.*, 17: 1450-2887.