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CORPORATE INVESTORS AND UNCERTAINTY MEASURES OF DEPOSIT MONEY BANKS IN NIGERIA

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Abstract

This study wants to identify the forces that drive the stock market by investigating how corporate investors react to certainty and uncertainty measures in new financial statement of deposit money banks in Nigeria. Using Ralph's sampling method as benchmark; data were randomly collected from Nine (9) Nigerian banks covering the period of 2006 to 2013. The Dependent variables used in this study was Share prices as a proxy to measure corporate investors' reaction. There were two set of independent variables used in this research; firstly, volatility of Book value and Earnings as proxy for uncertainty in new financial statements and secondly, balance sheet and income statements figures of Book value and Earnings were used as proxy for certainty in new financial statements. The researcher utilized Olhson model in the analysis of data. This is because Investment is sacrifice of present for future benefit and the future is uncertain. The present is relatively well known, whereas the future is always enigma. Uncertainty exists in financial statements when measurements were largely based on estimates, judgments, and models rather than exact depictions. Corporate investors need to understand those uncertainty and certainty measures and assess their potential impact on share prices. It was found that there is not significant relationship between the uncertainty measures in financial statements and share prices, which implied that corporate investors do not react to uncertainty measures in financial statements. When uncertainty measures was removed, we found that there is significant relationship between certainty measures in financial statements and share prices,

which implied that corporate investors react positively to good news and otherwise to bad news. The following recommendation were offered; that corporate investors should take the advantage of certainty measures in financial statements by identify undervalued stock that deviate from its actual worth. This will enable them to have above normal returns compared to investors that use either chartist or random walk theory. On uncertainty measures, it implied that Nigeria capital market follows random walk theory. Therefore, corporate investors should not react to uncertainty measures in financial statements because future share prices could not be predicted using uncertainty measures. This study was restricted to evaluating and determining the effect of uncertainty and certainty measures financial statements on the corporate investors' decisions in the Nigerian banks.

Keywords: *Certainty measures, Uncertainty measures and Investors reaction*

1.1 Introduction

Investment is sacrifice of present for future benefit and the future is uncertain (Hirshleifer, 1965). The present is relatively well known, whereas the future is always enigma. Uncertainty exists in financial statements where measurements are largely based on estimates, judgments, and models rather than exact depictions. As the level of uncertainty increases, challenges may exist for financial statement preparers to estimate the future outcome of the uncertainties inherent in many business transactions, auditors to verify the subjective judgments about those uncertainties, and investors to understand those uncertainties and assess their potential impact on future earnings or cash flows. According to Ander (2002) he posited that most academics and practitioners within finance agreed that new financial statements have a large impact on the market value of a company. This consensus was reached on the certainty measures in new financial statement. However, we know little about how corporate investors in Nigeria interpret and react to uncertainty measures in new financial statements. We intend to fill this gap in this research work using Nigeria deposit money banks financial statements.

In the light of the above, corporate investors are faced with greatest challenges of measuring uncertainty that are likely to affect their future outcome of their investments in Nigerian stock market. As a result of that this study wants to identify the forces that drive the stock market by investigating how corporate investors response to uncertainty and certainty measures that are disclosed in financial statements. Most of the researches conducted in this area concentrated of

developed nations and more than half of them considered the reaction of corporate investors to certainty variables. The goal of the research is to determine how corporate investors react to uncertainty and certainty measures in financial statements using share prices as dependent variable and, uncertainty and certainty measures as independent variables. To achieve the above objectives we formulated the following hypothesis;

H₀₁: There is no significant relationship between share prices and uncertainty measures in financial statements.

H₀₂: There is no significant relationship between share prices and certainty measures in financial statements.

This research is restricted to evaluating and determining the effect of uncertainty and certainty measures on the corporate investors decisions in the Nigerian bank. The uncertainty indicators used in the study are volatility of book value and earnings and certainty proxy's from annual reports of banks. The banking industry was chosen because of the empirical evidence that most of the big banks failed to manage their risk and uncertainty, particularly their exposure to mortgage-related securities and other complicated debt obligations in most of the developed and developing economies (Barbara, 2010). This affected the investors' equity by impairing the capital of corporate investors and their confidence in the capital markets would be severely undermined.

A number of writers (Gilboa and Schmeidler, 1989; Epstein and Schneider, 2003) have developed models that suggest that ambiguity, like risk and uncertainty, have a negative impact on capital market valuation. The most common approach taken in their models is to assume that investors take a conservative approach when faced with uncertainty and base their decisions on the worst-case scenario. Williams (2009) uses changes in the "implied market volatility" as a measure of market uncertainty in his US study where he evaluates the markets response to the release of earnings news. It was found that this response is conditioned by market uncertainty when there is predicted asymmetric reaction to good and bad earnings news – the negative reaction to bad news increasing with uncertainty and the positive reaction to good news decreasing. There is a plethora of evidence dating back to Ball and Brown (1968) that confirms that the market responds positively (negatively) to good (bad) news earnings announcements.

However, share prices were chosen because it is the most observable of all measures that can be used to judge the performance of publically traded firms. Besides this, the stock price is the real measure of shareholders wealth, since stockholder can sell their stock and receive the value now (Domodoran, 2002).

Therefore, uncertainty and certainty measures in new financial statements should play a vital role in determining the price of a stock in Nigeria.

2.1 Review of Related Literature

The review of related literature has been divided into three; empirical review on the reaction of investor to financial statements, methodological review on measurement of uncertainty and theoretical framework.

The measures of reaction of corporate investors to financial statements could be seen from three perspectives that is reaction (positive or negative), under reaction and overreaction to financial information. According to the work of Padma and Raghavandra (2002), they adopted two conflicting behavioral models, under-reaction and over-reaction, have been proposed as explanations for the long-run abnormal return patterns following a variety of corporate events. The evidence is consistent with the hypothesis that long-run abnormal returns are attributable to the investor under-reaction model. Investors under-react to short-term information available prior to the event and subsequently under-react to information conveyed by the corporate event. Long-run abnormal returns reflect the net effect of investor under-reaction to these two pieces of information. They found that no evidence to support the over-reaction model and concluded no evidence to support a more complicated behavioral model that postulates investor under-reaction to short-term information and over-reaction to long-term trends.

In addition, the study conducted by Nicole (2009) examined the affects of market reaction to accounting restatements. He documented significantly less negative reactions to accounting restatements when managers invest in their own stock through corporate or personal purchases of company stock, and more reactions that are negative when managers sell stock or issue equity prior to the restatement. This result is incremental to the general tendency of stocks to drift upwards (downwards) following repurchases and insider buying (issuances and insider selling). The results suggested that informed trading mitigates the increase in information uncertainty that typically accompanies accounting restatements and provides new evidence on the information that investors use to interpret and price accounting restatements.

In the same vein, Frank (2004) investigates the role of information uncertainty in price continuation anomalies and cross-sectional variations in stock returns. If short-term price continuation is due to investor behavioral biases, we should observe greater price drift when there is greater

information uncertainty. It was found that greater information uncertainty should produce relatively higher expected returns following good news and relatively lower expected returns following bad news.

Limei (2011) examines the impact of domestic individual investors, financial investors and foreign investors on stock return volatility (uncertainty in stock return), at the individual security level. He employed Norwegian monthly holding data set with detailed information on investor types over a long sample period and found that foreign investors exacerbate stock return volatility, while domestic individual investors and financial investors dampen return volatility. The explanations are that foreign investors are momentum traders, trade the most and have the shortest investment horizon; individual investors are contrarian traders, trade the least and have the longest investment horizon; and financial investors fall somewhere in-between.

In a similar research conducted by Ander (2002), in which he examines how different investors react to new financial statements using Finland official register data of stock market. He found that majority investors are more probable to sell (buy) stocks in a company after a positive (negative) earnings surprise, and are biased towards buying after the disclosures of new financial statements. Large investors show behavior opposite to that of the majority of investors. He suggested investors' overconfidence and asymmetric information as possible explanations for the documented behaviour.

Investors' reaction to the disclosure of uncertainty and certainty measures in new financial statements for a bank is identify by share prices of the company a week before the announcement and a week after the announcement. Share prices were chosen because it is the most observable of all measures that can be used to judge the performance of publically traded firms. Besides this, the stock price is the real measure of shareholders wealth, since stockholder can sell their stock and receive the value now (Domodoran, 2002). Therefore, uncertainty and certainty measures in financial statements should play a vital role in determining the price of a stock in Nigeria.

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volatility of book values, earnings in measuring the uncertainty in new financial statements. Ghousal and Loungani (1996, 2000), Minton and Schrand (1999) and Bo (1999) used this approach in studying investment under uncertainty. Lensink *et al.* (2000) and Limei (2011) construct an uncertainty proxy using the General Autoregressive Conditional Heteroskedastic (GARCH) model of volatility. In the context of this study, Arch and Garch model of measuring uncertainty was used, by pooling the data of the nine banks. This process transformed the panel data into time series data.

To examine the issue of new financial statements volatility, GARCH (1,1) model is implemented. According to Engle *et al.* (1987), the GARCH (p, q) model is the conditional variance of a time series that depends on the squared residuals of the process. The GARCH model has the advantage of incorporating heteroscedasticity into the estimation procedure. All GARCH models are implying that all expectations are unbiased and capture the tendency for volatility clustering in new financial statements.

Under certainty condition, the information was extracted from annual reports and share prices. Olhson model (1995) was used in determining the impact of book value and earnings on the share prices of deposit money bank in Nigeria. A number of writers (Ball and Brown 1968; Rees, 1997; Chen *et al.*, 2001) used the models under certainty condition and concluded that market responds positively (negatively) to good (bad) new financial statements book value and earnings.

2.2. Methodological Review on Measurement of Uncertainty

The determination of measure of uncertainty has remained controversial among practitioners and academics. There are three different ways to construct uncertainty indicators on the firm level (Kalckreuth, 2001 and Sabari, 2009). The first approach is to ask manager about the subjective certainty of their expectations. Patillo (1998) and Guiso and Parigi (1999) both used subjective certainty approach in Ghana and Italia respectively. Secondly, one can make use of regular industry survey data. Caselli *et al.* (2000) computed for each year the standard deviation of the balance of positive and negative answers to the survey questions conducted by Europe and U.S respective national research agencies. One of the major fallacies of subjective certainty and regular industry survey approach is the high tendency of having biasness in responding to the questionnaires.

A third approach is where one tries to generate uncertainty indicators from annual or quarterly financial statements of individual firms, measuring the volatility of operating profits, cash flow and other variables. Ghousal and Loungani (1996, 2000), Minton and Schrand (1999) and Bo (1999) used this approach in studying investment under uncertainty. In the light of that Sabari, (2009) pointed out that both balance sheet and income statement data yield firm specific indicators and thus can exploit the individual variability of a large panel data set, one still has to find a convincing way to make them time specific as well. Lensink *et al.* (2000) and Limei (2011) construct an uncertainty proxy the General Autoregressive Conditional Heteroskedastic (GARCH) model of volatility. In the context of this study, the third approach to measuring uncertainty is adopted.

The theory underpinning this research work is fundamental theory. This theory takes into consideration the intrinsic value of share that accumulates over years which implies that investors that study financial statements would be able to have above normal returns. The study used the theory to test whether the certainty and uncertainty measures of financial statements has significant impact on the stock market and investors' decision-making. The study is motivated by growing evidence in accounting and finance literature that stock markets fail immediately reflect publically available information (Bernard *et al.*, 1989, Sloan 1996, Dauka *et al.* 2002, Tarek 2004, Mahdi *et al.* 2006).

3.1 Methodology and Model Specification

In this research work, Olhson regression model and historical research design were used to address the research problems. Moreover, the purpose of regression is to establish the impact of financial statements uncertainty and certainty measures on share prices. While, historical research design was employed to explain how the past financial statements uncertainty and certainty measures could be used to determine future share prices. Data were sourced from published financial reports of the study Banks as obtained from Nigerian Stock Exchange website, the banks' websites and the NSE fact book for the period of eight (8) years (2005 to 2012). This study has total population of 25 deposit money banks as at December, 2005 and Ralph (2002) sampling method was used to arrive at 4 banks which serve as bench mark for minimum number of banks that could represent total population. However, we used 9 deposit money banks as our sample size.

The Ralph's formula of sample size is as follows;

$$N = \log B / \log P$$

Where N= Sample size
 Log B= log of level of precision
 Log P= log of proportion of banks remaining after consolidation in relation to total banks in the sector before consolidation (25/89= 0.28) at 99% confidence level is used and B=0.01 is assumed

The model adopted for this study is Ohlson (1995) but with little modification of introducing the uncertainty variable to be represented by volatility of book value and earnings as independent variable. While, share prices are used to capture the extent in which the uncertainty influence investment decisions. Since 1995, most of the empirical value relevance analyses have been based on the Edwards-Bell-Ohlson (EBO) model, which can be categorized as a price model (Chen et al., 2001; Rees, 1997). It follows an approach dating back at least to Edwards and Bell (1961) who stated that firm value represents a function of book value and future residual earnings of a company. Therefore, it is often called the residual income valuation (RIV) model in the academic literature. As Ohlson (1995) revives the residual income idea in the 1990s and formalizes the approach, it is also often referred to as the Ohlson (1995) model:

$$P = \alpha_0 + \beta_1 BV + \beta_2 E + e \dots\dots\dots(1)$$

Table 1 Definition and Measurement of Variables:

S/N	Variables	Measurement
1	Share prices	Average share prices
2	Book value of equity	Coefficient of Variation of Asset Growth book value
3	Earnings	Future earnings

4.1 Results and Discussions

This study examines the reaction of corporate investors to uncertainty measures in financial statements. We used data from nine (9) randomly selected Nigerian deposit money banks (Access bank, Diamond bank, First bank, IBTC bank, FCMB bank, Fidelity bank, GT bank, Sky bank and UBA bank) covering a period of 2005 to 2012. The Dependent variables used in this study was Share prices while the independent variable were Book value and Earnings.

Table 4.1: Correlation Matrix

	P	BV	EN
P	1	0.2510	0.294

BV	0.2510	1	-0.005
EN	0.9824	-	1

Source: Author's computation (SPSS 15)

The correlation matrix table presented above, shows that the selected banks Book values (-0.005) is negatively correlated with Earnings (Firm value). This implies that most corporate investors in Nigeria are adopting strategy of investing in banks that inversely related to their book values in relation to earnings. The results also reflected that the reduction in book value in relation to earnings is not strongly associated with increasing in share prices. In evaluating the causal-effect relationship among the variables we used Olhson Model. The results obtained from the regression analysis are presented in table 4.2 below:

Table 4.2: Olhson model results under certainty measures

Variables	Coefficients	t-statistic	p-value
B	11.094	4.691	0.000
BV	0.000	1.955	0.056
EN	3.963	2.283	0.027
R-squared	0.387	Adjusted R-squared	0.150
Durbin-Watson	1.768	Prob (F-statistic)	0.016

Source: Author's computation (SPSS 15)

$$SP = \beta_0 + \beta_1 BV + \beta_2 EN + E_2 \dots \dots \dots 2$$

The value of all the parameters is in table 4.1 below is also summarized from the regression result. The equation will now be $SP = + 11.094 + 0.00BV + 3.963EPS + E_2$

Empirical evidence from the above equation in table 1.2 revealed that there is positive relationship between share prices and certainty of book value and earnings. This can be seen from the parameter β_1 with a value of positive 0.000. This mean a percentage change in book value will not increase share price with the economic assumption of other factors remain constant. At any level of significant, the p-value coefficient of the book value is not statistically significant. The p-value of 0.056 is greater than 5% but less than 10% hence, book value is found to be statistically insignificant at 5% but significant at 10% in explaining changes in corporate investors' decision-making in Nigeria.

In addition, earnings coefficient is denoted as β_2 with the positive value 3.963, which is expected that confirmed the effect of the earnings on corporate investors' decision. However, earnings coefficient is statistically significant at both 5% and 10% because, the P-value as seen in table 4.1 is 0.027. Finally, both

book value and earnings are found to be jointly significant in explaining changes in corporate investors' decisions. This is because the p -value of the joint F-test is (0.016). With an R^2 of 0.40, it means book value and earnings accounted for 40% of all the variations in Nigerian deposit money banks share prices.

Uncertainty measurement using Arch and Garch were employed to see whether corporate investors react to volatility in book value and earnings. The result is presented in table 4.2

Table 4.2: Olhson variation result under uncertainty measures

Variables	Coefficients	t-statistic	p -value
C	98.48968	0.044397	0.9646
Arch(1,1)	-1.837452	-0.089681	0.9285
Garch (1,1)	2.119699	0.205482	0.8372

Source: Author's computation (E-View 3.1)

From the above results, both Arch (1,1) and Garch (1,1) measure of volatility were not significant. This showed that the corporate investors do not react to uncertainty measures in new financial statements. This implies that the Nigerian capital market is efficient because investors cannot use uncertainty measure to outperform the market. It is a clear indication that the Nigerian market followed a random walk theory.

5. Conclusions and Recommendations

Based on the findings of the research, the study concludes as follows:

Firstly, under certainty measures, the study has provided both empirical as well as statistical evidence on the use of two independent variables (BV and EN) for predicting share price or corporate investors' reaction to new financial statements. The Olhson regression result revealed that there is significant relationship between the new financial statements and share prices. Secondly, under uncertainty measures, the study has provided both empirical as well as statistical evidence that there is not significant relationship between uncertainty measures in new financial statement and share prices. The recommendation of this study is directed to Nigerian corporate investors and future researchers.

Nigerian investors, under the condition of certainty, should take the advantage of using Ohlson model in identifying undervalued stock that deviate from its actual worth. This will enable them to have above normal returns compared to investors that use either chartist or random walk theory. However, Nigerian investors, under the condition of uncertainty, should not use uncertainty measures of new financial

statements in predicting futures share prices. This implied that the market under uncertainty follow random walk theory.

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