Effect of Fair Value Measurement on the Share Price of Listed Deposit Money Banks in Nigeria

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Abstract
This study examined the effect of fair value accounting on share price of listed deposit money banks in Nigeria from 2016 to 2022. The data used was obtained from the annual reports of the banks. OLS regression was employed in the analysis of the data. The results from the regression analysis show that earnings per share, fair value hierarchy, fair value through other comprehensive income have significant effect on the value relevance of listed deposit money banks in Nigeria. The study concludes that earnings per share is an important variable investor’s pays attention to when making investment decision. In addition, the study concludes that banks which discloses information regarding fair value hierarchy will attract investors and this will result in a corresponding increase in share price. Furthermore, the study concludes that investors pay close and more attention to other comprehensive income value. And finally, the study concludes that fair value through other comprehensive income have an effect on the share price of listed deposit money banks in Nigeria. The study therefore, recommends among others that management of listed deposit money banks in Nigeria should ensure that information using fair value are disclosed since its disclosure have an effect on share price. The study also recommends that regulatory bodies should establish an evaluation system to monitor adequate discourse of fair value information.

Keywords: Fair Value Hierarchy, Share Price, Earnings per Share, Fair Value through other Comprehensive Income.

1.0 Introduction
Financial statement is the process of interacting with the activities of the company to external investors. It transmits vital information required by shareholders, external auditors, creditors, and other interest groups such as the government. These investors have numerous but different matters of interest in the financial statement, and they concentrate on items that serve or protect their interest. In fact, the relevance of accounting information to numerous investors cannot be overstressed. Anaja and Emmanuel (2015), preach that a community relies deeply on the financial statement for decision-making, consequently, the financial statement has to be relevant and dependable that is free from both envisioned and unintentional bias.

Fair value is often considered to be one of the most debatable areas in accounting as some scholars opined that fair value might not reflect firms’ financial condition, which affects the relevance of accounting information (Jahmani et al., 2017). Fair value accounting is a contentious issue in accounting standard setting at both local and international levels. Critics have faulted fair value accounting for amplifying the crisis and for creating a circle of falling prices (Khan, 2010). Fair value valuation is considered as volatile, unreliable and often being a subject of managerial discretion, especially when markets are illiquid or distressed. Prior study finds that managers manipulate fair value measurement and at such making it not to be of value relevance (Song, et al., 2010). Financial predicament has led to a major debate about
fair value among regulators especially players in the financial industry. Critics have blamed fair value for intensifying the volatility thereby increasing the overall risk in the financial systems (Wang & Zhou, 2017). Base on the fair value information investors use earnings per share as a factor when evaluating companies. It is said that the information contained in earnings per share will lead to changes in investors’ response to future cash flow distributions, resulting in changes in stock price (Prihatnia et al., 2016).

The level 2 hierarchy is the observable assets or liabilities that could be directly or indirectly implemented, except inputs other than the market quotes involved in level 1 (IFRS 13). Level 2 fair value estimation is also applicable to increase value relevance (Du, et al., 2014). The level 3 hierarchy is an unobservable input of assets or liabilities (IFRS 13). Unobservable input value is applied to evaluate fair value to the degree that the relevant observable input value is not accessible. The entity adopts the best information obtainable in this situation to build unobservable inputs, which might consist of the entity's own information, while taking into consideration all realistically accessible information about market participants' assumptions (IFRS 13). Alfreda and Sergej (2017), believe that when there is no input of level 1 and level 2 available, level 3 plays a big part in improving the dependability of fair value estimates. Therefore, it can be suggested that level 3 estimates are of value relevance. The value relevance of level 3 fair value estimates conveys useful information about the business to information users (Barron, et al., 2016). The fair value generated by other comprehensive income makes financial reports all-inclusive and this provides stockholders and other users with a transparent insight into the company's upcoming prospects and improves the capability to foresee future earnings and cash flows (Veltri & Ferraro, 2018). Other comprehensive income is the focal determinant of enterprise value; therefore, other comprehensive income is considered to be one of the main variables that have an effect on value relevance.

2.0 Literature Review and Hypotheses Development

Empirical Review

Suadiye (2012), investigate value relevance of book value and earnings under the local GAAP and IFRS of Turkey firms. The study examines empirically the impact of International Financial Reporting Standards (IFRS) on the value relevance of accounting information in Turkey. The study used the equity valuation model developed by Ohlson (1995). The study analyzes the value relevance of earnings and book values of equity produced under Turkish Local Standards (during 2000-2002) and under IFRS (during 2005-2009) then these two periods were compared to investigate whether the mandatory adoption of IFRS has an impact on value relevance of accounting information. The analysis results show that earnings and book value are, jointly and individually, positively and significantly related to stock price under the two different reporting regimes. Additionally, the results provide that book value of equity is more value relevant than earnings. The short coming of their study is that the result might have been over taken by events and thereby the result may not be applicable in recent period.

Prihatnia et al. (2016), examine the relationship between earnings per share and value relevance. The study opined that earnings per share is an important determinant of value relevance and that investors use earnings per share as a factor when evaluating companies. It is said that the information contained in earnings per share will lead to changes in investors’ response to future cash flow distributions, resulting in changes in stock price.
Barron et al. (2016), examine the decision usefulness of fair value hierarchy and the result of their study reveals that the value relevance of level 3 fair value estimate, they opine that level 3 estimates convey useful information about the business to information users. Similarly, Alfreda and Sergej (2017), examine the decision usefulness of fair value hierarchy and the result of their study also confirmed that when there is no input of level 1 and level 2 available, level 3 plays a big part in improving the dependability of fair value estimates. Therefore, it can be suggested that level 3 estimates are of value relevance.

Yousefinejad et al. (2017), examine the value relevance of other comprehensive income. The study investigates whether fair value through other comprehensive income affects value relevance of Malaysia firms. In order to statistically examine the hypotheses, the study applies Ohlson’s valuation model. Ohlson (1999) extends the work of Ohlson (1995) and Feltham and Ohlson’s (1995, 1996) on the residual income model. Ohlson’s model is a widely used model among researchers because it provides testable equation to examine the value relevance of accounting information and non-accounting information. The hypotheses of this study were empirically tested covering a period of three years (2011 to 2013) of firms listed on the Main Market of Bursa Malaysia. The results indicates that other comprehensive income and its components are value relevant. These results remain robust after additional analysis.

Royer (2017), examine the usefulness of other comprehensive income. among European firms. The study focuses on the value relevance and incremental value relevance, which are the associations with share prices and share returns. The sample consists of European listed firms, available in Datastream and Worldscope in the period 2005-2016. The study adopts the Ohlson’s valuation model. The study provides evidence which indicates that the overall net income is more useful to investors. Furthermore, other comprehensive income was found to be incrementally value relevant. The results provide strong evidence that other comprehensive income is useful to investors.

Elshamy et al. (2018) examine the impact of fair value measurements on the valuation relevance of traditional accounting metrics of earnings and book value. The study investigated the impact of the new IFRSs development on the value-relevance of earnings and book values in equity valuation. This study covers a period of 22 years (1992 to 2013) the period is partition into two distinct time periods. The first period includes years from 1992 to 2001 (mostly a historical cost accounting basis period) while the second includes years from 2002 to 2013 (a semi fair value accounting basis period). The Ohlson (1995) model and a technique developed by Theil (1971) were used to measure the overall value relevance of earnings and book value, the incremental explanatory power of earnings, and the incremental explanatory power of book values. The study reports that book values have significant effect on fair value.

Ahmadi et al. (2018), examine the value relevance of book value, earnings per share and cash flow of Tunisian banks and other financial institutions. The study investigates the relative value relevance of book value, earnings and cash flows in relation to security prices using a sample of available financial firms listed in the Tunisian stock exchange for a period of seven years (2010 to 2016). The study reveals that earnings, book value and cash flow are significantly and positively related to the firm value.

Veltri and Ferraro (2018), analyzed if other comprehensive income matter in credit-oriented system. The study aims to challenge the a priori usefulness of other comprehensive income for financial statement users in credit-oriented financing systems. Italy was chosen to investigate the research question for its accounting features. The study focuses its investigation on the incremental other comprehensive income

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value relevance in the Italian post-IAS1 environment, using a regression model. The result reveals that other comprehensive income is not incrementally value relevant within the Italian context.

Barde (2023) examines the relationship between executive compensation and value of listed deposit money banks (DMB) in Nigeria. The study found that CEO Pay and Chairman’s compensation have positive effect on the value of listed banks, while the highest paid director exact negative influence on the banks’ value. This implies that the CEO Pay and Chairman’s compensation improves the value of banks. Therefore, it is recommended among others that the management of banks should increase the CEO pay and place more emphasis on performance as a basis of increased pay to guarantee continuous improvement in the value of the banks.

Park (2018), examine market reaction to other comprehensive income. The study analyzes the information content of other comprehensive income using the ERC model. The study examines other comprehensive income incremental effect on earnings response coefficients (ERC). Analysis of the information content of other comprehensive income before and after international financial reporting standards (IFRS) to verify whether the information content varies as the format of other comprehensive income reporting changes from a foot note to the main text of the financial statement. In addition, we analyzed dividing other comprehensive income into positive other comprehensive income and negative other comprehensive income. Data from the period of 2007 to 2014 were used, beginning from when other comprehensive income information was first disclosed as a comment, for a total of eight years. The analysis reveals that under the condition in which the realized income is constant, other comprehensive income has additional information effects, in other words it means that other comprehensive income is value relevance.

Based on foregoing, the following hypotheses have been developed:
Ho₁: Earnings per share have no significant effect on the share price of listed deposit money banks in Nigeria.
Ho₂: Fair value hierarchy have no significant effect on the share price of listed deposit money banks in Nigeria.
Ho₃: Fair value through other comprehensive income have no significant effect on the share price of listed deposit money banks in Nigeria.

Ohlson’s Clean Surplus Theory
The work of Feltham and Ohlson (1995) has a profound impact in accounting research in the 1990’s. The empirical implications of Ohlson’s clean surplus model are that stock price is a linear function of the book value of equity and earnings. The Ohlson valuation model constitutes a starting point of accounting based theoretical modeling of the firms’ value. In the Ohlson valuation model, empirical research from an informative perspective focused on how financial data reported by companies is being reflected in stock prices.

The Ohlson valuation model is based on the residual income valuation model, according to the residual income valuation, the firm value is express as the book value at the end of period in addition to the residual income or abnormal earnings in the period at the period’s end of the period. The firm value is contemporarily related to the accounting numbers and the other information. The market value of a firm can be expressed in terms of the net book value of the firm’s assets per the statement of financial position and the expected present value of future earnings, both of these figures are used to estimate share value. This study is underpinned by the Ohlson clean surplus theory because it constitutes a starting point of
accounting based theoretical modeling of value relevance. In addition, the Ohlson valuation model, provides an informative perspective bases that focuses on how financial data reported by companies is being reflected in stock prices.

3.0 Methodology

Sources and Methods of Data Collection

The data were extracted from the published audited annual reports of listed deposit money banks from 2016 to 2022. This period covers the period in which fair value accounting became enforced in Nigeria. The study uses multiple panel regression and OLS was used as the technique of data analysis.

Variables Measurement

The measurement of the dependent and independent variables is provided in the table below.

Table 1: Dependent and Independent Variables Measurement

<table>
<thead>
<tr>
<th>Variable</th>
<th>Nature of Variable</th>
<th>Proxy</th>
<th>Measurement</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>Share Price</td>
<td>Dependent variable</td>
<td>SP</td>
<td>The market value of the shares after three months of publication of the annual report</td>
<td>Omokhudu and Ibadin (2015)</td>
</tr>
<tr>
<td>Earnings per share</td>
<td>Independent variable</td>
<td>EPS</td>
<td>Profit after interest and tax of each firm to the number of ordinary shares.</td>
<td>Bhatt and Sumangala (2012)</td>
</tr>
<tr>
<td>Fair value hierarchy</td>
<td>Independent variable</td>
<td>FVH</td>
<td>Level 2&lt;sup&gt;nd&lt;/sup&gt; and 3&lt;sup&gt;rd&lt;/sup&gt; assets divided by total assets.</td>
<td>Ehalaiye (2014)</td>
</tr>
<tr>
<td>Fair value through other comprehensive income</td>
<td>Independent variable</td>
<td>FVTOCI</td>
<td>Total comprehensive income divided by total assets.</td>
<td>Yousefinejad et al. (2017)</td>
</tr>
</tbody>
</table>

Source: Computed by Researcher.

Model Specification

Ohlson’s (1995) price model is frequently used for value relevance study. The Ohlson 1995 model was adopted in order to explore the relationship between the market value of stocks and major accounting information variables, such as book value per share, earnings per share and any other financial information. The model estimates are as follows:

$$SP_{it} = \alpha_0 + \alpha_1 \text{EPS}_{it} + \alpha_2 \text{FVH}_{it} + \alpha_3 \text{FVTOCI}_{it} + \mu_{it}$$

(1)

Where;

$SP_{it}$ = Share price of bank $i$ in year $t$.
$\alpha_0$ = intercept
$\alpha_1$ - $\alpha_5$ = Coefficient of the independent variables
$\text{EPS}_{it}$ = Earnings per share of bank $i$ in year $t$
$\text{FVH}_{it}$ = Fair value hierarchy of bank $i$ in year $t$
$\text{FVTOCI}_{it}$ = Fair value through other comprehensive income of bank $i$ in year $t$
$\mu_{it}$ = Residual/error-term of bank in year ‘$t$’

4.0 Results and Discussion

Descriptive Statistics

The descriptive statistics below contains information about the mean, maximum, minimum and standard deviation for each of the independent variables and the dependent variable.
Table 2: Descriptive Statistics

<table>
<thead>
<tr>
<th>Variable</th>
<th>Mean</th>
<th>Standard Deviation</th>
<th>Minimum</th>
<th>Maximum</th>
<th>OBS</th>
</tr>
</thead>
<tbody>
<tr>
<td>SP</td>
<td>7.23</td>
<td>7.67</td>
<td>0.4</td>
<td>28.20</td>
<td>77</td>
</tr>
<tr>
<td>EPS</td>
<td>1.08</td>
<td>1.26</td>
<td>-1.01</td>
<td>4.67</td>
<td>77</td>
</tr>
<tr>
<td>FVH</td>
<td>0.52</td>
<td>0.15</td>
<td>0.31</td>
<td>0.80</td>
<td>77</td>
</tr>
<tr>
<td>FVTOCI</td>
<td>0.48</td>
<td>0.17</td>
<td>0.04</td>
<td>0.82</td>
<td>77</td>
</tr>
</tbody>
</table>

Source: Output from STATA 13.

From the above table, the minimum and maximum values of SP are N0.4K and N28.2K respectively. This means that from the sampled banks, the banks with the lowest price for its shares traded is N0.40k for one unit of share on the stock market. However, the bank with the highest price has a value of N28.2K for a unit of its shares on the stock market. The standard deviation of 7.67 is closely related to the mean. EPS has the minimum and maximum values of -1.01 and 4.67. This means that the lowest earnings per share of the sampled banks is -N1.01K, and the bank with the highest earnings per share was N4.67K, the standard deviation value of 1.26 when compared with the mean value of 1.08 shows no dispersion from the mean.

From the above table, the minimum and maximum values of FVH are N0.31K and N0.79K respectively. This means that from the sampled banks, the banks with the lowest value of fair value hierarchy is 0.42. The bank with the highest fair value hierarchy has a value of N0.59K. The standard deviation of 0.15 is widely dispersed from the mean. The table reveals that FVTOCI has a minimum and maximum values of 0.0428 and 0.8210, the standard deviation value of 0.1665 when compared with the mean value of 0.4848 shows dispersion from the mean.

Correlation Matrix of Dependent and Independent Variables

Table 3: Correlation Matrix of Dependent and Independent Variables

<table>
<thead>
<tr>
<th></th>
<th>SP</th>
<th>EPS</th>
<th>FVH</th>
<th>FVTOCI</th>
</tr>
</thead>
<tbody>
<tr>
<td>SP</td>
<td>1.000</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>EPS</td>
<td>0.7167</td>
<td>1.000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>FVH</td>
<td>-0.2056</td>
<td>0.0348</td>
<td>1.000</td>
<td></td>
</tr>
<tr>
<td>FVTOCI</td>
<td>-0.0883</td>
<td>0.0312</td>
<td>0.0270</td>
<td>1.000</td>
</tr>
</tbody>
</table>

Source: Output from STATA 13.

The result of the correlation matrix in table 4.2 shows that the overall relationship between the dependent variable and the independent variables are positive. However, the result in Table 4.2 indicate that EPS is more correlated to share price, the result as revealed from the Table shows the absence of multicollinearity among the variables as the relationship between the variables did not exceed the threshold of 0.80. However, to determine the existence of multicollinearity, the variance inflation factor (VIF) was conducted.

Robustness Tests

The following robustness tests are carried out to find out whether data used for analysis are reliable

Multicollinearity

Non-existence of multicollinearity is a key assumption of linear regression analysis. Multicollinearity occurs when the independent variables are not closely related to themselves. Multicollinearity is
examined using tolerance and variance inflation factor (VIF) values. The result of the multicollinearity test is showed in the table below.

**Table 4: VIF Values**

<table>
<thead>
<tr>
<th>VARIABLES</th>
<th>VIF</th>
</tr>
</thead>
<tbody>
<tr>
<td>EPS</td>
<td>1.00</td>
</tr>
<tr>
<td>FVH</td>
<td>1.00</td>
</tr>
<tr>
<td>FVTOCI</td>
<td>1.00</td>
</tr>
<tr>
<td>Mean VIF</td>
<td>1.00</td>
</tr>
</tbody>
</table>

**Source:** Output from STATA 2013.

Based on the evidence presented in Table 4, it can be concluded that there is no multicollinearity problem. This is because the VIF values for all the variables are less than 8.

**Heteroskedasticity Test**

Heteroskedasticity arises when the error terms across the regression are not equal. Heteroskedasticity was tested using Breusch Pagan’s test. Based on the results showing a chi square of 4.11 with a p-value of which is 0.0425, implying there is presence of heteroskedasticity. Hence, Linear regression, correlated panels corrected standard errors (PCSEs) was used to address the presence of heteroskedasticity.

**Serial Autocorrelation Test**

The Linear regression, correlated panels corrected standard errors (PCSEs) was used to determine if the residuals are correlated over time. The regression was used in this analysis because OLS assumptions require that residuals not be correlated over time. The null hypothesis was that there is no such phenomenon as first-order serial autocorrelation. The test statistics suggest that there is no first-order serial correlation in the results.

**Specification Test**

After performing fixed and random test the study conducted the Hausman specification test. The Hausman test is used to determine which model is preferable between the fixed effect model (FEM) and the random effect model (REM). The Hausman specification test result had a p-value of 0.0000 indicating that the variance between entities is considered to be unpredictable, as a result of this the random effect model’s output was deemed suitable. However, the Panel Corrected Standard Error was used to cater for the problem of heteroscedasticity.

**Regression Result**

**Table 5: Regression Result**

<table>
<thead>
<tr>
<th>Variables</th>
<th>Coefficient</th>
<th>t-value</th>
<th>P&gt;(t)</th>
</tr>
</thead>
<tbody>
<tr>
<td>EPS</td>
<td>4.42</td>
<td>7.06</td>
<td>0.000</td>
</tr>
<tr>
<td>FVH</td>
<td>-11.99</td>
<td>-4.07</td>
<td>0.000</td>
</tr>
<tr>
<td>FVTOCI</td>
<td>-4.83</td>
<td>-2.68</td>
<td>0.007</td>
</tr>
<tr>
<td>Constant</td>
<td>10.98</td>
<td>5.57</td>
<td>0.000</td>
</tr>
<tr>
<td>R Squared:</td>
<td>0.5778</td>
<td></td>
<td></td>
</tr>
<tr>
<td>f-Statistics:</td>
<td>71.97</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Prob:</td>
<td>0.0000</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Source:** Output from STATA 2013.
In Table 4, it can be observed that the $R^2$ is 0.5778 which means that 57.78% of variation in share price of listed deposit money banks in Nigeria is explained jointly by the independent variables captured in model of the study. The wild-chi$^2$ is 71.79 with a P-value of 0.0000 which is significant at 1%. This indicates that the model is fit.

The hypotheses which were earlier stated in null forms were tested using the linear regression and the result is analyzed below:

**Earnings per Share and Value Relevance of Accounting Information**

$H_0$: Earnings per share have no significant effect on the value relevance of listed deposit money banks in Nigeria. The result from the above table shows that earnings per share have a coefficient of 4.4245 which means that earnings per share have a positive relationship with share price of listed deposit money banks in Nigeria. The p-value of 0.000 which is significant at 1% level of significance. Therefore, we reject the null hypothesis which states that earnings per share have no significant effect on the value relevance of accounting information of listed deposit money banks in Nigeria. This finding is in line with the study of Abubakar (2010) and contrary to Oyerinde (2011), Abubakar (2011), and Abiodun (2012).

**Fair Value Hierarchy and Value Relevance of Accounting Information**

$H_0$: Fair value hierarchy has no significant effect on the value relevance of accounting information of listed deposit money banks in Nigeria. The result of the above table shows that fair value hierarchy have a coefficient of -11.9932. This suggests that fair value hierarchy have a negative coefficient with share price of listed deposit money banks in Nigeria. The p-value of 0.0000 which is significant at 1% level of significance indicates that fair value hierarchy have an effect on the share price of listed deposit money banks in Nigeria. Therefore, we reject the third hypothesis of the study which states that fair value hierarchy has no significant effect on the value relevance of accounting information of listed deposit money banks in Nigeria. The result is in line with the study of Fadia and Mohammad (2015), Mary et al., (2015) but contrary to Haiping and Eliana (2018).

**Fair Value through other Comprehensive Income and Value Relevance of Accounting Information**

$H_0$: Fair value through other comprehensive income has no significant effect on the value relevance of accounting information of listed deposit money banks in Nigeria. The result reveals that Fair value through other comprehensive income has a coefficient of -4.8277. The p-value of 0.007 reveals a significant effect at 1% level of significance on the basis of this we therefore reject the third hypothesis of the study which states that Fair value through other comprehensive income has no significant effect on the value relevance of accounting information of listed deposit money banks in Nigeria. The result is in line with the study of Yousefinejad et al. (2017), but contrary to Veltri and Ferraro (2018).

**Implication of the Findings**

The regression analysis shows that fair value-based approach is of value relevance of listed deposit money banks in Nigeria. This implies that the adoption of fair value accounting-based approach by listed deposit money banks in Nigeria results to their accounting numbers to be of more value relevant. Financial statement prepared using fair value approach boost users of accounting information reliance on the financial statement. More so, it gives an indication of compliance towards satisfying regulatory requirements. From the result, it is shown that there is incremental value relevance when complying with fair value approach, this implies that banks with higher fair value disclosure are more value relevant. The resulting implication of this is that investors are more satisfied in their dealings and deal more with banks of higher fair value disclosure which now translates into higher share value.
5.0 Conclusion and Recommendations

This study investigated the effect of fair value measurement on the value relevance of accounting information of listed deposit money banks in Nigeria during the period 2016-2022. The study has made a huge contribution to the value relevance literature by examining the value relevance of accounting information in relation to fair value of listed deposit money banks in Nigeria. The results demonstrate that users of financial information are concerned with the information contained in the financial statement prepared base on fair value measurement. Based on the results obtain from the analysis it is therefore concluded that fair value measurement is value relevant to users of financial statement. It further explained that investors’ reaction to share prices of listed deposit money banks in Nigeria determined by fair value accounting. Based on the findings and conclusion of this study. It is therefore recommended that managers of listed deposit money banks in Nigeria should engage in activities that upsurge their revenue as this increases the value of shares. Management of listed deposit money banks in Nigeria should ensure that inputs used in estimating fair value hierarchy are disclosed since its disclosure increases share price. Also, regulatory bodies should establish an evaluation system to monitor adequate discourse of fair value through other comprehensive income in order to improve the quality of financial reporting in Nigeria.

References


