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**Fair Value Measurement and Firm Performance of Quoted  
Manufacturing Companies in Nigeria**

Joy Esosa Egbon–Aghaleghian<sup>1</sup> and David Jerry Oziegbe<sup>2</sup>

<sup>1,2</sup>Benson Idahosa University, Nigeria

doziegbe@biu.edu.ng

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**Abstract:** This study examined fair value measurement and firm performance of quoted manufacturing companies in Nigeria. The study used data from thirty-one (31) selected quoted manufacturing companies in Nigeria for a period of 16 years that were split into eight (8) years of historical cost accounting method (2004-2011) and eight (8) years of fair value measurement valuation technique method (2012-2019). The study utilized the paired sample t-test framework in analyzing the data. Findings revealed that there are significant differences between the impact of historical cost accounting and fair value measurement valuation technique on firm performance. Thus, the study recommended among others that the Financial Reporting Council of Nigeria should focus on the compliance level of companies with fair value accounting in addition to taking necessary steps to improving the understandability and usage of fair value accounting.

**Keywords:** Fair Value Measurement; Firm Performance; Quoted Manufacturing Companies

## **Introduction**

Manufacturing companies in Nigeria contribute immensely to the development of the nation's economy in that they produce the goods that are needed to enhance human welfare. They also give employment opportunities to both skilled and unskilled workers. Moreover, as going concerns, organizations and firms are set up for continuity and to make profit. Until 2012, Nigerian firms prepared their financial statements using Historical Cost Accounting (HCA) framework. Yet, following the directives by the Financial Reporting Council of Nigeria (FRCN) that firms listed on the Nigerian Stock Exchange (NSE) now referred to as Nigerian Exchange Group (NGX) should adopt IFRS basis in their financial reporting as from January 1st, 2012, few Nigerian firms complied. The historical cost accounting was birthed by the popular generally accepted accounting principle (GAAP) and was dependent on the matching concept principle of accounting (Nonyelum, Kevin & Nma, 2015; Amaefule, Okoye, Kalu & Nwosu, 2018).

According to Jadi, Inyang, Eyo and Uzoma (2022) firms employ different approaches in the preparation and presentation of financial statements and in the valuation of their assets and liabilities. These approaches impact greatly on the financial and non-financial data of the firm. Users of accounting information continuously seek improvements in the quality of financial reports and other performance reporting documents (Oyewo, 2021).

HCA is a feature of the Generally Accepted Accounting Principle (GAAP) which was adjudged grossly inadequate in reporting the performance of firms. HCA measures the value of the first expense on an asset while fair value measurement (FVM) measures the current market value of the asset. Fair value is the amount for which an asset could be exchanged or a liability settled between knowledgeable, willing parties at an arm length transaction. This assumes that it represents market value in a sufficiently robust market. HCA is in line with conservative accounting, and it prevents overstating the cost of an asset in the financial reports. Most long-term assets are recorded at their historical cost on an organization's statement of financial position while FVA in principle gives precise asset and liability valuation on a continuous basis to users of the company's reported financial information.

The main reason for financial reporting is to present information of an economic entity to users and also to present a true and fair opinion of the state of affairs of the business. As in Amaefula, et al (2018) it was noted that the whole essence of accounting (financial) report is to convey realistic, timely, accurate, and relevant information to stakeholders of an organization. Al-Jeburi and Al-Yasiri (2019) in their study recommended that there is a need for a serious work to be done towards shifting from historical cost in recording of current assets to the fair market value of the assets.

Historical Cost Accounting created a lot of loopholes that brought about the use of Fair Value Accounting. Some of the loopholes are: Inability to reveal the current worth of the organization, consequently, making financial statements not to show a true and fair position; uncomparable items in financial statements as a result of inflation, (during inflation, the value of a fixed asset is increased and this will make the rate of depreciation not sufficient to replace fixed asset); inaccurate determination of profit during inflationary periods because it does not disclose actual profit or loss due to the undervaluation of cost of sales (inflationary circumstances usually show high profit which will also increase the tax burden) and the profit due to undervaluation of cost of sales is mixed up to business profit and does not reflect the correct profitability (Rashidjaved, 2019). HCA has the quality of hardness and objectivity but does not provide sufficient information for forecasting (Abiahu, Udeh, Okegbe & Eneh, 2020). This study argued that a move from HCA basis to FVM basis will change the key performance figures in the financial statement of Nigerian quoted firms. In recent times, different regulatory bodies, for example, the Financial Accounting Standards Board (FASB), the International Accounting Standards Board (IASB) and International Financial Reporting Standard (IFRS) have embraced the Fair Value Accounting framework in preference over Historical Cost Accounting.

According to Gassen and Schwerdler (2010), FVM in the financial report assists in providing statistics which reflect the company's financial position and the management's stewardship by reporting assets and liabilities in the statement of financial position at their market value. This is due to the fact that fair value offers a more relevant and understandable statistics which is beneficial to the shareholders and different stakeholders. In Nigeria, there are still issues that have prevented the Nigerian financial reporting standards from achieving global status and these pose challenges to the implementation of fair value accounting in Nigerian financial reporting system. The usefulness of

accounting information increases greatly if it can be compared with similar information about other companies (Financial Accounting Standards Board, 2013). Asset valuation prior to year 2012 was carried out on the basis of historical cost. However, the historical cost accounting method had a problem of not revealing the impact of inflation and other market forces on reported figures (Nonyelum, et al, 2015).

This study was aimed at finding out if there are significant differences in fair value measurement on performance of quoted manufacturing firms in Nigeria using traditional technique of valuation as a base category or outcome. The motivation behind this study is the fact that irrespective of the major contributions of quoted manufacturing companies on the Nigerian Exchange Group; little or no research work has been narrowed to quoted manufacturing companies. Sufficient researches have not been carried out on quoted manufacturing sector. Fair value measurement and firm performance of quoted manufacturing companies, to the best of the researcher's knowledge, has not been empirically examined in Nigeria. The existing gap constitutes the inspiration for the study. It is accepted that an assessment of fair value measurement and firm performance of quoted manufacturing companies in Nigeria can help financial analysts to make informed decisions.

## **Literature Review**

### *Firm Performance*

According to Leonard, Emma, Edith and Stanley (2018), organizational performance reflects how successful the resources placed at the disposal of managers in an organization are utilized. The efficiency and effectiveness of a firm is measured by its performance. As indicated by Sonnentag and Michael (2001), when conceptualizing performance, one has to differentiate between an action aspect (that is behavioral) and an outcome aspect. According to them, the behavioural aspect refers to the result of individual behavior while the outcome aspect describes behavior which may produce outcome such as sales figures. Measurement of assets or liabilities utilizing fair value impacts organization's performance. The outcome of fair value measurement of asset and liability reflects on the statement of financial position either by increasing the value or reducing the value of the firm.

In Richard, Devinney, Tip and Johnson (2009), firm's performance was measured using three variables: financial performance, shareholders return and market performance. In line with this, this study will also use Profit After Tax (PAT), Earnings Per Share (EPS) and Return on Equity (ROE) to measure firm's performance. Organizational performance helps in deciding if a firm can endure inside and outside. It mirrors the viable utilization of assets at management's disposal (Amaefule, et al, 2018). To excel in a competitive business environment such as Nigeria, firms should make viable usage of assets to ensure performance. Firm performance focuses on the ability and capability in achieving sound consistencies with set goals and objectives.

Lupton (1977) regards firm performance in different ways, that in an effective firm, the rate of labour turnover and cost are low or absent while the level of satisfaction and motivation of members and rate of productivity are high. Other authors also explained that the criteria used in examining performance are inter-organizational tensions, productivity and flexibility (Omar & Zineb, 2019). However, Palea and Maino (2013) viewed firm performance as the extent to which a firm as a social system considers its ends and means.

### ***Earnings Per Share***

According to some researchers, the term Earnings Per Share (EPS) refers to the income or loss by holders of ordinary stock of a company within a financial year (KPMG, 2017). It represents profit attributable to ordinary share. According to Ijeoma (2014) earnings per share has to do with a company's net profit. Stockholders use EPS in assessing the value of a firm's stocks which offers an impact of its boom in profits over the years. EPS enables appraisals to be made among the firm's earnings and its dividend payouts. It is also a means of comparing a company's growth with another company in a similar industry. Investors and shareholders use EPS as criteria to judge the performance of organizations.

A higher EPS demonstrates that an organization is gainful enough to pay out more cash to its investors. For example, an organization may build its profit as income increase after some time. Investors normally look at the EPS of two organizations inside the same industry to get a feeling of how the organization is performing comparative with its peers.

### ***Return on Equity***

Return on equity (ROE) is useful for identifying firms that have potential to provide attractive returns over long period of time. ROE effectively measures the profit a firm can generate on the equity capital that investors have invested into the business which is used to evaluate changes in a firm's financial situation. Investors prefer a higher ROE to a lower one and a stable ROE to a volatile one.

### ***Net Profit after Tax***

Profitability refers to the capacity to make profit from business ventures. It reflects the efficiency of management in the utilization of resources at their disposal. As per Harward and Upton (2011), profitability is the ability of an investment to earn a return from its use. Firm's profitability is an index of efficiency. The net profit after tax simply reveals a satisfactory balance between the monies received and monies given (Peter & Alexei, 2011). It reflects the balance monies available to the business for distribution after taking into consideration all direct and indirect costs, nominal charges and taxation.

### ***Fair Value***

According to International Financial Reporting Standards (2011), "fair value is defined as the sum for which a risk could be settled, a benefit traded, or a value instrument could be traded between educated and consenting partakers." In another view by Ashford (2011) as cited by Leonard, Okoye, Kalu and Nwosu (2018), fair value is the value that would be paid for a risk or sum to sell or move a benefit in a precise exchange between members at the measurement dates. Fair value represents the sum which can be moved in an imaginary exchange between consenting partakers of the same information under ordinary economic situation.

Under market condition, fair value establishes a speculative market cost and records changes to show case values or wholes. In the event of unrealized gains and losses, cash flow might be affected if assets are sold on accounting reporting date. As per Olivera and Riste (2016), fair value can be viewed as "exit value or price" (the price for which an asset is disposed off). Under the fair value,

income statement conveys the economic income of the firm since it reflects changes in firm value after some time. Statement of financial position under the fair value can be a base for evaluating the future values of assets or liabilities (Bassam, 2010). Conversely, statement of comprehensive income cannot serve as a base for finding out the future qualities in view of the adjustments in the cost and profit which originate from losses and gains of the revaluation of assets and liabilities.

### *Historical Cost Accounting*

According to Amanamah and Owusu (2016), Historical Cost Accounting (HCA) measures an asset at the cost of obtaining it. Villa (1890), characterized HCA as a technique whereby the estimation of asset or liability expressed on balance sheet is ascertained by its acquisition cost. He further emphasized that financial accounting measurement shapes the standard of exchange value, that is, the financial statement against an asset and liability frames the current market value of the asset. Historical cost can likewise be portrayed as 'bargains value' or also referred to as purchase cost of an asset which is either in bill payment, worth of other kinds of payment or cash equivalent used in acquiring or purchasing the asset.

Historical cost of an asset is ascertained with the basis of a stable measuring unit forecast (Ene, Chilarez & Dindire, 2014). Historical cost shows assets and liabilities as though there had been no adjustment in the sum or incentive from the date of procurement (from commencement). Authors such as Ene, et al (2014), Fadia and Mohammad (2015) and Alkababji (2016), who have scrutinized HCA have put together their analysis with respect to its incorrectness (absolute deviation from genuine estimation of value). Irrespective of their criticism most accounting system still accept it.

According to Ene, et al (2014), the insufficiency of the HCA is that, in case of increment in cost, especially inflation period, the assets and liabilities at historical costs prompts deceptions of data expressed in the financial report. HCA results to disagreeable introduction of accounting data and consistent disintegration of the company's capital. Nigeria like other nations has moved to using fair value method which mirrors the market value of a specific asset or liability at a predefined date or at a measurement date. HCA strategy for asset valuation supports consistency, and relative sureness in the valuation of the announced asset or liability. Any change coming about because of the revaluation of an asset is taken to statement of comprehensive income. The value attributed to assets and liabilities under the HCA technique are traceable to documents, for example, purchase receipt, invoice, deposit slip, promissory notes, debt instrument, etc.

The study is anchored on value relevance theory. Value relevance theory as defined by International Accounting Standards Board (2011), means the capacity of financial statement information to show or portray information as it relates to share values, future dividends, future cash flows, etc. Value relevance theory stresses that financial information should be sufficient enough in order to make informed decisions about the state of affairs of a particular organization. Fair value shows a better state of affairs of the organization than Historical Cost Accounting.

Value relevance theory means that accounting information is related to market values and also has the ability of estimating future market values. Value relevance theory emphasizes the importance of accounting information to informed users (creditors, investors, debtors, employees, government, managers etc.). Information is referred to as important if that information has impact on the decision of various users. Fair value accounting information can be used to predict the present and

future of an organization at a given time. Importance of accounting information for making decision forms one of the most crucial features of financial data (Francies, 1999).

Alkhadash and Abdullaty (2009) posit value relevance theory underlines the way decision makers should see accounting information as a relevant tool in arriving at a business decision. Value relevance centre around test of relevance and reliability of accounting data. The importance of the relevance quality for choosing a specific accounting alternative stems from the importance of data that will be available to investors for decision making.

Considering the fact that accounting information is measured based on its relevance to economic realities, value relevance theory becomes important as a background for assessing the use of FVA method and the HCA method. This will help users to have reasonable assurance that the business they are going to lend money would be able to return the principal amount as at when due and also pay interest on the principal amount.

### *Empirical Review*

Bessong and Charles (2012) inspected the impacts of FVA and the HCA on the reported profits. The sample size of the study contains all quoted banks in Nigeria. Data gathered were secondary data and were analyzed utilizing ordinary least squares method. The variables of the study were net profit after tax, company tax and total asset. The discoveries from the study uncovered that FVA and the HCA have critical effect on reported profit. The study likewise uncovered that there is no distinction in the effect of tax (as an intermediary for FVM and HCA) on firms' profitability during every one of the two systems.

Majeed, Makki, Sale and Aziz (2013) dissected the connection between profitability of Pakistani firms and money transformation cycle utilizing arbitrarily chosen organizations from three manufacturing sectors. The time period was 2006 to 2010 and the methods utilized were correlation and regression to analyze data. The factors were return on asset (ROA), return on equity (ROE), operating profit, to check performance and profitability. The discoveries show that profitability can be improved when managers reduce the credits given to their customers.

In the investigation of Okafor and Ogiedu (2012), an appraisal was done on the discernment issues relating to FVA in Nigeria. The sample size contains 250 financial auditors. Questionnaire survey of the sample of financial auditor was utilized and information gathered was analyzed. The investigation examined information utilizing the Z Score. Discoveries from the study uncovered that financial statements under fair value accounting give more applicable and economic information than the ones prepared under historical cost accounting and that financial auditors in Nigeria have low information in fair value accounting. The investigation shows that fair value accounting has resulted to more technical challenges for financial auditors than HCA.

Al-Jeburi and Al-Yasiri (2019), in their study aimed at showing the importance of accounting measurement which is based on the fair value in maximizing the qualitative characteristics of the accounting information. This results from the financial statements of the company according to international accounting standards. To assess the hypotheses, questionnaire was distributed to accountants and auditors. SSPS program was used to analyze the data. The study recommended that there is a need for a serious work towards shifting from historical cost in recording non-current assets to the fair value method.

Akwu, Ofoegbu and Okafor (2017) inspected the impact FVM, depreciation and profitability have on listed manufacturing companies from 2011 to 2013. Panel data, ordinary least square and t-statistics were utilized. The discoveries show that IFRS has a small affect on depreciation and on the reported profit using fair value and historical cost method.

Ghafeer and Abdul-Rahman (2014) sought to shed some light on this issue by restating some of the financial assets of an insurance company, applying fair value instead of historical cost based valuations, and comparing data emerged by using historical costs principle and fair value principle. The study employed a simple comparison approach to establish the difference between the net income of firms during the periods of fair value and historical cost accounting bases. With the aid of bar charts and percentages, the study find that the numbers on the face of the income statement change considerably and observe that the magnitude of these changes varies between the two policies; the indication being that a change from historical cost to fair value accounting could achieve different results.

Ijeoma (2013), dissected the effect of FVM on financial instruments of quoted firms in Nigeria. The target of the investigation was to assess the impact of fair value measurement on quoted firms' monetary instruments. The example of the investigation comprises 188 monetary experts. Information was gathered through field survey strategy with the utilization of questionnaire. The investigation analyzed information utilizing Kruskal-Wallis rank total test measurement. The outcome from the investigation uncovered that the use of fair value gives adequate accuracy in surveying firm's financial position and earning potential. Additionally discovered was the chance of measurement errors in financial instrument estimated on fair value basis was high. From the discoveries, the study finds out that Fair value can be best depended on for expected future income as it predicts the capacity of the firm to take advantage of opportunities.

In Elfaki and Hammand (2015), they analyzed the effect of fair value accounting on accounting data. Statistical package for social studies (SPSS) was utilized and essential information assortment was done. Discoveries uncovered that fair value gives valuable data to users of financial statements and aides in decision making.

Akwu (2014), carried out an investigation on the impact of profitability on listed manufacturing companies in Nigeria using fair value measurement and historical cost method. Ex-post facto and five IFRS organizations were utilized. Basic least squares method, correlation and t-statistics were likewise utilized with econometric perspectives. It was seen that depreciation positively affects profitability utilizing FVM and HCA, and that fair value measurement can fill in as a substitution to historical cost.

In the investigation of Egbe (2014) appraisal was made on the effect of historical cost accounting on the reported profit of a firm with a critical focus on assessing the current cost accounting (CCA) as an elective reporting pattern. The exploration utilized an ex post facto research plan and test of ten (10) out of (48) manufacturing organizations in Nigeria were drawn. Variables for the investigation were net profit, return on investment and assets. Information accumulated were researched using regression analysis while the Pearson Product Moment Correlation Coefficient and Chi-Square were likewise utilized to test speculations at 5% level of significant. The product used in running the study was SPSS 17.0. From the study, it was discovered that there is a positive connection between HCM

and the reported profit of firms in Nigeria. The study additionally found that present cost strategies do not essentially influence the overstated profit made by these firms.

In the investigation of Dickinson and Liedtke (2004), they examined the impact of fair value on the financial reporting system of insurance companies. The sample size of the study comprises of forty (40) driving global insurance agencies and reinsurance organizations. Information was assembled using surveys and broken down with bar graph and histogram. Discoveries from the investigation inferred that the presentation of a full fair value reporting system would change the business techniques fundamentally and furthermore change the corporate strategies and frameworks. The investigation likewise uncovered a high level of understanding that as volatility of reported earnings increase (estimated by profit per share) there will be a similar increment in the cost of capital of insurers and that it would be progressively hard to give earnings forecasts.

In the work of Kazmouz (2010), he inspected the effect of applying fair value on financial reports of quoted UK leading organizations. The study gathered information from 20 UK organizations covering 1990 to 2009. The variables were property, plant and equipment, net gain, return on equity, depreciation, amortization and intangible asset. Data collected were segregated between the periods 1990 – 2004 and 2005 – 2009 (that is, before and after fair value application). Analysis was done using comparative analysis, simple average (mean) and t-statistics. It was discovered that property, plant and equipment, depreciation and amortization, net gain and return on equity, except intangible assets demonstrated significant outcome.

**Methods**

The panel data research design was adopted in this study because the data were collected at a different time and across several firms. The population of the study was the entire 40 manufacturing companies from the following three sectors: Industrial Goods, Conglomerates and Consumer Goods quoted on the Nigerian Exchange Group as at 31<sup>st</sup> December 2019. The convenient sampling technique was employed for the selection of thirty-one (31) quoted manufacturing companies based on the ease of accessing their financial statements on their websites. The study collected data for sixteen (16) years, eight (8) years before and eight years after (8) the adoption of fair value measurement. The period covered was 2004-2019. (HCA, 2004-2011 and FVM, 2012-2019).

*Operationalisation of Variables*

The variables employed in this study are defined in Table 1 below, including the measurement, A priori expectation and citations of previous researchers who have used these variables.

**Table 1. Operational Definition of Variables**

<b>Variable</b>	<b>Measurement</b>	<b>A Priori Expectation</b>	<b>Source</b>
Earnings per share	Measured by Net Profit after preference share dividend divided by ordinary share	Significant difference across the two periods (HCA and FVA)	Leonard, Okoye, Kalu and Nwosu (2018)
Return on Equity	It is return on assets minus liabilities. It shows the profit`ability of investment in relation to equity.	Significant difference in the means across the two periods (HCA and FVA)	Amanamah and Owusu (2016)



Net Profit After Tax	Measured by the company's Net profit before tax	Significant difference in the means across the two periods (HCA and FVA)	Leonard, Okoye, Kalu and Nwosu (2018)
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**Source:** Compilation of the Researchers', 2022

***Method of Data Analysis***

The study adopts descriptive statistics to examine the characteristics and variance in the data obtained in both period of historical cost accounting and fair value accounting. Inferential statistics (paired sample T-test) was adopted in testing the underlying hypotheses of 'no significant difference' in the means of the variables under focus; that is, determining whether or not there is any significant difference by comparing the means of the different samples in the two periods when historical cost accounting and fair value accounting were in use.

The test statistic is a measure that allows us to assess whether the differences among the sample means are more than would be expected by chance if the null hypothesis is true.

The t-test specification is expressed below:

$$t = \frac{m - \mu}{s / \sqrt{n}}$$

t = student's t test; m = mean; μ = theoretical value; s = standard deviation; and n = variable set size

Analysis procedure for the study groups each of the performance variables under consideration as variables measured on the basis of historical cost accounting (HCA) and fair value measurement (FVM) and further proceeds to analyze the existence of mean differences in the two groups.

Decision Rule:

- If the probability value of the t-test for mean square of earnings per share (p-value >0.05) is greater than 5 percent significance level, the null hypothesis is accepted, otherwise the alternative hypothesis is accepted and the null rejected.
- If the probability value of the t-test for mean square of return on equity (p-value > 0.05) is greater than 5 percent significance level, the null hypothesis is accepted, otherwise the alternative hypothesis is accepted and the null rejected.
- If the probability value of the t-test for mean square of profit after tax (p-value > 0.05) is greater than 5 percent significance level, the null hypothesis is accepted, otherwise the alternative hypothesis is accepted and the null rejected.

**Findings**

***Descriptive Statistics***

Table 1, presents a summary of the descriptive statistics of the dependent and independent variables for 31 manufacturing companies in Nigeria for a period of 16 years from 2004-2019 (8 years of

historical cost accounting and 8 years of fair value measurement) with a total of 496 observations. Key statistics that include mean, maximum, minimum and standard deviation values were reported.

The descriptive result as reported in Table 1, describes the feature and/or characteristics of the data used in the study. From the table above, profit after tax has a mean of 86.8million for the period 2004 to 2019. The associated standard deviation is approximately 36 million. The highest reported profit during the period was 481 million. With respect to earnings per share, the reported mean is given as 281.3 kobo and the standard deviation is given as 797.1 kobo. The highest reported earnings per share was 9500 kobo. Return on equity on average is given as 0.22 per share. Associated standard deviation is 0.57

**Table 1. Descriptive Statistics Result**

	<b>Obs</b>	<b>Mean</b>	<b>Median</b>	<b>Max</b>	<b>Min</b>	<b>Std. Dev.</b>
PAT	496	8686693.	529438.5	481456000	(14078794)	35968179
EPS	496	281.3143	62.00000	9500	(540.0000)	797.0782
ROE	496	0.227458	0.147256	9.852595	(1.372359)	0.573577

**Source:** Authors’ Computation (2022) using E-Views 9.0

***Descriptive Statistics by Valuation Approach Results***

In Table 2, it shows the analysis on the descriptive summary of the variables of focus reported by disentangling each item on the basis of valuation period: historical cost (2004-2011) accounting period and fair value period (2012-2019). During the period of historical cost accounting method, average profit after tax is reported as 4.2 million. The highest profit after tax is 121 million while reported loss during the period was 2.9 million. On average, earning per share was 274 kobo while the median earnings per share was 65 kobo. Return on equity on average was 0.319 with corresponding standard deviation of 0.327.

Meanwhile during the period of fair value measurement, average reported profit was 13 million while median profit after tax was 640 thousand. In the case of earnings per share, average earnings per share during the period are given as 287kobo while median earnings per share were 55kobo. Return on equity was 0.127 on average while the median and standard deviation were 0.108 and 1.22 respectively.

**Table 2. Descriptive Statistics by Valuation Approach Results**

		<b>Measurement Type</b>	
	<b>Item</b>	<b>HCA</b>	<b>FVA</b>
Profit After Tax (PAT)	Mean	4281812.99	13091573.87
	Median	391846.00	640538.50
	Maximum	121415513.00	481456000.00
	Minimum	-2952772.00	-14078794.00
	Standard Deviation	12024357.29	49082677.51
Earnings per Share	Mean	274.88	287.75

(EPS)	Median	65.33	55.41
	Maximum	9500.00	5763.00
	Minimum	-215.00	-540.00
	Standard Deviation	846.51	746.04
	<hr/>		
Return on Equity (ROE)	Mean	.3274	.1275
	Median	.1806	.1088
	Maximum	9.8526	1.2256
	Minimum	-.9039	-1.3724
	Standard Deviation	.7575	.2557

*Significant at 1% level of significance*      *Significant at 5% level of significance*

**Source:** Authors’ Computation (2022) using SPSS 23.0

**Normality Test**

From the Table 3 below the Jarque Bera statistics show that all the three variables, profit after tax, earnings per share and return on equity, have no normal distribution given their corresponding probabilities indicating Jarque Bera statistic are significant at 1% and 5% conservation and conventional level of significance.

**Table 3. Normality**

	<b>Jarque-Bera</b>	<b>Probability</b>	<b>Skewness</b>	<b>Kurtosis</b>
PAT	146087.7	0.000000**	8.303350	85.41951
EPS	52107.94	0.000000**	6.015672	51.75037
ROE	593934.9	0.000000**	11.02429	171.0852

*Significant at 5% level of significance*

*Significant at 1% level of significance*

**Source:** Authors’ Computation (2022) using E-Views 9.0

**Correlation Analysis**

The correlation matrix reveals the interaction and direction of relationship between the variables under consideration. From the table, it is observed that profit after tax and return on equity have a seemingly negative correlation though not significant at any of 1% or 5% level of significance.

Similarly, the correlation between return on equity and earnings per share is reported to be negative during the period under consideration with the associated probability values indicating the correlation not significant at 1% and 5% level of significance. Meanwhile, in the case of profit after tax and earnings per share, the correlation matrix indicates that there is existence of positive correlation between the two variables with the correlation significant at 5% conventional level of significance.

**Table 4. Correlation Result**

<b>Probability</b>	<b>PAT</b>	<b>ROE</b>	<b>EPS</b>
PAT	1.000000		
	-----		

ROE	0.351082 0.0000	1.000000 -----	
EPS	0.054255 0.2278	0.122847 0.0062	1.000000 -----

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*Significant at 1% level of significance*      *Significant at 5% level of significance*

**Source:** Authors’ Computation (2022) using Stata 13

***Correlation Analysis by Group: Historical Cost Accounting***

From the Table 5, it is observed that profit after tax and return on equity have a weak positive correlation though not significant at any of 1% or 5% level of significance. Similarly, the correlation between return on equity and earnings per share is reported to be positive albeit weak during the period under consideration with the associated probability values indicating the correlation not significant at 1% and 5% level of significance.

Meanwhile, in the case of profit after tax and earnings per share, the correlation matrix indicates that there is existence of positive and fairly strong correlation between the two variables with the correlation significant at 5% conventional level of significance.

**Table 5. Historical - Correlation**

<b>Probability</b>	<b>PAT</b>	<b>ROE</b>	<b>EPS</b>
PAT	1.000000		
ROE	0.0481	1.000000	
EPS	0.4156	0.0282	1.000000

**Source:** Authors’ Computation (2022) using Stata 13

***Correlation Analysis by Group: Fair Value Accounting***

From the Table 6, it is observed that profit after tax and return on equity have a positive correlation that is relatively higher in strength compared to what was obtained under historical valuation method. Similarly, the correlation between return on equity and earnings per share is reported to be positive and moderately strong during the period under consideration with the associated probability values indicating the correlation not significant at 1% and 5% level of significance. Also, in the case of profit after tax and earnings per share, the correlation matrix indicates that there is existence of positive and fairly strong correlation between the two variables with the correlation significant at 5% conventional level of significance.

The correlation analysis indicates that difference in valuation method impose differences in result obtained during each of the period. The analysis indicates that, result obtained under fair value method show a stronger outcome relative to historical method.

**Table 6. Fair Value - Correlation**

<b>Probability</b>	<b>PAT</b>	<b>ROE</b>	<b>EPS</b>
PAT	1.000000		
	-----		
ROE	0.2143	1.000000	

EPS	0.4338	0.5020	1.000000
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Source: Authors’ Computation (2022) using Stata 13

*Classical Paired Sample t-Test (Profit After Tax)*

In Table 7, the conducted t- test, in ascertaining the existence of mean difference in profit after tax as an indicator of performance when measured on the basis of historical cost accounting and fair value method, is reported in the table above. Data collected were stratified into two periods: historical cost accounting period that covers year 2004 to 2011 and fair value method period that covers the period 2012 to 2019. Total numbers of manufacturing firms selected were 31 with the groups classified as HCA having a total number of 248 observations and FVA having 248 observations. From the above result table, the t-statistic, the ratio of the mean difference to the standard error of the difference and given as 2.74 in absolute terms, is seen to lie in the critical region of the confidence interval. The probability value [Pr (|T| > |t|)] assuming equal variances is less than the pre-specified alpha level of 5 percent conventional and 1 percent conservative level of significance. Thus, there is sufficient evidence at 5% level of significance to conclude that the mean of profit after tax between the traditional accounting technique and fair value measurement is statistically significantly different from zero. Hence, there exist difference in profit after tax as an indicator of firm performance when historical cost accounting measure was adopted and when fair value method is now being used hence the null hypothesis of no difference in the two time periods is rejected.

Table 7. Classical Paired Sample t-Test (Profit After Tax)

Measurement Valuation	Profit After Tax					
Group	Obs.	Mean	Std Error	Std. Dev.	[95% Conf. Interval]	
HCA	248	4281813	763547.5	1.20e+07	2777919	5785707
FVA	248	1.31e+07	3116753	4.91e+07	6952771	1.92e+07
Combined	496	8686693	1615019	3.60e+07	5513556	1.19e+07
Diff		-8809761	3208918		-1.51e+07	-2504950
diff = mean(HCA) - mean(FVA)				t = -2.7454		
Ho: diff = 0				degrees of freedom = 494		
Ha: diff < 0		Ha: diff != 0		Ha: diff > 0		
Pr(T < t) = 0.0031		Pr( T  >  t ) = 0.0063		Pr(T > t) = 0.9969		

Source: Authors’ Computation (2022) using Stata13

*Classical paired sample t-Test (Earnings Per Share)*

In Table 8 below, the t-statistic, the ratio of the mean difference to the standard error of the difference and given as 0.179 in absolute terms, lies outside the critical region of the confidence interval. The probability value [ $\Pr(|T| > |t|) = 0.8575$  or 85% in percentage terms] assuming equal variances is greater than the pre-specified alpha level of 5 percent conventional and 1 percent conservative level of significance. Thus, there is statistically backed evidence at 5% level of significance to conclude that the mean of earnings per share between the traditional accounting technique and fair value measurement is not statistically significantly different from zero. Hence, there exists no significant difference in earnings per share as an indicator of firm performance when historical cost accounting measure was adopted and when fair value method is now being used hence the null hypothesis of no statistically significant difference in the two time periods is accepted.

**Table 8. Classical Paired Sample t-Test (Earnings Per Share)**

Measurement Valuation	Earnings per Share					
Group	Obs.	Mean	Std Error	Std. Dev.	[95% Conf. Interval]	
HCA	248	274.8785	53.75353	846.5115	169.0047	380.7522
FVA	248	287.7501	47.37354	746.0393	194.4425	381.0577
Combined	496	281.3143	35.78987	797.0782	210.9955	351.6331
Diff		-12.87164	71.64981		-153.6476	127.9043

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diff = mean(HCA) - mean(FVA) t = -0.1796  
 Ho: diff = 0 degrees of freedom = 494  
 Ha: diff < 0 Ha: diff != 0 Ha: diff > 0  
 Pr(T < t) = 0.4288 Pr(|T| > |t|) = 0.8575 Pr(T > t) = 0.5712

**Source:** Authors' Computation (2022) using Stata13

*Classical paired sample t-Test (Earnings Per Share)*

Lastly, going by the result in Table 9, the t-statistic, the ratio of the mean difference to the standard error of the difference and estimated to be 3.94 in absolute terms, is seen to have lie in the critical region of the confidence interval. The probability value [ $\Pr(|T| > |t|)$ ] assuming equal variances is less than the pre-specified alpha level of 5 percent conventional and 1 percent conservative level of significance. Thus, there is sufficient evidence at 5% level of significance to conclude that the mean of return on equity between the traditional accounting technique and fair value measurement is statistically significantly different from zero. Hence, there exists difference in return on equity as an indicator of firm performance when historical cost accounting measure was adopted and when fair value method is now being used hence the null hypothesis of no difference in the two time periods is rejected.

**Table 9. Classical paired sample t-Test (Return on Equity)**

Measurement Valuation	Return on Equity					
Group	Obs.	Mean	Std Error	Std. Dev.	[95% Conf. Interval]	
HCA	248	.3274234	.0481032	.7575302	.2326786	.4221682
FVA	248	.1274925	.0162384	.2557223	.0955092	.1594759
Combined	496	.227458	.0257544	.5735769	.1768566	.2780593
Diff		.1999309	.0507701		.1001789	.2996828

diff = mean(HCA) - mean(FVA) t = 3.9380  
 Ho: diff = 0 degrees of freedom = 494  
 Ha: diff < 0 Ha: diff != 0 Ha: diff > 0  
 Pr(T < t) = 1.0000 Pr(|T| > |t|) = 0.0001 Pr(T > t) = 0.0000

**Source:** Authors’ Computation (2022) using Stata13

*Effect Sizes*

Effect size posttests report the practical significance of mean differences using standard deviations. The most commonly used measure of effect size for a t-test is the Cohen’s d (Cohen 1998). The t-statistic redefines the difference in means as the number of standard deviations that separates those means. Cohen’s d and Hedges’s g both indicate that the average return on equity differ by approximately 0.35 standard deviations with 95% confidence intervals of (0.176, 0.531) and (0.175, .530) respectively. Thus, we cannot completely rule out the possibility that the valuation or measurement technique had no effect on return on equity as a measure of firm performance. Similarly, for profit after tax, Cohen’s d and Hedges’s g show that the mean difference of profit after tax differ by approximately -0.24 respectively implying that the possibility that the valuation or measurement technique has an effect on profit after tax as a measure of firm performance is undoubtedly true.

However, in the case of earnings per share, Cohen’s d and Hedges’s g show that the average effect of the valuation technique only had approximately -0.016 with corresponding 95 percent confidence intervals of (-.192, .159) and (-.191, .159) respectively. Thus, we can completely rule out the possibility that the valuation or measurement technique had effect on earnings per share as a measure of firm performance.

**Table 10. Effect Sizes**

Variables	Effect Size	Estimate	[95% Conf. Interval]	
Return on Equity	Cohen's d	.3536396	.1760781	.5308485
	Hedges's g	.3531024	.1758106	.5300421
	Glass's Delta 1	.2639246	.0861215	.4412025
	Glass's Delta 2	.7818282	.5921187	.9701554
	Point-Biserial r	.1744602	.0878758	.2570259
Earnings per Share	Cohen's d	-.0161327	-.1921374	.1598883
	Hedges's g	-.0161082	-.1918455	.1596454
	Glass's Delta 1	-.0152055	-.1912052	.1608249
	Glass's Delta 2	-.0172533	-.1932524	.1587807
	Point-Biserial r	-.0080824	-.09582	.07985
Profit After Tax	Cohen's d	-.2465441	-.4231	-.0697406
	Hedges's g	-.2461696	-.4224573	-.0696346
	Glass's Delta 1	-.7326596	-.9194838	-.54452
	Glass's Delta 2	-.1794882	-.3560275	-.0025885
	Point-Biserial r	-.1225897	-.20737	-.0349195

**Source:** Authors’ Computation (2021) using Stata13

*Discussion of Finding*

The essence of the current study was to determine firm performance of quoted manufacturing companies in Nigeria while the specific objectives were to: investigate if there is any significant difference in earnings per share of quoted manufacturing companies as an indicator of performance when measured on historical cost accounting (HCA) basis and fair value measurement (FVM) basis; ascertain if there is any significant difference in return on equity of quoted manufacturing companies as an indicator of performance when measured on historical cost accounting basis (HCA) and fair value measurement (FVM) and to determine if there is any significant difference in profit after tax of quoted manufacturing companies as an indicator of performance when measured on historical cost accounting (HCA) basis and fair value measurement (FVM) basis.

Having conducted our empirical analysis, the following findings were made:

First, there is a significant difference in the derived profit after tax when valued on the basis of historical cost accounting technique and fair value valuation approach. This implies that the derived profit after tax is sensitive to valuation approach. This approach is adopted in determining the monetary values of profit or loss and statement of financial position of the firms.

Second, there is no significant difference in earnings per share when historical cost accounting valuation approach is compared against fair value measurement approach. This indicates the insensitivity of earnings per share as indicator of firm performance to valuation approach within the period observed.

Finally, there is a significant difference in derived return on equity when valued on the basis of historical cost accounting technique and fair value valuation approach. This implies that the derived return on equity is sensitive and responsive to valuation approach under investigation (historical cost accounting or fair value approach).

In the correlation analysis by group for historical cost accounting, it is seen that Profit after tax and Return on equity have weak positive correlation. The correlation between Return on equity and Earnings per share is also reported to be positive and weak. Both are not significant at 1% or 5% level of significant. This means that it is not sensitive to historical cost accounting. Profit after tax and Earnings per share shows existence of positive and fairly strong correlation. It has correlation significance at 1% or 5% conventional level of significance. This means that it is sensitive to historical cost accounting.

In the correlation analysis by group for Fair value accounting, it is seen that Profit after tax and return on equity have a positive correlation that is higher in strength. The correlation between return on equity and Earnings per share is positive and moderately strong. Both are not significant at 1% and 5% level of significance. Profit after tax and Earnings per share shows existence of positive and fairly strong correlation. It has correlation significance at 1% or 5% conventional level of significance. It is seen that the result obtained under Fair Value Method shows a stronger outcome relative to Historical Cost Method.

The result is however inconsistent with the studies of Abiahu et al (2020), Amaefule, et al (2018) and Akwu and Ofoegbu (2017), who found no significant difference in reported profit using fair value and historical cost conventions. Similarly, the result also shows that it is inconsistent with the findings of Egbe (2014) who evaluated the effect of historical cost accounting on the firm's reported



profit vis-à-vis current cost accounting as an alternative method. The results showed that positive relationship exist between historical cost method and reported profits.

Sanyaolu, Iyoha and Ojeka (2017) found a significant relationship between IFRS adoption and EPS of quoted banks in Nigeria which is inconsistent with the finding obtained in our analysis. In tandem to the research findings, Akwu, Ofoegbu, and Okafor (2017) and Gospel, et al (2019) in their studies revealed that with the use of fair value and historical cost convention, International financial Reporting Standards (IFRS) has an encouraging impact though small on depreciation and in the profit reported.

## **Conclusion**

The objective of this study was to empirically ascertain the impact of fair value measurement on key performance parameters of quoted manufacturing companies in Nigeria. To simplify the study and act as a guide to the research, various hypotheses were formulated around predetermined factors that are crucial to determining whether fair value measurement has any effect on firm performance with a focus on key performance parameters.

The study adopted a secondary type, cross sectional and time series analytical in determining the nature and kind of data collected. The study used 31 randomly selected listed manufacturing companies operating in Nigeria as at the year of research. The study utilized independent t-test analytical technique to assess the differences, if any, between historical cost accounting measurement and transition to fair value measurement. The study concludes that Fair Value Method shows a stronger outcome relative to Historical Cost Method. Some of the limitations of this study are that the data for this study is limited to sixteen years and restricted to just quoted manufacturing companies in Nigeria. Information gathered for this study is also limited to audited financial statements. In spite of these limitations, the objective of the study was still realized to a substantial degree

## ***Recommendation***

Based on the findings of this study, it is pertinent for us to provide some policy recommendations that would be useful and essential to effective management and enhancement of extant valuation approach. First, management of manufacturing firms should ensure proper valuation approach is adopted given that valuation of financial statements is crucial to financial reporting. Second, firms should ensure that the adoption of fair value measurement valuation technique should be adopted in line with IFRS and firm's financial objectives. Third, Accounting bodies that train professional Accountants especially in Nigeria should ensure that there is proper training in the area of fair value accounting. Fourth, the Financial Reporting Council of Nigeria (FRCN) should ensure total enforcement compliance level of companies with fair value and also sanction noncompliance and finally, fair value measurement of accounting should be adopted by firms given its advantage over historical and how fairly it reflects market value of transactional items in financial statements.

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