ACCOUNTING ESTIMATES AND FINANCIAL PERFORMANCE OF LISTED NON-FINANCIAL FIRMS IN NIGERIA

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Abstract

The study investigated the effect of accounting estimates on financial performance of listed non-financial firms in Nigeria. The study used the ex post facto research design. Anchored on the Performance theory, 79 listed non-financial companies in Nigeria were purposively selected as the population sample. The data used were secondary data and were drawn from 2013 to 2019. The secondary data collected were analyzed using descriptive statistics, correlation and the fixed/random effect regression model. The results indicated that accounting estimates jointly put together was significant in predicting financial performance at 5% level of significance. But individually, depreciation estimates and intangible assets estimates had non-significant effects on return on assets and assets turnover. The study also found that inventory, property plant & equipment and accounts receivables estimates had significant effects on financial performance. It was concluded that accounting estimates influenced financial performance of listed non-financial firms. The study therefore recommended that listed non-financial firms should adhere to the provisions of relevant accounting standards (IFRSs), to ensure financial statements users are not misinformed due to the use of wrong estimates. The study contributed to knowledge by not only trying to fill the gap in literature identified in the subject area, but has also provided empirical evidence that will be useful for further research and by other stakeholders such as managers, investors and regulatory bodies in Nigeria and beyond.

Keywords: Accounting Estimates, Return on Assets, Assets turnover, Depreciation Estimates, Receivables Estimates.

Introduction

It is generally believed that financial reports are meant to provide information for the evaluation of an entity's 'financial health', which is needed by different users for making economic decisions. They are essentially stewardship reports prepared by management aimed at depicting the financial status of the entity; in terms of performance, financial position, and changes in financial position. Mer and Dil (2016) argued that financial statements are reports showing the financial status and operational results of business entities. In particular, the International Accounting Standards Board's Conceptual Framework for the preparation and presentation of financial statements posits that the primary objective of financial reporting is to make available financial information useful to financial statement users in making financial decisions (IFRS

Foundation 2015). On their part, Akenbor and Kiabel (2014) opined that the contents of financial statement information influence the decision of stakeholders in their relationship with the business.

Some items recorded or recognized in the financial statements, usually prepared by the directors, cannot be measured with precision. They can only be estimated using managements' judgements and experience. Such financial statements items are commonly referred to as "accounting estimates". Beechy (2005) opined that the majority of the transactions recorded and presented in the financial reports are mostly based on estimates. For instance, certain transactions such as: estimation of assets' depreciation, measurement of impairment losses, making of warranty provisions, estimation of the closing inventories, estimation of assets' economic lives, reserves recognition, determination of bad and doubtful debt provisions, estimation of employees' retirement benefit obligation, valuation of intangible non-current assets, recognition of trade receivables, payables, etc. cannot be measured with precision (KPMG 2015). They are all measured and presented by way of accounting estimates. Raubenheimer (2012) argued that the use of accounting discretions in financial statements do not lead to precise amounts but, rather, figures based on presumptions, judgements, and guesses thoughtfully calculated by the preparers of the report. Chukwu (2006) summarized that when preparing and presenting financial statements, estimates are usually or frequently used and such events and their effects cannot be perceived with certainty; as almost all amounts are recognized and presented in financial statements by preparers today, reflect some form of estimates or the other. That is further buttressed by the International Accounting Standards Board (IASB, 2010) which opined that to a large extent, financial reports are prepared and presented based on certain accounting estimates, management judgements as well as models, as opposed to being an exact representations of financial reality (IFRS Foundation; 2015). Accounting estimates, therefore, are those financial transactions or events that cannot be measured with precision or certainty during the preparation and presentation of financial statements.

Arguably, we can trace most of the notable corporate accounting frauds and scandals in history to the misuse of accounting estimates or misuse of managements' judgements, who sometimes creatively manipulate financial statements of their firms to make them appear appealing to the users (Nangih and Anichebe, 2021). For instance, the waste management scandal that took place in 1998 in Houston-Texas, the Tyco Scandal of 2002 involving New Jersey-based company managed by Dennis Kozlowski, and the Cadbury Nigeria Plc's scandal of October 2006 were all traceable to the misuse of accounting estimates. It is for this reason that the financial regulators, notably, the Securities and Exchange Commission, the Financial Reporting Council of Nigeria, the International Accounting Standards Board, auditors and others, have always emphasized the importance of full disclosures; regarding critical accounting approximations and managements' judgements done in the financial reports, since they significantly affect users' perceptions and the way profits are determined.

Efforts have been made by previous researchers to solve the problem associated with the misuse of accounting estimates by the preparers of financial statements. For instance, Lugovsky and Kuter (2020), Serdarevic (2011), Raubenheimer (2012), Belsoi et al (2017); all examined the subject matter of accounting estimates and how they affect financial statements prepared by firms. In Nigeria, Nnah (2017), Akenbor and Kiabel (2014), Ayunku and Eweke (2019), Ahmed et al (2014) as well as Anichebe and Nangih (2021) all maintained that accounting estimates had significant relationship with financial statements 'credibility or

quality. However, we are not aware of any known study which examined the effect of accounting estimates on the financial performance of companies in Nigeria; to the best of our knowledge. Consequently, an attempt to empirically look at the effect of these estimates on the financial performance of quoted non-financial companies in Nigeria is the reason for this research and, therefore, forms our point of departure from prior studies. Specifically, the present study has been broadened to capture over 79 non-financial firms listed on the stock exchange in Nigeria. Accordingly, it examines the extent to which depreciation, intangibles, inventory, property plant and machinery as well as accounts receivable estimates affect the returns on asset and asset turnover of listed non-financial firms in Nigeria.

Literature Review

Accounting Estimates and Dimensions

Accounting estimates are based on management judgements and assumptions. They are approximations of the amounts of business transactions for which there are no exact or precise means of measurements (Nnah, 2017). According to the International Auditing Standards Board (IASB 2009), accounting estimation involves management judgments and opinions based on availability of information during the preparation of financial statements. It involves making particular assumptions about matters that are quite uncertain at the time of estimation, as financial reporting frameworks may only provide basis or guide for management on how to determine point estimates where options exist. Examples of accounting estimates include, provision for depreciation, defined benefits provisions, provision for bad debts, carrying amount of property, plant and equipment, inventory valuations (net realizable value; need for impairments), depreciation method and useful life, all provisions and contingent liabilities, irrecoverable debts and allowances for receivables, tangible asset valuations where revaluations have occurred, etc.

Depreciation Estimates: Depreciation expense is an estimate of the amount of future economic benefits or service potential of tangible non- current assets that is expected to be consumed during the accounting period. It is done as a means of allocating the costs of tangible non-current assets to periods which the entity is likely to benefit from using such assets (the expected useful life). International Accounting Standard 16-*Property, Plant and Equipment* also provides for the reducing balance of depreciation estimation, as an alternative to the straight-line method. The reducing balance method of depreciation assumes that assets decline in value faster during the earlier years of acquisition and gradually slows down in depreciation with usage. However, both methods are based on estimates, and will producing differing results. Mert and Dil (2016) evaluated the influence of depreciation methods on performance measurement methods using energy firms listed on the Istanbul Stock Exchange between 2014-2015. The variables employed in the study were Economical Added Value (EVA) and Cash Flow Return on Investment (CFROI). Findings revealed that the differences in depreciation management of the energy industry firms had significant influence on performance indicators. Indrayani (2018) examined the analysis of non-current assets depreciation method on company profits. The study used the descriptive research design and also made use of descriptive statistics method of analysis. The variables for the study were straight line method, double declining method and profit for the year. It was concluded that the depreciation method and policy had significant effect on the company profit. The amount charged as depreciation impacts on the profitability as well as the value of the firm, as the higher the depreciation charge, the lower the profitability and vice versa

Intangible Non-Current Assets Estimates: Intangible assets are assets that do not have visible form. Since they do not possess any physical or financial embodiment; they are sometimes called knowledge assets. According to International Accounting Standard (IAS 38), these assets are identifiable non-monetary assets that do not have physical form. Examples of intangibles are development costs, goodwill, trademarks, licenses, franchises, etc. Intangibles assets amounts are usually measured, recognized and presented in financial statements using reliable estimates, as they cannot be measured with precision. IAS 38 prescribes the required treatment of intangibles assets. The standard specifies that an intangible asset should be recorded in the financial statement only when it is relatively certain that future economic benefits are expected from the use of such assets will flow to the entity and where the costs of the asset can be measured with a certain level of reliability. It specifies that when assets meet that recognition criteria, the initial measurement of the asset should be at costs. However, it allows entities to choose either the cost model or the revaluation model during subsequent recognition. According to Chukwu (2006), under the cost model, the intangible asset should be carried at costs after the deduction of accumulated amortization and accumulated impairment losses. The revaluation model, on the other hand, requires that an asset be recognized at its restated or revalued amount. This means that the asset will be carried at its estimated value at the date of revaluation minus any subsequent accumulated amortization and any subsequent accumulated impairment losses. By implication, the amounts usually shown for intangible assets are estimates, as they are prone to management judgements and approximations. Oliveria, Rodrigues and Craig (2010) studied the relationship between intangibles assets and market value for Portuguese firms from 1998 – 2008. The findings showed that goodwill was significantly and positively related with stock price. The study further found a significant association between other intangibles and stock prices. The relationship between firm performance (stock price) was also examined by Ely and Waymire (1999). Using a sample of 146 firms listed in the New York Stock Exchange for eight (8) years together with other accounting data, the study did not find any positive relationship between capitalized intangible non-current assets and firm performance, unlike other studies. Abubakar and Abubakar (2015) examined the association of market value and with intangible assets using a sample of nine high-tech companies. The focus was on the association of the value of brand asset and market value. The findings revealed that brand assets were positively related with market value. Becalli (2007) finds a profitability paradox thus: a company's investment in information technology software and services has a negative influence on the company's profitability, whereas the investment supplied by external providers in information technology, such as consulting, and implementation has a positive effect.

Closing Inventory Estimates*:* Inventory constitutes a reasonable proportion of a firm's total current asset. According to Milicevic, Davidovic and Stefanovic (2010), they form part of the current assets (which are assets that can be converted to cash in not more than one accounting year). IASB (2011) provides that abnormal costs and costs that represent waste should be excluded from when measuring the initial cost of inventories. Other costs that the standard excludes for the initial costs of inventory are: storage costs, administrative costs which are not part of the expenditure that is used to bring the inventories to their right location and condition, as well as selling and distribution costs. One basic provision of the standard when trying to recognize the closing value of inventory is that a comparison should be made between the costs and the inventories' net realizable value. By implication, all amounts recognized as closing inventories in financial statements are estimated; using either the costs or net realizable value. Koumanakos (2008) who examined the effect of inventory management on financial performance of selected firms concluded that a profitability is significantly and negatively

influenced by the amount of closing inventory. He opined that the higher the value of closing inventory the lower the profit margin of firms

Property, plant and equipment Estimates: Property, plant and equipment are tangible assets such as plant and machinery, motor vehicles, freehold and lease hold land and buildings, furniture & fittings under the control of an entity for production or supply of goods or services or for administrative purposes. The management of these resources underpins the continued viability of a business and therefore represents a key feature of business prosperity (Chukwu; 2006). Property plant and equipment costs are included in the financial statements as an asset; if the costs can be measured reliably and it is probable that the assets will generate future economic benefits for the entity. Property plant and equipment are carried at costs or revalued amounts in the financial statements depending on the accounting policy of the entity and the model being used. These estimations are mostly based on the expertise and the information available at the disposal of staff who have good knowledge on how the asset functions and experience with similar assets. Such estimates could be reviewed if there are new information available to management on the state of the assets or its physical wear and tear (Bhattacharyya; 2011). This goes to show that all carrying amounts of property plant and equipment are estimated by management.

Account Receivable Estimates: Accounts receivables are amounts of sales generated from the ordinary course of business but are not yet received. It refers to money which accrued to the firm from credit sales (Longe and Kareem 2012). Trade receivables are recognized initially at fair value and subsequently measured at amortized costs using the effective interest method less provisions for impairment. A provision for bad and doubtful debt for trade receivables is usually made if there is material evidence that based on past experiences that the firm will find it difficult collect all the amounts due from customers. This make the amount usually recognized to be estimated. Ramana, Ramakrishnaiah and Chengalrayulu (2013) studied the impact of receivables management on the working capital and profitability of listed cement companies in India. Ramana et al. (2014) found that selected companies in the cement industry were efficient in managing their trade receivables and this translated into lower collection period. The study revealed that efficient receivables management had a positive influence on both working capital and profitability.

Firm Size: The size of a firm cannot be overruled when it comes to the determination of financial performance Larger firms are likely to be more profitable than smaller firms due to economies of scale and other factors. Most companies are intent to expand the size of their business operation for them to grow either in revenue, number of employees, or size of facilities (Pervan and Visic, 2012). The firm size is measured by different authors in different ways such as total asset, turnover, and sometimes the market capitalization. According to Aulia and Agustina (2015) argued that firm size is a scale that depicts a company classified as either large or small. According to Kartikasari and Merianti (2016), firm size can be measured by the natural logarithm of total assets or natural logarithm of total sales. In this study, we used natural logarithm of total assets, as a measure of firm size.

Financial Performance and Measures: Financial performance measures an organization's earnings, profits, appreciation in value as shown by the increase in the entity's worthiness (Asimokopoulos, Samitas and Papadugonas, 2009). Geidam (2017) opined that financial performance is the level of performance of a business over a time period, expressed in in the form of profits made or losses incurred during that period of time. Measures of performance

includes, but not limited to: returns on assets, returns on equity, net profit margin and total assets turnover. This study employs the ROA and ATO are measures of financial performance, as discussed below;

Return on Total Assets (ROA): The ROA indicates a lot about the overall financial health of the enterprises. It specifically reveals how much money is generated per total asset value of the firm. According to Bhartacharyya (2011), it is a financial measure used to evaluate a company's financial performance and business technique; by revealing the portion or ratio of profit from the total assets employed by the entity during the period under review (usually one accounting year). It is measured as: Profit after Tax /Total Assets*100.

Total Assets Turnover (ATO): ATO simply measures how all assets under the control of the entity are used to generate the entity's revenue (Nurlaela, Mursito, Kustiyah and Hartono; 2019). It indicates the efficiency of an entity's assets to generate revenue (Prihadi, 2012). Ideally, an organization with a high total asset turnover ratio can be sustained with fewer assets than a less efficient competitor. That invariably means that such company requires less debt and equity financing to operate, which will comparatively result to greater return to its owners. The total asset turnover ratio is calculated by dividing the net sales over total assets to show how many revenues are generated from each naira of the entity's assets.

Theoretical Review

Theory of Performance

This study was anchored on the Performance Theory. Performance theory was propounded by Richard Schechner in 1934. It emphasizes that 'to perform' involves taking or embarking on series of actions, activities or processes that integrate skills and knowledge to produce a sound and valuable result or outcome. The relevance of the Performance theory to this study is that every organization, including non-financial sector companies, seek to improve their level of performance, be it increase in turnover, operational efficiency, or profitability. In doing that, financial statement preparers are expected to be reasonable and fair in estimating those financial transactions, which cannot be measured with precision, so that their firm performance will not be seen to be overstated or understated, as the case may be.

Stakeholders Theory

The Stakeholders theory is also adopted in this study. Ansoff (1965) first introduced stakeholder theory to explain the importance of identifying crucial stakeholders of an organization. As he stated, the company's primary strategic objective is to achieve the capability to balance the different needs of diverse stakeholders in the company. This notion was further developed by Freeman (1983), who integrated stakeholder theory into the corporate social responsibility model and business policy model. Stakeholder theory indicates that groups of stakeholders can develop and approve the company's strategic decisions concerning business policies. Furthermore, stakeholders' behavior can constrain the company's strategy, which is developed by managers to match appropriate resources with its surroundings. Freeman (1983) defined the stakeholders as any group or individual who can affect or is affected by the achievements of the firm's objectives. According to this definition, stakeholders can be owners, customers, suppliers, and public groups.

The basic proposition of the stakeholders' theory is that the firm's fortune or growth is a function of the efficient management of the relationships it has with its stakeholders such as; its customers, shareholders, employees, competitors, regulators, etc. The above statement was originally introduced by the Stanford Research Institute (SRI) which refer to them (stakeholders) as those groups without whose support, the organization would cease to exist (Freedman, 1983). Stakeholders' theory stresses that management of organizations have a network of relationships to serve; and should strive to satisfy the needs of all the organization's stakeholders including; the employees, shareholders, suppliers, business partners and contractors. The theory disagrees with agency theory which advocates that there is contractual relationship between managers and shareholders; whereby the managers have the sole responsibility of maximizing shareholders' wealth. Stakeholder theory also considers the propositions of the agency theory to be too myopic, as manager actions impact other interested parties, other than shareholders. To ensure the interest of stakeholders are adequately protected, the theory is of the view that all stakeholders or interest groups on the company's board. It is believed that this will ensure a harmony, avoid conflicts, and ensure efforts to attain organizational objectives (Donaldson and Preston,1995). According to Bassey, Effiok, and Eton (2013), Stakeholders are groups which are influenced by the corporate activities. Their study emphasized that the organization's survival in the long run requires stakeholder's support and approval. The more powerful the stakeholders are, the more the organization must adapt to their interests and demands.

Relating the propositions of the stakeholder's theory to this study, the directors are expected to make fair and reliable estimates based on the provisions of the accounting standards in order to make the financial statement to be credible, understandable and comparable. By implication, they are expected to protect the interest of all stakeholders in trying to make accounting estimates in the preparation and presentation of financial statements.

Empirical Review

Anichebe and Nangih (2021) assessed the effects of accounting estimates on information misstatements of financial reports of Small and Medium Enterprises in Nigeria. The study employed survey design. They examined the impacts of depreciation estimates, impairment loss, inventory estimates, goodwill estimates and estimated useful life of assets on financial reports. The findings revealed that wrong estimates may lead to, but are not the only cause of misstatements in financial reports.

Olaoye and Adeniyi (2020) examined the influence of accounting manipulations on the financial performance of selected listed firms in Nigeria. They specifically examined the causes of accounting discretions and also to find out if there were substantial influence of accounting manipulations on financial performance of firms in Nigeria. The study adopted a descriptive research design using survey for collection of data. Descriptive statistical tools and Ordinary Least Squares regression were employed to analyze data. Findings revealed that accounting manipulations negatively influence performance of corporate firms sampled. The study recommended that stakeholders should put in place effective policies and stringent penalty for violators to check the incidences of accounting manipulations among Nigerian firms.

Lugovsky and Kuter (2020) investigated the effect of accounting policies and accounting estimates and its role in the preparation of fair financial statements in digital economy in Russia. The study made use of the exploratory research design and considered the main

problems and limitations of the reliable preparation and presentation of reporting financial information. The study concluded that the degree or choice of freedom provided by standard setters to preparers has a serious influence on the reporting data presented to the users by them. It also added that the reliability of financial reports is influenced by many other factors including but not limited to the choice of accounting, depreciation policies, legality of the transaction and changes in accounting estimates.

Abubakar and Olowe (2019) looked at the effect of trade receivables on firm performance of selected listed firms in Nigeria. The population of consists of ten (10) firms listed on the Nigerian stock exchange from 2012 to 2018 selected using purposive sampling technique. The study employed the multiple regressions method to test the formulated hypotheses. The dimensions for accounts receivable were accounts receivable ratio, debt ratio and revenue growth whereas firm performance was measured using return on equity. The result of the analysis showed that accounts receivable ratio, debt ratio and revenue growth had a positive significant influence on firm performance.

Ganyam and Ivungu (2019) assessed the effect of accounting information system on financial performance of firms. Specifically, the study aimed at reviewing the conceptual and theoretical issues on the subject area of accounting information system and relating it to financial performance of firms. Results from the review showed that accounting information had effect on financial performance. The study also found out that most of the prior works employed the survey research design to examine the relationships while majority of the studies were carried out in advanced economies and not in less developed economies like Nigeria.

Bawa, Asamoah and Kissi (2018) studied the influence of inventory management on firm performance of quoted manufacturing companies in Ghana. Using a cross sectional secondary data, the sample was 140 firm-year observations drawn from 14 listed manufacturing firms listed on the Ghana Stock Exchange (GSE) for a 10-year period, 2007-2016. Data collected were tested using Pearson correlation and multiple regression analysis. The empirical findings revealed that inventory management had no effect on firm's performance. The result showed that the independent variable was insignificantly related to dependent variable for the period.

Indrayani (2018) examined the analysis of fixed assets depreciation method on company profits in Idonesia. The study used the descriptive research design and also made use of descriptive statistics method of analysis. The variables for the study were straight line method, double declining method and profit for the year. It was concluded that the depreciation method and policy had significant effect on the company profit.

Akwu, Ofoegbu and Okafor (2017) also investigated the effect of fair value measurement and depreciation on performance of quoted manufacturing companies in Nigeria. Using depreciation amount, inflation rate and IFRS as independent variables and the reported profit as proxy for the dependent variable, the regression results showed that IFRS had positive and no significant effect on depreciation and also insignificant effect on reported profit of the companies in Nigeria.

Chukwu and Egbuhuzor (2017) examined the effect of non-current assets (property plant and equipment) on the corporate performance of manufacturing firms in Nigeria. The study used financial statement data from ten manufacturing companies listed on the stock exchange, and measured corporate performance using return on assets and return on equity. Results from

multiple regression analysis revealed that a significant and positive relationship exist between return on assets and plant & machinery. However, the relationship between return on assets and land & buildings was negative. The study therefore came to a conclusion that tangible non-current assets investments affects the profitability of firms.

Belsoi, Gathii and Phillip (2017) assessed the influence of estimates on firm performance of Microfinance firms in Kenya. The study population was ninety-three (93) persons in three different strata (account officers, internal auditors and management) of the 14 microfinance institutions. Their findings revealed that there exists positive, but very significant relationship exist between independent variable (assets estimation) and financial performance of microfinance institutions. It also discovered a significant negative association exist between the estimation of an asset's useful life and financial performance.

Ayunku and Eweke (2017) assessed the relationship between accounting estimates and financial reporting quality of banks in Nigeria, employing data from annual reports of seventeen (17) quoted money deposit banks spanning the period 2008 – 2017. Based on the results of the OLS regression, it was discovered that provisions for bad debt and depreciation, which were used as proxies for accounting estimates had a significant relation with financial reporting quality (which was measured using discretionary accruals accounting). The study concluded that there is need for accounting harmonization by all preparers of financial statements globally to ensure infirmity in the way estimates are made in financial statements; as this will enhanced financial reporting quality.

Zhang (2017) investigated the nexus between degree of intangibles and firm profitability. The study employed intangible assets and return on assets as variables for study. Using 17 listed telecommunication companies' financial statements in China between 2014 to 2016, the study gave an empirical evidence that intangible assets' had positive and significant relationship with firms' financial performance, proxied by Return on Assets (ROA).

Wanyoike, (2017) researched on the impact of accounts receivable management on financial performance of manufacturing firms in Kenya. They administered questionnaire on a sample of 50 manufacturing companies. Data from secondary sources was also sourced from the firms' annual audited financial accounts. From the results of the analysis done, it was discovered that there existed a positive relationship between accounts receivable and financial performance of listed firms in Kenya.

Lubyanaya, Izmailov, Nikulina and Shaposhnikov (2016) assessed the impact of non-current assets on profits measurements as well as and asset management efficiency of listed firms in Russia. Its main aim was to investigate and identify the impact of estimates and valuation in accounting for non-current fixed assets. The study used the deductive methodology as well as the quantitative analysis method. The findings revealed that differences in the measurement of accounting figures under IFRS directly affected the numerator, their denominator, or both. It concludes that non-current assets had effect on profitability.

Gorondutse, Ali and Ali (2016) investigates the effect of trade receivables and inventory management on SMEs profitability in Malaysia. A total of 66 sample of SMEs in the manufacturing sector were used for the study between2006-2012. OLS regression was used to estimate the relationship between independent variable and the dependent variable. The findings showed that days account receivable and inventory turnover in days were negatively

related to SME profitability measured using. return on assets (ROA), return on equity (ROE) and net operating profit (NOP). This result simply implies that profitability of SMEs is dependent or influenced by effective of working capital management.

Mwangi (2016) sought to study influence of inventory management on firm's profitability and operating cash flows using Kenya Breweries companies. The study made use of a descriptive research design. The study population was six Kenya Breweries carried out by way of census. Data collected between 2006-2015 was analyzed using ordinary least squares regression method. The study found a significant and strong relationship between the management of inventory and the operating cash flows. It also concluded that inventory management significantly affects firm profitability and operating cash flows.

Prempeh (2015), in his study evaluated the effect of efficient inventory management on profitability of selected manufacturing companies in Ghana. Data was collected and analyzed between 2004 to 2014 from the annual reports of only manufacturing firms that were listed on the quoted on the Ghana Stock Exchange. The method of analysis employed in the study was Ordinary Least Squares (OLS) regression model. Findings of the study revealed that raw materials inventory management had significant and positive impacts on profitability of manufacturing firms in Ghana.

Gamayuni (2015) examined the effect of intangible assets, financial performance and financial policies on firm value of Indonesian companies. Empirically, the study sought to know the relationship between intangible assets, financial policies, and financial performance companies in Indonesia. Path analysis was adopted to ascertain the relationship between the variables between 2007 to 2009. This study found that Intangible assets, financial policies, financial performance had significant influence on firm value simultaneously. It was also found that intangible assets had no significant effect to financial policies, but had positive and significant relationship with financial performance measured by ROA and firm value. Debt policies and ROA influenced firm value positively and also significantly.

Anastasia, Michael and Innocent (2014) examined accounts receivable management and corporate performance of companies in the food & beverage industry in Nigeria. The independent variables used for the study were accounts receivable, debt and sales growth. Secondary sources of data were used from 2000-2011. Multiple regression was used analyze the test of hypotheses. The findings of the study revealed that accounts receivable had negative but insignificant relationship with profitability, while debt and sales growth had positive and insignificant relationship with profitability of food and beverages manufacturing companies in Nigeria.

Okwo, Ugwunta and Nweze (2012) assessed the impact of a company's investment in non-current assets on its operating profit margin. The study used four companies in the Nigerian brewery sector for the period 1999 -2009. Employing regression statistical method to ascertain the relationship between the independent and dependent variables, the study found out that though the relationship was positive, but the result was not statistically significant. Hence, the result did not suggest a strong positive impact of investment in non-current assets on the operating profit of brewery firms in Nigeria.

Methodology

This study adopted the *ex post facto* research designs in a bid to examine the effect of accounting estimates on firm performance of listed firms in the non-financial sector in Nigeria. Out of the 111 companies in the Non-Financial Sector listed on the Nigerian Stock Exchange as at December 31st 2020, a sample size of 79 firms was used. These were chosen based on the availability of comprehensive financial reports online for the period covered (2013-2019). The period reflects the post-IFRS adoption in Nigeria, when all the financial statements under consideration were prepared based on a unified and globally acceptable accounting standard. The nature of the data was panel data. The model adopted modifies that of Chukwu and Egbuhuzor (2017) and expresses ROA, as well as ATO, as a function six independent variable; including firm size as a moderating variable, as follows:

$$ROA = f\,(DEP, INT, CRT, DFT, INV, PPE, EMB, ARE) \quad (1)$$

$$ATO = f\,(DEP, INT, CRT, DFT, INV, PPE, EMB, ARE) \quad (2)$$

This can be econometrically expressed as

$$ROA = d_0 + d_1DEP_{it} + d_2INT_{it} + d_3INV_{it} + d_4PPE_{it} + d_5ARE_{it} + d_6FSIZ_{it} + \mu \quad (3)$$

$$ATO = d_0 + d_1DEP_{it} + d_2INT_{it} + d_3INV_{it} + d_4PPE_{it} + d_5ARE_{it} + d_6FSIZ_{it} + \mu \quad (4)$$

Where: ROA = Return on Total Assets,

ATO = Total Assets Turnover,

DEP = Depreciation Estimates,

INT= Intangible Noncurrent Assets Estimates;

INV= Closing Inventories Estimates,

PPE = Property, Plant and Equipment Estimates,

ARE= Accounts Receivables Estimates,

FSIZ = Firm size (measured as log of total assets).

d_0 = Constant; $d_1 \ldots d_{12}$ = are the coefficient of the regression equation.

μ = Error term; i= is the cross section of firms used;

t = is year (time series).

The fixed/random effect regression model was then used in analyzing the relationship between the variables of study, after applying the Hausman Test, computed using the Econometric Views (E-views) software.

Table 1: Variables Measurement

Variables	Description	Measurement	Apriori Sign
Dependent Variables			
ROA	Return on Assets	Profit after tax divided by total assets (Mwangi, 2016)	
ATO	Total Assets Turnover	Total revenue divided by total assets (Munawar 2019; Ivana, Mamic and Sacer, 2016))	
Independent Variables			
DEP	Depreciation estimates	Is the amount of depreciation included in the financial statements for the period scaled by total assets (Glending 2012, Bowen, Rajgopal &Venkatachalam 2015 and Chukwu et al 2020)	-ve
INT	Intangible non-current assets estimates	The carrying or revalued amount of intangibles non-current assets recognized in the statement of financial position for the year scaled by total assets (Bowen, Rajgopal &Venkatachalam 2015 and Chukwu et al 2017)	+ve
INV	Inventory estimates	The amount of closing inventory estimated and included in the financial statement at the year end, scaled by the company's total assets (Glendening; 2012 and Bowen et al ;2015)	+ve Or –ve
PPE	Property, plant and equipment estimates	Is the carrying amount or the revalued amount of property, plant and equipment recognized in the statement of financial position at the year-end scaled by total assets (Ayunku & Eweke, 2019 and Chukwu, et al, 2020)	+ve
ARE	Accounts receivables estimates	Is the net amount of trade receivables estimates (total trade receivables less provisions for doubtful debt) recognized in the statement of financial position for the year, scaled by the total assets (Abubakar & Olowe, 2019; Bowen et al 2015)	+ve Or –ve
FSIZ	Firm Size	Natural log of Total Assets	+ve or –ve

Results Presentation and Discussions

The results of the analysis of the data obtained are presented in Tables

Table 2: Descriptive Statistics

	ROA	ATO	DEP	INT	INV	PPE	ARE	FSIZ
Mean	0.002283	0.917389	0.019835	0.066827	0.134757	0.476499	0.268277	23.08489
Median	0.030000	0.633088	0.029048	0.002194	0.093202	0.417119	0.160524	22.94532
Maximum	1.510000	11.21494	0.605523	4.037219	2.963123	9.052399	26.02914	28.84857
Minimum	-11.24000	-0.701967	-6.237889	0.000000	0.000000	0.000000	0.000000	19.22737
Std. Dev.	0.512838	1.199686	0.308414	0.328894	0.190127	0.587824	1.126136	1.814106
Skewness	-19.17608	4.822021	-17.75895	9.879784	7.280045	9.365531	21.80034	0.238237
Kurtosis	420.4213	34.35135	337.5698	111.4688	95.82661	120.3679	498.0276	2.475685
Jarque-Bera	4041362.	24746.03	2603565.	279586.2	203061.9	324899.7	5679927.	11.54448
Probability	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.003113
Sum	1.260000	506.3989	10.94867	36.88839	74.38598	263.0274	148.0891	12742.86
Sum Sq. Dev.	144.9143	793.0251	52.41070	59.60223	19.91762	190.3910	698.7682	1813.330
Observations	552	552	552	552	552	552	552	552

Source: Researcher's Computation

From the descriptive results in Table 4.1, DEP, INT, INV, PPE and ARE have means and standard deviations (in parenthesis) of 0.0198 (0.308), 0.0668 (0.3289), 0.1348 (0.1901), 0.4765 (0.5878) and 0.2683 (1.1261), respectively. On the other hand, the means and standard deviations of ROA and ATO are 0.0022 (0.51280) and 0.9174 (1.1997), respectively. The wide margin between the means and standard deviations underscores the fact that the size and scope of a firm's operations largely determine its estimates. Also, most of the variables are skewed to the right with very high peaks and none is normally distributed, as usually the case in most panel data sets – but may not affect reliability (Karadimitriou, 2020; Machame, 2019).

Table 3: Correlation Matrix

	ROA	ATO	DEP	INT	INV	PPE	ARE	FSIZ
ROA	1.0000							
ATO	-0.041084	1.0000						
DEP	-0.051854	-0.0487	1.0000					
INT	-0.054900	-0.0734	-0.0598	1.0000				
INV	-0.238783	-0.4409	-0.0596	-0.0603	1.0000			
PPE	-0.592031	-0.0988	-0.0415	-0.2079	-0.1907	1.0000		
ARE	-0.905319	-0.2076	-0.0476	-0.0864	-0.3918	-0.6116	1.0000	
FSIZ	0.114629	-0.059293	0.066891	0.109506	0.126649	0.172101	-0.102689	1.0000

Source: Researcher's Computation

The result in Table 3 indicates that all the independent variables have negative correlations with ROA except FSIZ whereas positive correlations exist between all the independent variables and ATO, except FSIZ. More so, none of the independent variables were perfectly correlated with each other; which is an indication of the unlikelihood of the existence of multi co-linearity between the independent variables.

Table 4: Hausman Test

	Model 1		Model 2		
Test Summary	Chi-Sq. Statistic	Prob.	Chi-Sq. Statistic	Prob.	d.f
Cross-section random	41.503980	0.0000	14.603767	0.0236	6

Source: Researcher's Computation

The results in Table 4 indicate that the p-values of the chi-square statistics are less than 0.05, thus the fixed effect model is preferred.

Table 5: Fixed Effect Regression Test

	Model 1		Model 2	
	Dep. Var.: ROA		Dep. Var.: ATO	
Variable	Coefficient	t-Statistic	Coefficient	t-Statistic
DEP	-0.003857	-0.444978	-0.024261	-0.943863
INT	0.071188	0.828858	0.187127 **	3.307253*
INV	0.285528	5.853543***	2.314537 **	16.07104*
PPE	0.029077	2.486050**	0.191690 **	10.85270*
ARE	-0.278177	-6.343167***	-0.042589	-2.012352**
FSIZ	-0.033793	-5.225648***	-0.135357	-10.53017***
C	0.800008	5.197583***	3.638260 **	12.07830*
R-squared	0.721282		0.972993	
Adjusted R-squared	0.671148		0.968135	
F-statistic	14.38723		200.2957	
Prob(F-statistic)	0.000000		0.000000	
Durbin-Watson stat	1.948106		1.603230	

*Source: Researcher's Computation (**Significant @ 5%, ***Significant @ 1%)*

Table 5 reveals that the independent variables determine 67% and 97% of the variations in ROA and ATO. The F-statistics of 14.4 and 200.3 with probabilities of 0.000, which is less than 1%, is a reflection of the good fitness of the model. Furthermore, the Durbin Watson Statistics of 1.95 and 1.60 for models 1 and 2, respectively, shows that there is unlikelihood of serial correlation in the model estimate. Finally, the t-statistics reveal that all the explanatory variables have significant effects on both ROA and ATO, except depreciation and intangibles estimates (model 1 only).

Table 6: Cross-Dependency Test

	Model 1		Model 2		
Test	Statistic	Prob.	Statistic	Prob.	d.f.
Breusch-Pagan LM	4395.518	0.0000	3863.003	0.0000	3081
Pesaran scaled LM	16.74579	0.0000	9.962023	0.0000	
Bias-corrected scaled LM	10.16246	0.0000	3.378690	0.0007	
Pesaran CD	1.369722	0.1708	3.195545	0.0014	

Source: Researcher's Computation

From the result in table 6, all the tests, except the Pesaran CD for Model 1, have p-values less than 0.05, which is a proof that the residuals of the two models are cross-dependent.

Discussion of Findings

From the results in Table 5, depreciation estimates were found to have negative but insignificant effects on both ROA and ATO. This is consistent with the apriori expectation and implies that increasing depreciation costs will reduce profitability. This is probably because depreciation charges are written off in the income statement of the firm, thus inversely affecting profitability. As noted by Akwu, Ofoegbu and Okafor (2017), the overall profitability of an entity is affected by depreciation of tangible non-current assets; since it is an expense.

Also, the relationship between intangible asset estimates and all the dependent variables is positive; as theoretically expected but only significant on ATO. This implies that increase in intangible asset estimates will stimulate an increase in financial performance. These results are consistent with those of the findings of Zhang (2017) and Gamayuni (2015), who found a significant positive effect of intangibles on ROA as well as a significant effect of intangibles on firm value, respectively. The positive relationship between intangible assets estimates and financial performance is hinged on the fact that intangibles, such as computer software, are resources under the control of the entity arising from past event, which will lead to an inflow of economic benefits to the entity, though may not have physical substance. Hence they more they are acquired by non-financial firms in Nigeria, the more their economic benefits will flow to the firms. On the other hand, goodwill measures the degree to which a firm has been able to acquire customer loyalty. However, the insignificance of intangibles is probably due to the high cost of software acquisition as well as the cost of building goodwill. Thus, intangibles contribute more to operating efficiency as well as financial performance. More so, Hendrikson

(2007) also acknowledged the uncertainty of future economic benefits that may be derivable from intangible assets.

Also, closing inventory estimates also have significant positive effects on both ROA and ATO. These are also consistent with the apriori expectations. In terms of ROA and ATO, these results are the same with those of Prempeh (2015) and Mwangi (2016), who also found significant positive effect of inventory on profitability and ROA, respectively. More so, it completely disagrees with Bawa, Asamoah and Kissi (2018), who found no effect of inventory on firm performance. The significant positive effect of inventory on firm financial performance is hinged on the fact that higher inventory level can stimulate higher sales; and consequently, increased profitability.

Furthermore, the results between PPE estimates and financial performance showed a significant positive effect of PPE on both indicators; which is consistent with the apriori expectations. These imply that increase in PPE estimates will result in an increase in ROA and ATO. These findings also support that of Chukwu and Egbuhuzor (2017), who found a significant positive relationship between plant and machinery and return on assets of manufacturing firms in Nigeria but varies slightly from that of Okwo, Ugwunta and Nweze (2012), who found an insignificant effect of fixed assets on the profitability of brewery firms in Nigeria. Lubyanaya, Izmailov, Nikulina and Shaposhnikov (2016) also revealed that non-current assets had effect on profitability. The significant positive effect of PPE on financial performance is due to the fact that the production efficiency of a firm, especially manufacturing firms, depends on the quality of the plants and equipment utilized in the production process; even though they do not generate any direct income to the firm. Thus, PPE indirectly stimulates financial performance.

Lastly, the effect of net accounts receivables and firm financial performance is negative and significant for ROA which is a deviation from apriori expectation, but positive (though insignificant) for ATO. This implies that increase in accounts receivables reduces financial performance. Although the effects of account receivables on ROA and ROE collaborates that of Anastasia, Michael and Innocent (2014) as well as Gorondutse, Ali and Ali (2016), who found a negative but insignificant relationship between receivables and profitability; they are contrary to the results of studies, such as Abubakar and Olowe (2019), who found significant positive effects of account receivables on financial performance. Others like Wanyoike (2017), were equally positive but not significant. The negative relationships between account receivables and ROA as well as ROE, may probably be as a result of the fact that increase in receivables leads to the tying-up of the firm's financial resources; which otherwise would have been utilized in stimulating the profitability of the firm. More so, there are possibilities that some of the receivables may be irrecoverable and the firm may also offer some waiver or discounts to some customers to serve as an incentive door boosting repayment of debt owed by customers. As noted by Sharma and Kumar (2011), excessive level of accounts receivables may lead to a negative effect on profitability.

Summary of Findings

This study is undertaken to examine the effect of various accounting estimates on the financial performance of listed non-financial firms in Nigeria. The specific objectives of the study were to determine the extent to which depreciation, intangibles, inventory, property, plant and machinery, as well as accounts receivable estimates affect the returns on asset, and asset

turnover ratio of the selected listed non-financial firms in Nigeria. In line with the objectives of the study, five hypotheses are formulated. The study also explores conceptual, theoretical and empirical literatures on the relationship between the various accounting aggregates and financial performance. The study also utilizes panel data for the seven-year period from 2013 to 2019, which are analyzed using the fixed effect panel regression technique. The major findings made from the study are as follows:

i) Depreciation estimates have negative but insignificant effects on returns on asset, returns on equity and asset turnover ratio of the selected listed non-financial firms in Nigeria.
ii) Intangibles estimates have positive but insignificant effects on returns on asset, returns on equity and asset turnover ratio of the selected listed non-financial firms in Nigeria.
iii) Inventory estimates have significant positive effect on both returns on asset as well as asset turnover ratio of the selected listed non-financial firms in Nigeria.
iv) Property, plant and equipment estimates have significant positive effects on returns on asset and asset turnover ratio of the selected listed non-financial firms in Nigeria.
v) Account receivables estimates have significant negative effects on both returns on asset but a non-significant positive effect on asset turnover ratio of the selected listed non-financial firms in Nigeria.

Conclusion

In line with the findings made in the course of this study's investigations, the following inferences were made.

i) Non-financial firms that adopt a high rate of depreciation is not likely to experience lower financial performance, since the effect of depreciation estimates was non-significant on return on assets and asset turnover
ii) Estimates of a firm's intangibles estimates are likely to increase financial performance, since the study revealed a significant effect of intangible estimates on financial performance of listed non-financial firms in Nigeria.
iii) Similarly, listed non-financial firms in Nigeria with high levels of inventory estimation may enjoy better financial performance.
iv) Increased investments in property, plant and equipment estimates will significantly enhance the financial performance of listed non-financial firms in Nigeria.
v) An increasing level of account receivables are likely to contribute to firm size but could be detrimental to the efficient performance of a firms, as the firm may lose possible returns that would have accrued from such funds; and there is also a possibility that some may become bad.

It can therefore be deduced from the above conclusions that accounting estimates, to a great extent, determines the financial performance of firms; especially, non-financial firms in Nigeria.

Recommendations

In consideration of the findings and conclusions made in this study, the following policy recommendations can aid in enhancing the efficacy of accounting estimates in driving the financial performance of listed non-financial firms in Nigeria.

i) Non-financial firms should ensure that depreciation estimates are made in accordance with the provisions of relevant accounting standards (IAS 16) so as not to overstate or understate the amount of depreciation expenses recognized in the financial statements, after all it does not have any significant effect on financial performance of their financial performance.
ii) Listed non-financial firms are encouraged to acquire or invest more in intangible non-currents assets, since they impact positively in the financial performance of firms.
iii) The study also recommends that good inventory practices such as just-in-time, optimal inventory holding, and inventory requirement planning should be regularly adopted for an effective inventory management, as that will help to improve the firm performances, since from our findings inventory estimates has significant effects on return on assets and assets turnover of non-financial firms in Nigeria.
iv) It is recommended that firms, especially those in the non-financial sector, should invest more in non-current assets in order to improve their financial performance.
v) This study also recommends that listed firms should also set the procedure for collection of overdue receivables according to agreed payment terms, setting a high quality portfolio for accounts receivables and identifying high risk receivable accounts and taking necessary action to safeguard the company against incurring bad debts. Also setting and adherence to good credit policy will ensure that the receivable accounts collection period is reduced and maintained at the optimum days thus enhancing both sales and maximizing collections. This will have a positive effect on the profitability of such firms.

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Appendices

Dependent Variable: ROA
Method: Panel EGLS (Cross-section weights)
Date: 05/31/21 Time: 04:12
Sample: 2013 2019
Periods included: 7
Cross-sections included: 79
Total panel (unbalanced) observations: 552
Linear estimation after one-step weighting matrix
Cross-section weights (PCSE) standard errors & covariance (d.f. corrected)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
DEP	-0.003857	0.008669	-0.444978	0.6565
INT	0.071188	0.085887	0.828858	0.4076
INV	0.285528	0.048779	5.853543	0.0000
PPE	0.029077	0.011696	2.486050	0.0133
ARE	-0.278177	0.043855	-6.343167	0.0000
FSIZ	-0.033793	0.006467	-5.225648	0.0000
C	0.800008	0.153919	5.197583	0.0000

Effects Specification
Cross-section fixed (dummy variables)

Weighted Statistics			
R-squared	0.721282	Mean dependent var	0.099857
Adjusted R-squared	0.671148	S.D. dependent var	0.306555
S.E. of regression	0.165134	Sum squared resid	12.73471
F-statistic	14.38723	Durbin-Watson stat	1.948106
Prob(F-statistic)	0.000000		

Unweighted Statistics			
R-squared	0.771061	Mean dependent var	0.002283
Sum squared resid	33.17654	Durbin-Watson stat	2.518216

Source: Researcher's Computation

Dependent Variable: ATO
Method: Panel EGLS (Cross-section weights)
Date: 05/31/21 Time: 04:18
Sample: 2013 2019
Periods included: 7
Cross-sections included: 79
Total panel (unbalanced) observations: 552
Linear estimation after one-step weighting matrix
Cross-section weights (PCSE) standard errors & covariance (d.f. corrected)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
DEP	-0.024261	0.025704	-0.943863	0.3457
INT	0.187127	0.056581	3.307253	0.0010
INV	2.314537	0.144019	16.07104	0.0000
PPE	0.191690	0.017663	10.85270	0.0000
ARE	-0.042589	0.021164	-2.012352	0.0448
FSIZ	-0.135357	0.012854	-10.53017	0.0000
C	3.638260	0.301223	12.07830	0.0000

Effects Specification
Cross-section fixed (dummy variables)

Weighted Statistics			
R-squared	0.972993	Mean dependent var	3.378340
Adjusted R-squared	0.968135	S.D. dependent var	2.686210
S.E. of regression	0.686156	Sum squared resid	219.8684
F-statistic	200.2957	Durbin-Watson stat	1.603230
Prob(F-statistic)	0.000000		

Unweighted Statistics			
R-squared	0.701582	Mean dependent var	0.917389
Sum squared resid	236.6533	Durbin-Watson stat	1.473415