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TABLE OF CONTENTS

| | |
|---|---------|
| The Impact of Gender Diversity on Earnings Quality of Listed Financial Services Firms in Nigeria: Analysis of Two-Stage Least Squares <i>Joseph Olorunfemi AKANDE, PhD</i> | 1-18 |
| The Impact of Audit Quality on Firm’s Performance of Listed Consumer Goods Firms in Nigeria <i>Fatima Shehu Giwa, Prof. Benjamin Kumai Gugong, Gloria Pam Dachomo</i> | 19-33 |
| Women in Top Echelon Positions and their Effects on Carbon Emission Disclosure: Evidence from an Emerging Nation. <i>Saheed Olanrewaju Issa, Abdulkadri Toyin Alabi, Abdulbaki Teniola Ubandawaki</i> | 34-47 |
| CEO Characteristics and Financial Performance of Listed DMBs in Nigeria <i>Florence Bosede Ajagbonna, Benjamin Kumai Gugong, Augustine Ayuba, Idris Mohammed, Isuwa Dauda</i> | 48-69 |
| Post Covid-19 Pandemic: Comparative Study in the Value Relevance of Accounting Information Between Listed Manufacturing Firms and Listed Service Firms in Nigeria <i>Abbas, Abdulrahman Ngadi, Abubakar, Aliyu, Abdu, Abubakar</i> | 70-87 |
| Environmental and Social Information Disclosure Quality and Financial Performance of Listed Manufacturing Companies in Nigeria.: <i>Saka Tunde Abdulsalam, Ph.D</i> | 88-108 |
| The Impact of Corporate Social Responsibility on Bank Performance in Nigeria <i>Ibrahim Yinka Agbeyinka</i> | 109-123 |
| The Impact of Firm Characteristics on Accruals and Real Earnings Management of Listed Manufacturing Firms in Nigeria: <i>Muhammad, Aisha Chado</i> | 124-142 |
| The Impact of ESG Practices on the Risk Portfolio of Listed Oil and Gas Firms in Nigeria Using a Multilayered Criterion: <i>Joseph Olorunfemi Akande</i> | 143-155 |
| Effect of Selected Macroeconomic Variables on Stock Market Volatility in Nigeria <i>Hauwa Bayero Tijjani, Prof Sheikh Ahmad Abdullahi, Dr Ibrahim Mohammed, Dr Isma’il Tijjani Idris</i> | 156-171 |
| Moderating Effect of Audit Quality on Value Relevance of Fair Value Measurements Hierarchy of Listed Financial Services Companies: <i>Tesleem Olayinka Adeyemi</i> | 172-202 |
| Effect of Audit Quality Attributes and IFRS Adoption on Financial Reporting Quality of Listed Manufacturing Firms in Nigeria: <i>Muhammad, Aisha Chado</i> | 203-221 |
| Electronic Banking and Performance of Banking Sector in Nigeria <i>Kayode David Kolawole</i> | 222-234 |

| | |
|--|---------|
| Do Audit Committee and Board Attributes Influence Environmental Disclosure: An Empirical Investigation of Listed Firms in Nigeria. Haruna Muhammed Musa | 235-248 |
| Impact of External Debts on Economic Growth in Nigeria Ibrahim Yinka Agbeyinka | 249-261 |
| Effect of Compliance Cost and Tax Burden on Tax Compliance of Small and Medium-Scale Enterprises in Benue State, Nigeria Okpe Caleb John, Prof. Aliyu Nuraddeen Shehu, Prof. Bello A. Ahmad, Ahmed Aliyu Abdullahi PhD, Mohammed Musa Abdulkarim PhD | 262-282 |
| The Effect of Bank Sectoral Credit and Exchange Rate on Financial Performance of Listed Manufacturing Firms in Nigeria. Ibrahim Kabir Adedeji, Dr Ibrahim Muhammed, Prof. Muhammed Habibu Sabari Prof. Abiodun Popoola | 283-297 |
| The Effects of Interest rate and Money Supply on Systematic Risk Associated with Return in Nigerian Exchange Adedokun Rofiat, Prof. Sani Abdullahi, Dr. Ibrahim Mohammed, Prof. Ahmad Dogarawa | 298-314 |
| Effect of Firm Attributes on the Growth of Healthcare Companies Listed on The Nigerian Exchange Group Salisu Isyaku Dahiru, Adeyemi Tesleem, PhD, Suleiman Salami, PhD | 315-331 |
| Corporate Social Responsibility and Performance of Firms in Lagos State Nigeria Kayode David Kolawole | 332-343 |
| Does Taxation Affect Banks' Profitability: Evidence from Nigeria Emmanuel Imuede Oyasor | 344-356 |
| Working Capital Management and Manufacturing Performance in Nigeria Adedeji Daniel Gbadebo | 357-368 |
| The Multidimensionality Foreign Direct Investment's Impact on The Economy Emmanuel Imuede Oyasor | 369-383 |
| Private Capital Formation, Public Sector Capital Formation and Economic Growth in South Africa. Ahmed Oluwatobi Adekunle ,..... | 384-396 |
| Macroeconomic Determinants and Stock Market Volatility amidst the Period of Economic Recession in Nigeria Hauwa Bayero Tijjani, Prof Sheikh Ahmad Abdullahi, Dr Ibrahim Mohammed Dr Isma'il Tijjani Idris | 397-413 |

THE IMPACT OF FIRM CHARACTERISTICS ON ACCRUALS AND REAL EARNINGS MANGEMENT OF LISTED MANUFACTURING FIRMS IN NIGERIA

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Abstract

The concerns about earnings management arose after the fall of many multinational companies. Extant literature has shown accruals and real earnings management techniques as dual ways of manipulating earnings. However, prior literatures have dwelled on AEM making it vast and creating a literature gap for REM with unanswered questions. This study examined the effect of firm characteristics on both and AEM was measured using the extended Jones model by Yoon, Miller & Jirapon (2006) model while REM was measured by the Rowchowdhury (2006) model. The research sample was 40 firms drawn from listed manufacturing firms on the Nigerian Exchange Group (NGX) for the period 2007 to 2021. The ex post factor research design was used to determine the relationship between the dependent variable (Earnings management proxy by accruals earnings management and real earnings management), the independent variables (firm characteristics proxy by firm size, firms' growth, firms' profitability and audit quality) and the tradeoff between AEM and REM. The study used the multiple linear regressions as a tool of analysis. The results indicated; firm size has a consistent negative impact on both AEM and REM, with statistically significant results indicating that larger firms may face unique challenges related to financial reporting quality. Return on assets (ROA), have negative relationship with both AEM and REM which indicates Manager's aggressive behavior to meet the benchmark has a significant positive association with both AEM and REM. Audit quality was also found to have a positive effect for both AEM and REM (0.0081 and 0.0008) which shows that the choice of audit firm affects both AEM and REM. Moreover, the results indicate that highly leveraged firms engage more in real earnings management than the accruals earnings management. The study concludes that firm growth measured by leverage has a significant positive impact on REM and higher this could be because managers decrease AEM because of strict audits and pressure of debt covenant. The perhaps increased REM knowing that detecting REM is more difficult than AEM, hence manipulated real activities with the purpose of observing finance obligations. Therefore, this study recommends heightened oversight and transparency, particularly in the context of real earnings management; regulators can work towards curbing detrimental practices that impact firm value.

Keywords: And audit quality, firm characteristics, earnings management,

1.0 Introduction

Eisenhardt (1989) argues that agency theory is a significant but controversial theory because of the conflict of interest that exists between shareholders, who act as the principals, and managers, who are increasingly acting in their own self-interest. According to agency theory, principals hire people: agents or managers, to act in their best interests (Jensen & Meckling, 1976). However in practice, this is no longer feasible as managers are perceived to be self-serving and often attempt to avoid consequences by manipulating the way profit targets are presented known as earnings management.

Many multi-national companies have collapsed as a result of this managerial choice of earnings management, these include: Silicon Valley (2023), Signature Bank (2023), JDW Sugar Mill (2021), Lehman Brothers (2008), Goldman Sachs (2007), Marconi (2005), Parmalat (2003), World Com (2002), Enron (2001), Arthur Andersen (2002). In Nigeria, the Cadbury Nigerian plc (2006) scandal has continued to be a reference point for fraudulent financial reporting, others include; Lever brothers Nigeria and in 2009 three banks collapsed namely; Afribank Plc (Main Street Bank PLC) Oceanic bank, Intercontinental banks.

The fall of these multinational companies served as a wake up call to accounting stakeholders and arose the concerns about earnings management. According to Hassan, (2020) and Abdulrahman, *et al* (2020), one of the vital factors of the quality of financial reporting is earnings management. This is because financial reports contain accounting information which different users use to assess a firm's performance. More often than not managers use the information asymmetry gap in financial report created by the Agency theory as an opportunity to exploit the shareholders.

In response to the above-mentioned collapse of multinational companies and to achieve the two core qualities of financial reports, regulators from many nations of the world boarded on regulatory reforms to restore the lost public confidence. Among the new reforms is the adoption of the International Financial Reporting Standards (IFRS) in 2001 with over 160 countries adopting the new standards as at 2022. The adoption of IFRS was supposed to reduce earnings management due to more flexibility for management decisions. Many studies suggested that it lead to more accurate, comprehensive and timely financial information which enhanced comparability of financial statements across countries.

The most widely accepted definition of earnings management is that Healy and Whalen (1999), they defined earnings management as the process by which a company's stewards exercise their discretion to make decisions that affect financial reporting. Their actions affect their contractual outcomes, which rely on final reports, or they deceive certain stakeholders about the fundamental true and fair picture of the organization. According to this definition, there are two aspects to the concept of earnings management: real earnings management (REM), which is defined as manipulating real activity, and accounting earnings management (AEM), which assumes managers use accrual-based accounting decisions.

According to Fields, Lyz, and Vincent (2001) in order to fully comprehend earnings management within a given population one has to estimate both AEM and REM. Similarly, Swai, (2016) assert that empirical studies also have provided evidence that manager's tradeoff between the two earnings management strategies; accrual-based and real earnings management. These studies; Chi, Lisic & Pevzner, (2011); Cohen and Zarowin, (2010); Cohen, Dey & Lys (2008); Ho, Liao & Taylor (2015); Roychowdhury, 2006) favor real earnings management compared to accrual-based earnings management because real earnings management is less likely to be investigated by auditors and other regulators, which reduces the likelihood of being discovered (Graham, Harvey & Rajgopal 2005).

According to Ali and Karmardin (2018), accruals happen when managers act in their stewardship with the intention of manipulating accruals and altering the reported earnings, deceiving investors about the firm's performance (Dechow & Skinner, 2000; Healy & Wahlen, 1999; Jones, 1991). On the other hand, however, real manipulation of earnings (REM) involves using actual activities like sales, overproduction, discretionary spending, and gains from the sale of fixed assets to manipulate earnings in order to reach predetermined benchmarks (Roychowdhury, 2006).

Similarly, Abubakar (2016) characterizes REM as managerial measures that circumvent acceptable procedures while potentially raising reported earnings. It can also be defined as the

management of a company's strategic timing of funding, operational, and investing decisions. Earlier researches have shown that REM has an impact on a company's valuation. They include; Roychowdhury (2006) who asserts that while REM strategies like price reductions and looser lending requirements boost profits in the now, price discounts and more lenient credit conditions increase earnings in the current period, but they may negatively affect cash flow in subsequent periods. Darmawan, Sutrisno, & Endang, (2019), Gill, Biger & Mann, (2013) whom looked into the direct connection between earnings management and a company's financial performance.

According to Setyoputri and Mardijuwono (2020), the financial reporting process within the company can be influenced by firm size. Many audit quality studies indicate that, when accounting firm size is used as the indicator of audit quality, higher audit quality is associated with less information asymmetry and higher information quality (Darmawan, et al 2019). Firm size categorize companies into large and small companies in various ways such as total assets or total company assets, market value of shares, average level of sales, and total sales. In this study firm size is measured as the natural logarithm value of total assets (Barth, 2018). Darmawan *et al.*, (2019) reveal that firm size has a positive effect on firm value, their studies revealed that firms that have large sizes can increase market buoyancy, hence, reduced risks are expected from large firms who have better financial and human resources and management systems.

The effect of earnings management on financial reporting quality can be influenced by other variables. Hence, the choice of variables in this study, firm growth is measured by the leverage ratio, which is used to control the market response to the firm's financial condition. Firms that have a high level of debt are considered by the market to have a higher risk so that investment is less attractive. The firm profitability is proxy by Return on assets (ROA), previous research conducted by Marsha and Murtqi (2017) and Rosikah *et al.*, (2018) provide evidence that ROA can increase firm value. Extant literature such as; Akway & Ramadan (2019) have provided evidence that audit quality improves the quality of financial reporting information, reduces information risk and information asymmetry and consequently, lower the cost of equity capital.

A methodological gap is found in the majority of empirical research in earnings management in developing countries, this is because the vast majority of literature is found mostly in developed countries where EM was mostly captured through accrual models. Hence, because of the weak rules of law and the many claims of corruption (Gill, Biger & Mann, 2013) these results cannot be used in developing countries. Furthermore, empirical researches in Korea and India who have similar economies to Nigeria have confirmed that Modified Jones model which is used in the majority of these studies is not active in detecting earnings management in the context of these emerging countries (Aminul Islam, Ali & Ahmed 2010).

Prior studies in Nigeria such as Alu, *et al* (2022); Mustapha, Rashid, Lateef, & Ado, (2019), Shehu & Ibrahim, (2014) have also used the modified jones model as a model for detecting earnings management this has made the AEM literature the majority and vast. Nonetheless, globally recent studies have given REM prominence, (these studies include; Roychowdhury 2006; Ali & Karmardin 2018; Al mahrme, Al masarweh, Shehadeh 2020; Mohammed, *et al* 2022; Mohammed, Yahya & Zakariya 2022; Khan & Thu 2019; and Zandi, Sadiq & Mohammed, 2019). This is because, AEM deals with accounting rules and decisions, and hence has no major influence on cash flow operations, but those that dealt with REM had a noticeable long-term cash flow consequence (Roychowdhury, 2006).

The tradeoff of AEM and REM also became debatable; Li (2018) argued that, firms are at the liberty to either use both types of EM concurrently or complementarily to achieve their goal depending on the surrounding environment conditions they find themselves. In the same vein, Hassan, Kassim & Abdulhamid (2020), have argued that in recent decades there has been an

increase in the practice of EM; particularly real activities, with an effect on the quality of financial statements. Hence this study will use the Yoon, Miller & Jirapon (2006) model to detect accruals earnings management and the Roychowdhury (2006) model to detect real earnings management which has been proven to be suitable for emerging countries like Nigeria and examine the tradeoff in listed manufacturing firms in Nigeria.

The choice of manufacturing firms was warranted on the basis that manufacturing firms have unusual and similar firm characteristics that give opportunities or pose threats to financial reporting quality. These firms are considered because of the role they play in the economy. They serve as the bedrock of any economy and the quality of financial reporting quality of these firms will enhance economic growth and development of the country. The manufacturing sector is among the first set of companies to adopt IFRS which is widely believed to reduce earnings management and has a large value of account receivables and free cash flows are key components of corporate accruals.

The purpose of this study is to contribute to the stream of research examining earnings manipulation and firm characteristics in an African country with instabilities in the financial market. Specifically, it aims to verify the link between firm characteristics and earnings management while taking into account the specific characteristics of firms (firm size, firm growth, firm profitability and audit quality). In view of this, this study sought to achieve these objectives;

- i. Ascertain the effect of firm's size on earnings management of listed manufacturing firms in Nigeria.
- ii. Assess the effect of firm's growth on earnings management of listed manufacturing firms in Nigeria.
- iii. Examine the effect of firm's profitability on earnings management of listed manufacturing firms in Nigeria.
- iv. Assess the effect of audit quality on earnings management of listed manufacturing firms in Nigeria.

The remaining part of the paper consists of four sections including; section 2; literature review, section 3; methodology, section 4; results and discussions and section 5 provides for summary, conclusions and recommendation.

2.0 Literature Review

Earnings Management can be described as a modern phenomenon; however, the academics became familiar with the issue of earnings management in the 1960s. Researches indicating that earnings management constrains firm's characteristics and value were mostly carried out in developed countries (e.g. USA and the European countries) where they are strict oversight mechanisms began to spring up. These literatures examined the manipulative techniques used to obtain the intended picture in diverse nomenclatures: earnings management (Darmawan, Sutrisno & Endang, 2019), earnings manipulation (Shehu & Ibrahim, 2014), creative accounting (Mustapha, Rashid, Lateef & Ado, 2019), and accounting numbers game (Mulford & Comiskey, 2002), income smoothing (Tucker & Zarowin, 2006), earnings opacity (Mongruta & Winkelried, 2019).

The influence of globalization saw the inclusion of new ideas in to this phenomenon making it one of the most controversial topics of current financial or accounting theories (Siekelova *et al*,

2020). Many at times management exaggerate the performance of companies they manage as the future earnings predictions are manipulated through accruals resulting in earnings management. The existing literature reveals the documentation of two types of earnings management these are: earnings management through accounting decisions or accruals: Accounting Earnings Management (AEM) and earnings management through real activities: Real Earnings Management (REM).

Darmawan, Sutrisno, & Endang (2019), examined the effect of accrual earnings management and real earnings management on firm value using multiple linear regression analysis. The research samples were manufacturing firms listed on the Indonesia Stock Exchange during the period of 2013 to 2017. The AEM was measured using uses the Modified Jones Model by (Dechow *et al*, 1995) while the REM was measured using the Rowchowdhury (2006) model. The test results showed that both AEM and REM did not effect on value of the firm. The results also revealed REM, leverage and audit quality have a negative effect on firm value. However, firm size and ROA were found to have a positive impact on firm value. This study will in line with this study examine both AEM and REM, but AEM will be measured using the Yoon *et al* (2006) which was tested in Korea and Bangladesh and have proven to be more effective in detecting earnings management.

Akway and Ramadan (2019) investigated the role of audit quality proxy by auditor's firm size and auditor's industry specialization in reducing agency costs and cost of equity capital. The study using a regression model analysis and a sample of 111 non-financial firms listed in the Egyptian Stock Exchange for the period from 2013 to 2016. The results revealed a positive and significant relationship between audit quality (auditor's firm size, auditor's industry specialization) and asset utilization ratio as the proxy for agency costs, providing evidence that audit quality can contribute in reducing agency costs. The study concluded that the role of audit quality is more prominent in smaller clients than in larger clients.

El-Madbouly (2021) investigated the effect of financial leverage and other firm's characteristics on the Real and Accrual based earnings management using a sample of Egyptian listed for the period 2015 till 2017. The regression results indicate that Egyptian firms use both the REM Real and the AEM to achieve its earnings aims consistent with the debt hypothesis. However, the results revealed a negative relationship between the both forms of earnings management (the REM and the AEM) and the firm's Audit quality, and size. However, the relationship is insignificant between the both forms of earnings management (the REM and the AEM) and the firm's age, dividends, and growth. The study made assertions that indicate that highly leveraged firms engage more in Accrual based earnings management than the Real earnings management. Soyemi and Olawale (2019), examined the impact of firm's characteristics on the quality of financial reporting of listed manufacturing firms in Nigeria from 2009 to 2016 comprised the sample. The study adopted the modified Dechow and Dichev's (2002) model and used longitudinal balanced panel data from secondary sources. Multiple regressions were adopted to examine the model of the study and used the firm characteristics variables; firm size, firm tangibility, profitability and growth. The result revealed that firm size and firm's profitability has positive significant effect on financial reporting quality. Tangibility and firm growth has negative significant effect on audit financial reporting quality.

Junaidu and Oladele (2019), assessed the effects of firm size, audit quality on Earning Management of Quoted Oil and Gas Marketing Companies in Nigeria over the period of seven years (2010-2016). The study revealed that Firm size and Audit Quality have no significant on earnings management measured by discretionary accruals. It is therefore recommended that there should be serious action while examining earnings management irrespective of firm size and the

reliability of auditing firm who audit the company. This study will examine both accruals and real earnings management to see if these results still hold water in manufacturing sector.

Ghania, Azemib and Puspitasaric (2019) investigated the effect of firm characteristics on earnings management practices among technology-based public listed companies in Malaysia. Firm characteristics were measured using; firm size, firm profitability and firm leverage while earnings management was measured using the modified Jones model was Dechow, Sloan & Sweeney, (1995) and DeFond & Park, (1997) model. The study used a sample of 83 technology-based companies listed in the FTSE Bursa Malaysia KLCI Index for the period 2015 and 2016. The results showed a statistically positive relationship between firm size and earnings management practices. However, firm profitability and firm leverage have no significant relationship to the occurrence of earnings management practices. This study therefore concluded that firm size influences the occurrence of earnings management among Malaysian public listed companies in the technological industry.

Gill, Biger and Mann (2013) examined the relationship between the intensity of earnings management practice on firm performance and value. Four alternative measures of earnings management (EM) were adopted namely; modified DeAngelo (1986), Jones's (1991), and Abed, Al-Attar & Suwaidan (2012), and Revenues as a means of earnings management (managed revenues) were used to measure the intensity of EM in Indian manufacturing firms. Regression analysis was deployed to examine the extent of the relationship between the earning management practices and company's rate of return on total assets, and whether there is a significant relationship between the intensity of EM and the market value of firms. The results indicate that; the more intense the practice of earnings management, the greater it's adverse effect on corporate rate of return on assets in the following year. The study also found that to some extent, the market realizes that management acts with selfish motives and responds by lowering share prices and corporate market value.

Suffian, Sanusi and Mastuki (2015), investigated the connection between real earnings management (REM) activities and firm value using a sample of 6,216 suspected firms for the years 2004 to 2011. Using the Roychowdhury (2006) model a linear regression to determine the relationship of each REM activity of suspected firms with the firm value were used. A significant positive relationship between REM activities and firm value was found. The study concluded that the outcome was caused by the existence of information asymmetry, which creates a friction between managers and shareholders. A significant relationship was also observed between leverage and firm value as well as between size and firm value. Thus, REM activities were concluded to increase firms' value.

Khanh and Thu (2019) examined the effect of leverage as a measure of AEM and REM trade off in Vietnamese listed firms using panel data of 241 companies on Vietnam stock markets for the period 2010 to 2016. GMM regressions of four models were employed to estimate the level of discretionary accruals and real earnings management. The research found a positive relationship between leverage and earnings management, which is consistent to "debt hypothesis". Furthermore, a preference for real earnings management over accrual-based earnings management is observed among highly leverage firms. The findings notice the substitution between these two forms of earnings management and reinforce full attention to both accrual-based earnings management and real activities manipulations rather than to separated earnings management strategy.

Egolum and Ikebudu (2023) examined the effect of firm characteristics on the earnings management of listed conglomerate firms in Nigeria. The explanatory variable of firm

characteristics is measured in terms of firm size (FSZ) and firm age (AGE) The dependent variable of earnings management is measured in terms of discretionary accrual (DA). The population and sample size of the study comprised five (5) conglomerate firms listed on the Nigerian Exchange Group (NGX) for the period 2012 to 2021. The results of the Ordinary Least Square regression analysis revealed that firm size has a statistically insignificant effect on earnings management while firm age has a statistically significant effect on earnings. The study recommends that investors in listed conglomerate firms in Nigeria should always be on the lookout for the potential for more real activity earnings management before arriving at their investment decisions. This study will not only see the conglomerates firms but the entire manufacturing firms with two additional variables, firm ROA, firm audit quality and leverage using both discretionary accruals and real earnings management.

Theoretical framework

This study is underpinned by the agency theory where the owners (principals) engage another (agent) to manage the affairs of their business in their interest. Although, the managers (agent) are to work in the interest of the owners the theory confirms that managers are always in a position to protect their job and always seek ways to increase their remuneration and incentives. The conflict of interest between the agent and principal results in asymmetric information, asymmetric information here can be defined as a bias of accounting information from managers to the main users (Scott, 2014).

Extant literature analyzes the agency problem in to two, type 1; here the agency problem is preempted by separation between ownership and control, this allows the managers to perform tasks or make decisions in opportunistic ways to obtain personal wealth in terms of incentives or bonuses at the expense of the shareholders (Jensen & Meckling 1976) concerned with bonus hypothesis. This point of view suggests that high leveraged company will prefer to do earnings management (Dichev & Skinner, 2002; Beatty & Weber,2003). Practically, indebted firms, managers try to choose the accounting methods which increase the earnings of the current year on the expense of future years to avoid the violation of debt covenants and its associated additional costs such as refund obligation, renegotiation costs, etc.

The Type 2 agency problem, which underpins this study, occurs when there is a disagreement between controlling and non-controlling shareholders. The non-controlling shareholders are by the fraudulent conducts of the controlling shareholders deceived; this is because the controlling shareholders have mainstream rights in making economic and non-economic decisions. The first point of view under this type assumes the beneficial consequence of debt. According to this point of view, debt financing is an effective monitoring mechanism which helps to reduce the manager's opportunistic behaviors due to the supervision of both creditors and investors. Moreover, increased debt will reduce the free cash flow and accordingly will reduce the manager's discretionary spending; which in turn will reduce the earnings management (Jensen, 1986).

The second facet of this type of agency problem represents the information asymmetry hypothesis school of thought. It highlights the need for high quality financial reports as stakeholders require this financial information to conclude on market values, which are means of making rational investment decisions, even without an explicit contract with the agent (Wallace, 1980). Firm size, firm profitability and firm growth play a major role in influencing the financial reporting process within the company. This puts them in high interest position which creates a conflict of interest in the short term and long- term goals of the organization. Under agency theory, investors and creditors are considered as the main users of the financial

information i.e. principal who entrusted their resources under the agents (upper management of the company) supervision and they require firm performance information to make decisions.

3.0 Research Methodology and Data Analysis

This study adopted an ex-post factor research design because the study examined the relationship between firm characteristics and accruals and real earnings management. Secondary data on both the dependent and independent variables were collected from the annual reports of individual sampled firms of listed manufacturing firms, for the period of fifteen years (2007 – 2021), the data were analyzed using multiple regression analysis. A filter was deployed in order to produce a criterion that defines for the study's purpose. The study population comprises all the 74 manufacturing companies listed on the floor of the NSE. However, only Forty companies were sampled after the filter used in arriving at the sample all firms must be have being in operation for all the periods covered (2007-2021) was used.

To investigate the relationship between the dependent variable (Firm size(size), firm growth(leverage) and firm profitability (ROA) and independent variables (real earnings management and accrual earnings management) descriptive statistics, correlation analysis, and inferential statistics will be conducted. Similarly, several tests will be conducted to ensure the robustness of the data. These tests include a normality test to assess the distribution of the data, evaluation of multicollinearity using techniques such as variance inflation factor (VIF) and tolerance range. These tests are important to assess the normality of the data distribution and identify potential issues related to multicollinearity among the independent variables.

Variable Measurement and Model Specification

Table 1

Variables Measurement

| Variables | Variable Acronym | Variable Measurement | Sources |
|-----------------------------|-------------------------|--|--|
| Real Earnings Management | REM | Roychowdhury model (2006) | Roychowdhury (2006), Omid (2015), Moazed & Khansalar (2016) |
| Accruals Earning Management | AEM | Extended Modified Jones model Yoon <i>et al</i> (2006) | Yoon <i>et al</i> , (2006) and Hassan <i>et al</i> (2020) |
| Firm size | SIZE | the natural logarithm of total assets | Mongruta and Winkelried (2020), (Darmawan <i>et al.</i> , 2019) |
| Firm growth | LEV | dividing total debt by the total assets of the firm | Hassan, (2014) |
| Firm profitability | ROA | net income divided by the total assets of the firm | Darmawan <i>et al.</i> , (2019) |
| Audit Quality | AQ | Large audit firm, measured by dichotomous variable (1 and 0); 1 if a firm is audited by a BIG4 audit firm (Deloitte and Touch, Ernst and Young, KPMG, PricewaterhouseCoopers), and 0 otherwise | Johl, Jubb and Houghton (2015), Mongruta and Winkelried (2019), Zgarni & Chikhaoui, (2022) |

Source: Author’s compilation 2023.

Model Specification

The research regression model is built as follows;

Measurement of real earnings management adapts the Rowchowdhury (2006) model for a panel regression, real earnings management is divided into three, namely; abnormal operating cash flow, abnormal production costs, and abnormal discretionary expenses and computed individually;

i. The operating cash flow is estimated using the following model;

$$\frac{CFO_t}{A_{t-1}} = \alpha_0 + \alpha_1 \left[\frac{1}{A_{t-1}} \right] + \beta_1 \left[\frac{S_t}{A_{t-1}} \right] + \beta_2 \left[\frac{\Delta S_t}{A_{t-1}} \right] + \varepsilon_t \dots\dots\dots(a)$$

Production costs are the sum of cost of goods sold with changes in inventory period t. Production costs are estimated using the following model;

$$\frac{PROD_t}{A_{t-1}} = \alpha_0 + \alpha_1 \left[\frac{1}{A_{t-1}} \right] + \beta_1 \left[\frac{S_t}{A_{t-1}} \right] + \beta_2 \left[\frac{\Delta S_t}{A_{t-1}} \right] + \beta_3 \left[\frac{\Delta S_{t-1}}{A_{t-1}} \right] + \varepsilon_t \dots\dots\dots(b)$$

Discretionary expenses are estimated using the following model;

$$\frac{DISEXP_t}{A_{t-1}} = \alpha_0 + \alpha_1 \left[\frac{1}{A_{t-1}} \right] + \beta \left[\frac{S_t}{A_{t-1}} \right] + \varepsilon_t \dots\dots\dots(c)$$

- Where; A_{t-1} = Total assets of firm.
- S_t = Total sales of firm of firm i in year t.
- ΔS_t = Changes in sales of firm of firm i in year t.
- ΔS_{t-1} = Changes in firm sales of firm i in year t less net sales in t-1.
- ε_t = Error.

The coefficients obtained in each model are re-entered into the model to obtain the normal amount of operating cash flow, production costs, and discretionary expenses. Then the actual value of the operating cash flow, production costs, and discretionary expenses are subtracted by the normal value to obtain the abnormal value of each measurement used as a proxy for real earnings management. Each value is summed according to the Cohen *et al.*, (2008) model, abnormal operating cash flows and abnormal discretionary costs are multiplied by -1 to equalize the relationship with real earnings management. The real earnings management model is estimated using the following model;

- REM = (ACFO*-1) + APROD + (ADISEXP*-1)
- Where; CFO = Cash flow from operation firm.
- PROD = Production cost of firm.
- DISEXP = Discretionary expenses of firm.
- ACFO = Abnormal cash flow from operation (a)
- APROD = Abnormal production cost (b)
- ADISEXP = Abnormal discretionary expenses (c)
- REM = A combined measure of real earnings management (a+b+c).

The residuals of Roychowdhury (2006) model of production cost after inserting the sampled firm’s data represents REM. The residual determines the level of manipulation, the larger the residuals, the higher the manipulations vice versa. The residual determines the level of manipulation, the larger the residuals, the higher the manipulations vice versa.

Measurement of accruals earnings management in line with previous studies such as Al areeni & Aljuidi (2014) and El Madbouly, (2021) which is derived by the Yoon, Miller & Jirapon (2006) model to estimate discretionary accruals. It is also known as extended modified Jones model, thus expressed in the equation below;

$$DA_{it} = TA_i REVi + \frac{\beta_1 REVi \Delta - \Delta RECi}{REVi} + \frac{\beta_2 - (\Delta EXP_i - \Delta PAY_i)}{REVi} + \frac{\beta_3 - (\Delta DEPi - \Delta PEN_i)}{REVi} \dots\dots\dots(d)$$

- Where;
- TA (Total accruals) = Accounting earnings – CFO
- ΔREV = changes in net sales revenue
- ΔREC = changes in trade receivables
- ΔEXP = changes in sum of cost of goods sold and selling & general administrative expenses excluding non-cash expenses.
- ΔPAY = changes in trade payables

DEP = depreciation expenses
 PEN = retirement benefits expenses
 Δ = change operator

$$DA_i = T A_i / REV_n - \left[\beta_0 + \frac{\beta_1 REV \Delta - \Delta RECI}{REVI} + \frac{\beta_2 - (\Delta EXPI - \Delta PAY_i)}{REVI} + \frac{\beta_3 - (\Delta DEPI - \Delta PEN_i)}{REVI} \right]$$

Here β_0 (d) represents the estimated coefficient of β_k . The DA obtained represents the differences between actual total accruals and the expected including depreciation and retirement benefits. The explanatory variable b_0 represents changes in cash revenue by subtracting changes in receivables from changes in revenue.

The second explanatory variable b_i stand for the changes in cash expenses

The last β_3 and third β_2 associates non-cash expenses with non-current accruals where non-discretionary level of non-cash expenses is characterized by depreciation and retirement benefit. Thus, AEM is measured by the DA obtained in the equation above, hence the two multiple regressions for the study;

$$REM = \beta_1 FSZ_{it} + \beta_2 LEV_{it} + \beta_3 ROA_{it} + \beta_4 AQ_{it} + \varepsilon \text{-----(1)}$$

$$AEM = \beta_1 FSZ_{it} + \beta_2 LEV_{it} + \beta_3 ROA_{it} + \beta_4 AQ_{it} + \varepsilon \text{-----(2)}$$

Where,

- REM = Real earnings Management of firm i in year t
- AEM = accruals earnings Management of firm i in year t
- FSZ = Natural logarithm of total assets i in year t
- LEV = Firm debt ratio i in year t
- ROA = Return on Asset ratio i in year t
- AQ = audit quality of firm i in year t
- ε = Error.

Table 2:
Descriptive Statistics of the variables

| Variables | REM | AEM | ROA | LEV | FSZ | AQ |
|-----------|----------|---------|---------|---------|--------|--------|
| MEAN | .0644 | .5824 | .0046 | .6059 | 7.0730 | .7078 |
| MIN | .0008 | 01 | -.18 | .2809 | .9010 | 0 |
| MAX | 3.0383 | 6.84 | .1089 | 3.058 | 9.38 | 1 |
| STD DEV | .1944 | .6508 | .0146 | .2810 | .9010 | .4552 |
| SKEWNESS | 11.4639 | 4.8113 | -3.0618 | 3.1594 | .1798 | -.9140 |
| KURTOSIS | 150.4056 | 37.1090 | 50.9784 | 20.1918 | 2.2311 | 1.8353 |

Source: STATA output (2023).

The descriptive statistics which gave a description of features of data and variables in the work are presented in Table 2. The Statistics are minimum, maximum, mean and standard deviation. The mean shows the average and standard deviation represents the degree of dispersion. The ROA has an average of 4,600,000 a minimum of -180,000,000 and a maximum of 1,089,000,000. The standard deviation is 0.1462; skewness is -3.0618 and a kurtosis of 50.9783.

Furthermore, it reveals that the average value of leverage (LEV) is N6,058,000 with a minimum value of N1,242,000 and maximum value of N9,380,000. This means some of the firms are highly leveraged compared to others. The standard deviation is 0.2809, skewness is 3.1593 and a kurtosis of 20.1918. In addition, firm size characterized by natural logarithm of average total assets has an average of N70,730,000, a minimum of and 9,010,000 and a maximum of N938,000,000. A standard deviation of 0.9010, skewness of 0.1798 and a kurtosis of 2.2311.

In terms of audit quality (AQ), the table shows an average value of 70% of the listed manufacturing firms are audited by big4 audit firm, a minimum of 0 which means there was no firm audited by non big4 audit firms, a maximum of 1 with a standard deviation of 0.4552 and a kurtosis of 1.8353.

Table 3
Correlation matrix

| VARIABLES | AEM | REM | ROA | LEV | FSZ | AQ |
|-----------|--------------------|-------------------|--------------------|--------------------|-------------------|--------|
| AEM | 1.0000 | | | | | |
| REM | 0.0050 0.9031 | 1.0000 | | | | |
| ROA | -0.4421* 0.0000 | 0.0945* 0.0220 | 1.0000 | | | |
| LEV | -0.2401* 0.0000 | 0.0503 0.2240 | 0.4380* 0.0000 | 1.0000 | | |
| FSZ | 0.1045* 0.0113 | 0.0541 0.1906 | -0.2315* 0.0000 | -0.1417* 0.0006 | 1.0000 | |
| AQ | 0.1113* 0.0141 | -0.0342 0.4524 | 0.0418 0.3576 | 0.0254 0.5771 | 0.1442* 0.0014 | 1.0000 |

Source: STATA (2023), P-Values in Parentheses, *(0.05) sig

The impact of firm characteristics on real and accrual-based earnings management as measures of financial reporting quality in the firms listed manufacturing firms in Nigeria. The purpose of this research was to identify the extent of leverage used for AEM in comparison to REM. Table 4.2 reveal that ROA is negative but statistically significant for AEM (-0.4421) but positive and statistically significant for REM (0.0945).

The result of correlation matrix also show leverage has a significant negative impact on AEM - 0.2401 but positively significant for REM at 0.0503. Where leverage is positively related to earnings management the company has high leverage, then management will increase the

company's profits so that creditors continue to provide debt and the company seems able to repay its debts. The result indicates that leverage has a significant positive impact on REM and higher this could be because managers decrease AEM because of strict audits and pressure of debt covenant. The perhaps increased REM knowing that detecting REM is more difficult than AEM, hence manipulated real activities with the purpose of observing finance obligations, showing good performance of the firm, decreasing interest rate of loans following reducing the risk of investing in the firms.

The FSZ measured by using the natural logarithm of total assets is positive and statistically significant for AEM (0.1045) but was negative and insignificant for REM. So also, the AQ measured by a dummy variable of value 1 if the firm is audited by big-4 auditors and 0 for firms audited by non-Big-4 auditor shows a positive significance (0.1113) but negative and statistically insignificant for REM (-0.03420).

Normality Distribution of the Data

The error term in a regression equation represents largely the unexplained part of the model. For the estimators of a regression model to be meaningful, the error term or residual should be normally distributed with zero mean. To avoid having a spurious result, the Shapiro-Wilk normality test on was conducted on the model’s residuals.

Table 4.
Normality Test Shapiro-Wilk-W Test for Normal Data

| Variable | W | V | Z | Prob>z |
|----------|-------|-------|-------|--------|
| Resid | 0.243 | 1.133 | 0.453 | 0.1858 |
| Resid | 0.331 | 1.321 | 0.201 | 0.3429 |

Source: Stata Output (2023).

From Table 4 above, the models p-value is 0.1858 and 0.3429, and being greater than a 5% (0.05) level of significance; the null hypothesis is rejected indicating that the data is normally distributed. Thus, this study concludes that the residual of the model is normally distributed.

Tests for Multicollinearity

Another key assumption of the linear regression model is the non–correlation between the independent variables. The interdependence of the independent variables indicates the presence of Multicollinearity. To test for the incidence of multicollinearity in the data, we examined the model's variance inflation factor (VIF) values to establish whether the data’s tolerance level is within limit. The result of the test is captured in Table 4.

Table 5
Collinearity Test

| | VIF | 1/VIF |
|----------|------|-------|
| ADF | 1.34 | .748 |
| ART | 1.26 | .796 |
| AFS | 1.09 | .913 |
| IFRS | 1.03 | .912 |
| Mean VIF | 1.18 | . |

Source: STATA Output (2023).

There is no multicollinearity issue, as demonstrated by Table 5's evidence, where all variable VIF values are less than 10 and tolerance values are all more than 0.10 (the rule of thumb).

Heteroscedasticity Test and Autocorrelation Test

Two additional tests are crucial: one measures the autocorrelation, or interdependence, of the error terms, and the other measures the homoscedasticity or consistency of the error terms variance across all levels of the independent variables. The study used Breusch-Pagan's test was used to determine the heteroskedasticity of this investigation.

Table 6:
Heteroskedasticity Test

| | Model 1 | Model 2 |
|---------|---------|---------|
| Chi2 | 2.9e+05 | 222.82 |
| P-value | 0.0000 | 0.0000 |

Source: STATA Output (2023)

Adopting the Breusch-Pagan test in testing for heteroskedasticity, the result has a Chi-Square of 2.9+05 and 222.2 with p-values of 0.000. This implies a rejection of the null hypothesis (a condition of homoscedasticity) and accepting a heteroskedastic model.

Table 7:
Autocorrelation Test

| | Model 1 | Model 2 |
|---------|---------|---------|
| Chi2 | 121.323 | 2.699 |
| P-value | 0.0000 | 0.1263 |

Source: Stata Output (2023)

The presence of auto/serial correlation violates one of the basic assumptions of the OLS which is necessary for the stability of time series data. Using the Wooldridge test for autocorrelation, the result in Table 4.6 shows presence of serial correlation as the P-values (0.0000) is less than 5% in model one and greater than 5% in model two(p-value, 0.1263)

Hausman Specification Test

To determine the appropriateness of the estimation method for the panel data under analysis, the Hausman test is conducted to determine one of the two choices: fixed effect or Random effect. The result of the Hausman test is shown in Table 4.7 below.

Table 8:
Hausman Test

| | Model 1 | Model 2 |
|---------|---------|---------|
| Chi2 | 10.54 | 1.13 |
| P-value | 0.052 | 0.8894 |

Source: STATA Output (2023)

The setting of the null hypothesis is that the fixed effect estimate is appropriate for model1 and random effect model2. The result of the Hausman test in Table 8 greater than 5% level of significance implies that the null hypothesis should be rejected model 1 and model 2 with p-

value of 0.052 and 0.8894 respectively. This means that random effect estimation is appropriate for the two models. Due to the presence of heteroskedasticity, Feasible Generalized Least Square (FGLS) was found suitable in adjusting for heteroscedasticity.

Table 9
Regression Results

| Variables | Coefficient | P-value | Coefficient | P-value |
|---------------|-------------|---------|-------------|---------|
| | | AEM | REM | |
| ROA | -0.0001 | 0.0000 | -1.3385 | 0.109 |
| LEV | -0.0007 | 0.178 | .9941 | 0.000 |
| FSZ | -.3111 | 0.893 | -.3465 | 0.000 |
| AQ | 0.0081 | 0.010 | .0008 | 0.000 |
| _cons | -6.86 | 0.598 | 3.26 | 0.000 |
| F-stat | 38.57 | | 21.40 | |
| P-value | 0.0000 | | 0.0000 | |
| R-squared | 0.21 | | 0.13 | |
| Adj-R-squared | 0.20 | | 0.12 | |

Source: STATA output, 2023.

The R-square value for both the models is (0.21) and (0.13), which means that the independent variables of the model are able to explain the change in dependent variables by 21% and 13% respectively. The results of testing the coefficient of determination (adjusted R-square) produces a value of 0.20 and 0.13 indicating that the independent variable accrual earnings management and real earnings management as well as firm size, leverage, ROA, and audit quality only explains the dependent variable that is the firm characteristics at 21% and 13%, other factors outside the model explains 79% and 87%. Thus, this can be interpreted to mean managers in listed manufacturing companies in Nigeria prefer to AEM rather than REM, even though AEM are easier to detect for auditors and regulators (Gunny 2010). However, the reason for this may be that manipulation through the real business activities is more costly than through the accruals due to the economic consequences.

The ROA has a negative coefficient-0.0001 but statistically significant 0.0000, on the other hand, REM shows a negative coefficient value of -1.3385 with a significance value of 0.109 which is statistically not significant. These results indicate that real earnings management measured Roychudhury (2006) model where the model divides the size of real earnings management into three namely; abnormal operating cash flow, abnormal production costs, and abnormal discretionary expenses then sums it up have a negative impact on firm characteristics. This result is in contrast with the previous research by Darmawan et al., (2019) and Soyemi & Olawale (2019), which found that real earnings management has a positive effect on firm characteristics.

Leverage was found to have no effect on financial reporting quality for AEM (-0.0007) in line with Darmawan et al (2019) and Ghania, et al(2019).. The financial leverage measures the firm's level of indebtedness. The main motivation of firms to engage in earnings management is to influence the contractual outcomes, especially the debt covenants. The result assumes that the

amount of debt held by the firm is not meaningful information to AEM so it does not affect the financial reporting quality. However, for REM 0.9941 and 0.000 shows a positive association which is also statistically significant interpreted as the amount of debt held by the firms can affect financial reporting quality in line with the findings Suffian, Sanusi & Mastuki (2015) and Khanh & Thu (2019). This can be interpreted to mean the provisions of debt covenant require the firms to maintain or achieve a certain level of earnings as a part of the borrowing agreement which can be manipulated using real earnings management.

Firm size was found to be- 0.3111 and-0.3465 negative effect for both AEM and REM but statistically significant in line with Darmawan et al (2019), Egolum & Ikebudu (2023) and Junaidu & Oladele (2019), in contrast with Soyemi & Olawale, (2019) and Ghania, et al (2019). Audit quality was also found to have a positive effect for both AEM and REM (0.0081 and 0.0008) on the value of the firm, in line with Hassan (2020), but in contrast with Darmawan et al (2019) who find audit quality can have a negative impact on firm value.

5.0 Summary and Conclusions

The vast majority of researchers examined AEM and its association with several aspects of firms such as the quality of corporate governance, audit quality, and initial public offering, some started to focus more on real EM. This study, aimed to contribute to the debate in the literature by examining both AEM and REM in a detailed examination of both AEM and REM. The regression analysis of firm characteristics and AEM and REM has yielded important insights and implications.

The R-squared values indicate that the model, which incorporates accrual earnings management (AEM), real earnings management (REM), firm size, leverage, Return on Assets (ROA), and audit quality, explains only 21% and 13% of the variation in firm characteristics, leaving a significant portion (79% and 87%) unexplained. Notably, the results reveal contrasting effects of AEM and REM on firm characteristics, with AEM being statistically not significant and REM showing a statistically significant negative impact on firm characteristics. This suggests that real earnings management, specifically in the context of abnormal operating cash flow, production costs, and discretionary expenses, adversely affects firm value, contradicting some previous research findings.

The influence of leverage on financial reporting quality appears to be dependent on the type of earnings management, with AEM being statistically insignificant, which means that the increased leverage is associated with reduced earnings management while REM shows a positive and statistically significant association, implying that the amount of debt held by firms can affect financial reporting quality. Additionally, firm size has a consistent negative impact on both AEM and REM, with statistically significant results, indicating that larger firms may face unique challenges related to financial reporting quality.

Audit quality, contrary to certain prior findings, exhibits a positive impact on firm value for both AEM and REM, emphasizing the importance of rigorous and high-quality auditing in maintaining the value of the firm. These findings underscore the complexity of the factors influencing financial reporting quality and firm characteristics, indicating the need for further research and tailored policy responses to address the intricacies of these relationships.

The set of recommendations derived from the regression analysis findings present a holistic approach to addressing the multifaceted challenges pertaining to financial reporting quality and firm characteristics. By emphasizing the need for heightened oversight and transparency, particularly in the context of real earnings management, regulators can work towards curbing detrimental practices that impact firm value. Reevaluating leverage regulations and encouraging responsible borrowing practices can further enhance the reliability of financial reporting. Tailoring reporting standards according to firm size recognizes the distinct challenges larger organizations face, ensuring that their complexity does not compromise the quality of their financial reporting.

Promoting high-quality auditing practices is essential for maintaining the integrity of financial reporting, while investing in education and training empowers professionals to uphold the highest standards. Moreover, supporting ongoing research and fostering stakeholder collaboration can create an environment where all parties collaborate to improve transparency and accuracy in financial reporting, benefiting investors, stakeholders, and the broader economy.

Based on the limitations and findings of current research study, the following recommendations can be made for future research as this study opens research to several studies concerning investigating the role of firm characteristics in financial reporting quality, examining the impact other corporate governance mechanisms such as cost of equity, different ownership structures, and board compensation can be done. This research study could be replicated using more proxies for firm characteristics and audit quality attributes such as audit fees, auditor's industry specialization, audit tenure, auditor opinion and timeline of auditor report.

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