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Exchange Rates Volatility and Earnings Management in Listed Manufacturing Companies in Nigeria

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Abstract: Volatilities impact the trend movements of exchange rate on earnings management and it varies from country to country and from company to company. The study investigated how exchange rate volatility has contributed to earnings management, within the manufacturing sector in Nigeria. A pooled panel regression analysis was employed on 16 manufacturing companies based on their capitalization in the Nigerian Exchange Group between the periods 2011 and 2020. The Discretionary Accrual Model was employed in deriving the earnings management series. Findings made in the study revealed that management controls its earnings based on its intentions to be actualized. This motive is either to follow the Generally Accepted Accounting Principles (GAAP) through discretionary accruals or to convincingly manipulate its earnings for self-interest, thereby misleading other stakeholders. However, findings affirmed that despite the upward swings in the Nigerian exchange rates against US Dollars in the past decade, exchange rate volatility favourably and significantly influences earnings management which consequently affects the financial achievement of firms in the manufacturing sector, both in short and long runs. The study also discovered that movements in exchange rates directly affect outputs, of the manufacturing sector, in the long run, which is more beneficial compared to the short-run effect, although the benefit is not significant. This study therefore recommends that policymakers and government reassess existing import-substitution industrialization strategies, to encourage local manufacturers to develop commodities that are currently imported.

Keywords: Generally Accepted Accounting Principles, Earnings Management, Exchange Rate Volatility, Manufacturing Sector, Discretionary Accruals

1. Introduction

Majority of the world economies (developed and emerging) had considerably suffered from volatility of exchange rates, resulting to an increased level of uncertainties in achieving some macroeconomic and monetary policy objectives. These objectives include stability in the general price levels as well as economic growth. A real exchange rate volatility is linked to unpredictably fluctuating relative prices in the economy. As a result, one of the most important elements which influences both direct and portfolio investments abroad, sustained and balanced economic growth and stability in the aggregate price levels results to exchange rate stability. A misalignment in real exchange rates and economic decisions has seized the attention of policymakers, investors and researcher, which is not limited to its pervasive impact on other macroeconomic variables but also on recent significant developments, to gaining both theoretical and empirical understanding of exchange rate determination. In 2012, Nigeria's GDP grew at a rate of 6.6 percent, down from 7.4 percent in 2011. With an annual growth rate of roughly 8 percent compared to 0.35 percent for non-oil industries, the oil sector continues to dominate the economy [40]. The 2010 annual report of the

Central Bank of Nigeria explicates that the activities of firms in the manufacturing industry has been developed positively since the early 1960s and early 1970s, and has consequently increased the value-added per worker, when compared to other African countries [9]. Throughout this period, the contribution of manufacturing sector to GDP almost doubled, as it increased from less than 5 percent to about 8 percent, and many people assumed that the country was on the verge of becoming industrialized. In a contemporary economy, manufacturing sector plays a productive role and undergoes several dynamic shifts. In many ways, the manufacturing sector is the most important component in every emerging economy. The manufacturing sector often generates capital investments faster compared to other sectors of the economy, thereby creating operative cross-sector linkages [26]. However, this sector has performed relatively low in terms of its contribution to GDP, compared to the service sector in Nigeria.

The exchange rate conundrum is a significant issue in international finance. This is a significant issue since exchange rate variations are likely to influence economic performance, including company performance, among other things. Because of its randomness, it is a conundrum. The combination of the elements that impact the exchange rate causes its volatility and unpredictability [18]. Hence, the topic of exchange rate swings is divisive and it is considered to have sparked heated debate. Existing literature have looked into the subject, both theoretically and practically, with varying conclusions, making the debate even more contentious.

According to conventional wisdom, the exchange rate variations alter relative domestic and international pricing, prompting spending to move between local and overseas items [8]. Despite the development of some modern theories on exchange rate (Behavioural equilibrium exchange rate, Sticky price monetary, The Balance of Payments Theory, Portfolio Balance Approach, and Monetary Approach to Rate of Exchange, among others), exchange rate variations have limited impact on relative prices in the short-run [12]. Manufacturing enterprises catalyse a country's growth and development in developed economies.

Ezenwa et al. [16] (citing Darell and West) explained how financial performance of manufacturing firms in Japan, China, and the USA, accounted for about 48 percent increase in global financial performance. According to Agubata and Odubuasi [2] macroeconomic conditions significantly affect the performance of manufacturing companies in Nigeria. Volatility in exchange rates has become one of the macroeconomic variables as it directly affects the financial performance of manufacturing enterprises, at varying levels of economic, transaction, and translation exposures. In any opened economy, the impact of exchange rate volatility had become pivotal in their economic history. Increased volatilities in foreign exchange rates contributes to the failure in an entity's operations, viz-a-viz, the Bretton Woods agreements. The most industrialized countries have put in place, procedures to control their exchange rate movement

and stability in one way or another, but have rather become escalating in Nigeria, resulting from declining Gross Domestic Product (GDP) between 2019 and 2020 [9]. This further implies that volatilities in exchange rates negatively influences the economies of both developed and developing countries. Despite regulatory efforts to resuscitate consumer products manufacturing enterprises, there have been inconsistencies in the growth of the financial performance and position of some Nigerian manufacturing companies, as well as volatility in the trend of exchange rates resulting in an uncertain macroeconomic climate.

Earnings management is defined as the use of accounting estimates by management, some of which includes the acceleration of expenses, understatement of expenses, late recognition, postponement of recognition of revenue transactions, or other adjustments created to adjust reported earnings. A systematic misrepresentation of the true income and assets of corporations or other organizations or innovative ways of characterizing income, assets, and liabilities is used to describe "systematic misrepresentation of the true income and assets of corporations or other organizations" [29]. Financial reporting frameworks permits management to apply their estimates and judgments in the creation of financial reports as long as they are reasonable in the circumstances and consistent with industry practices. However, earnings management occurs where the frameworks allows management to make judgment about transactions in such a way that conceals material information to some groups of stakeholders with respect to the underlying financial and economic performance of the company, which consequently influences contractual outcomes.

Philippon & Bergstresser [33] found that discretionary accruals could be used by managements on reported earnings management. The accrual-based accounting system is viewed as a perfect platform or such discretionary and unscrupulous decision, as accruals forms part of the company's earnings, which are not represented as a current cash flow, but generated with the significant amount, usually at the discretion of the Managers [7].

In recent years, between 2015 and 2021 exchange rates increased from N214.37 to N394.92 [9], thus, the escalating movements in the Imports & Exports nominal exchange rates impact the activities of the manufacturing firms, since it depends on foreign exchange transaction, in the procurements of raw materials and capital goods for its operation. This could expose management to adjusting its earnings, for the sake of meeting up with its annual targets. Therefore, it is imperative to investigate the extent to which volatile trend movements in exchange rates have contributed to earnings management within the manufacturing sectors. A sparse number of studies [37, 25, 41] have considered the effects of volatile exchange rate on earnings management in other countries like South Korea, Indonesia, and Malaysia among others. However, few of these studies focused on the Nigerian manufacturing sector. In this regard, this study researched into how volatility in the trend movement in exchange rate, impact earnings management in the Nigerian-listed manufacturing sector.

The study is alienated to five sections. While the first section introduced the theme of research, section two sets out a review of relevant concepts and theories, and also outlined some empirical findings from extant literature. The third section presents the study methodology, with clear model specification, research designs and sources, and methods of data collection, thereafter, sections four and five-set out the analysis and interpretation of the model, conclusions, and recommendations, respectively.

2. Review of Literature

2.1. Historical Trend in the Nigerian Exchange Rates

To stabilize the Nigerian economy, the country has witnessed various exchange rate regimes. Because of its impact on prices of products, resource allocation, and investment decisions, the exchange rate actively affects economic activities. Since the mid-1980s, the country has been changed from fixed exchange rate regimes toward flexible exchange rate regimes, with periodic intervention by regulatory bodies.

According to Okoroafor and Adeniji [30], to achieve economic growth in macroeconomic variables, regulatory authorities engaged in periodic intervention rather than permit exchange rate to float totally or fully determined by invisible hands. Subsequent to the declaration of Nigeria's independence, in 1960, its policies on exchange rate underwent a significant alteration combined with the government's attempt to put the Nigerian economy on a growth path. Nigeria, for example, used the mechanism for direct control of exchange rates to other macroeconomic variables, to consequently ensure stability in the economy and boost the level of economic growth between 1960 and August 1986. The growth in agricultural production and a substantial spike in crude oil prices on the international market made this system of direct control of exchange rates, a practicable one. While making efforts to stabilize the economy, the foreign exchange crisis in 1982 restricted the levels of exchange, thereby resulting to a formation of the parallel foreign exchange markets.

The Nigerian naira depreciated against the US dollars, from N0. 61 to N2. 02 between 1981 and 1986. Different foreign exchange markets have been developed right from the establishment of the Structural Adjustment Policy (SAP) in 1986. To balance the economy, the government established the Second tier Foreign Exchange Market (SFEM) in 1986 and the Unified Official Market (UOM) in 1987. However, the Naira fell even further in 1990, falling to N7. 90. The government began exchange rate reforms in 1994, pegging the Nigerian currency (naira) against the US dollars at the rate of N21.89 per $1, to stabilize the currency rate. As a result of reform, the government was forced to liberalize the market for international trade, in 1995, when the Autonomous Foreign Exchange Market (AFEM) was established. The foreign exchange market later became liberalized in October, 1999, at the announcement of the Inter-bank Foreign Exchange Market (IFEM). During this time, additional deregulation resulted in the Naira trading at N86.32 per US dollars.

In response to rising foreign exchange demand and a steady decline in the country's external reserve, in 2002 the foreign exchange market was deregulated, which birthed the implementation of the Dutch Auction System (DAS). Thereafter, the Nigerian Naira was traded for N120.97 and N135.5 between 2002 and 2004, respectively against the US dollars. Meanwhile, in 2006, the Wholesale Dutch Auction System (WDAS) was established. By 2005, Naira appreciated from N132.15 to N118.57, against the US dollars, indicating that the efforts of government to stabilize movements in exchange rates, were successful. However, the global financial crisis gave room for naira to depreciate to N150.01 versus the US dollars.

The country's foreign exchange issues have worsened due to dwindling earnings from foreign exchange transactions (primarily oil revenue) despite government efforts to provide lasting solution. Nonetheless, the current civilian administration's activities have foiled the entire effort once again, this time with a more difficult foreign exchange situation. For example, the domestic economy saw exceptional adverse exchange rate volatility versus the US dollar between the middle of 2015, when President Muhammadu Buhari assumed office in the second quarter of 2017. During this time, the unfriendly business environment created by contradicting government policies and programs made external investors withdraw investments (in US Dollars) from the Nigerian economy, thereby reducing the flow of fund in circulation. This event, combined with a drop in inflows from external sales of oil, resulted in a foreign currency shortage concerning demand. To rectify this mismatch, the government devalued the Nigerian currency against the US dollar, moving the official rate from N191.80 in mid-2015 to N253.09 in 2016. In 2018, the average exchange rate had increased from N305.58 to N358.31 in 2020 [9].
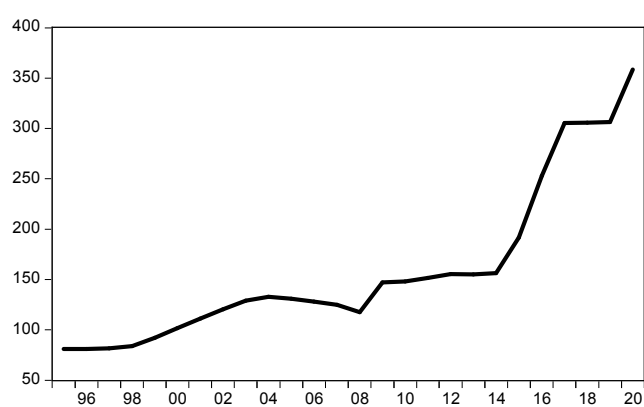
2.1.1. The Nigerian Policies on Exchange Rate

Foreign currency market is known for its volatility and uncertainty, making it impossible to forecast future values. Buyers and sellers engaged in foreign business transactions are inevitably opened to foreign exchange as well as currency risks, which constitute a threat to them [3]. Movements in raw material prices as well as their other direct costs expressed in foreign currency, exposes manufacturing enterprises to potential gains and losses.

Manufacturing companies are exposed to foreign exchange risks arising from export and import operations. Volatility in exchange rates refer to an unpredictability of currency rates at the exchange. As a result, such exchange rate volatility refers to the amount of fluctuation in exchange rate over time. Volatilities in exchange rates impacts both economic growth as well as company performance [5]. Currency depreciation, as an instance, augments the cost of importing capital goods for the manufacturing companies, limiting domestic investment.

Higher volatility increases the valuation of real exchange rate despite increase in nominal capital consumption allowances with government becoming a dominant supplier of foreign exchange. Exchange rate policies in Nigeria are dominated by fixation, towards maintaining the stability of the nominal exchange rate. Therefore, the need to stabilize exchange rates with the use of monetary policies. General public applies the nominal exchange rate in determining the financial health of the economy, with a declining rate indicating a deteriorating economy.

The Pegged Exchange Rate, Managed Floating Exchange Rate, Freely Floating Rate, and Freely Floating Exchange Rate are the four categories of Exchange Rates, according to [27]. While government controls the fixed exchange rate using the monetary policies, whereas its value is determined by the country's reserve within a specific period. Market forces (demand and supply) interaction of some specific currencies as chosen by government is the outcome of managed floating rate. While a freely floating rate solely determined by the force of demand and supply in an open market, without any government interaction, the managed floating exchange rates, also known as dirty floats, is used by the monetary authority, (central bank) to consistently intervene in the transactions in the international markets, by changing the direction of currency and also reduce the rate of currency volatility. The pegged exchange rate explains how home currency is pegged against the other country's currency.

Average Naira/US Dollar Exchange Rate between 1995 to 2020

Source: Central Bank of Nigeria Statistical Bulletin, (2020)

Figure 1. Trend in Nigerian Exchange Rate against US Dollars.

2.1.2. Earnings Management

When a company's directors are under increasing pressure in an unfavourable economic environment, they request the accounting department to increase the final line of income (loss) statement, i.e., earnings, thereby altering the information content. Despite its versatility, the accounting profession does not appear to be capable of providing relevant data to management in such situations [20]. The subject of profit management has been studied from numerous perspectives, with several definitions given.

Aflatooni and Nikbakht, [1] citing Gordon asserts that

earnings management occurs when Managers pick a certain technique of accounting and limit the swings in reported earnings. They also state that Managers can affect reported earnings within their power boundaries, as a result of their freedom to operate within approved accounting rules and processes. In general, earnings management is described as the impact on a company's earnings to realize the objective of managers, which contradicts the entity's objectives. The mechanical hypotheses and efficient market hypotheses, the bonus plan hypothesis, the debt covenant hypothesis, incentives related to initial public offerings, positive theories in earnings management, tax incentives, and incentives related to management replacement are some of the hypotheses and incentives for earnings management.

2.1.3. Exchange Rate Movements and Earnings Management

At least in the short term, swings in exchange rates volatility would impact a country's performance. Lee-Lee, C. and Hui-Boon T. [23] studied the four major Southeast Asian countries (Malaysia, Indonesia, Thailand, and Singapore), and found that exchange rate volatility and macroeconomic factors are moves in the right direction to achieve long-run equilibrium and stability with effective roles from authorities and market players. As a result, currency rate swings have a significant impact on the firm's principal trading activity in the short term. The scenario is not limited to exporting enterprises; Effiong et al. [15] citing Oloyede and Fapetu identified the indirect impact of exchange rate movements on non-exporting firms through the firm's supply chain. As a result, in the event of a depreciation of the home currency, domestic enterprises' profits, which are not directly tied to export, may suffer [19].

A recent study by Nagahisarchoghaei et al., [28] on Indian firms, examined the solidification of the exchange rates increase the import index, the cost of foreign exchange transactions, and foreign currency borrowings, lowering the Price-Earnings (P/Es) ratio and internal growth of the firm. The study also found that companies with higher P/Es ratios are less vulnerable to foreign exchange fluctuations. Soni [38] observed a high positive link between the exchange rate of public enterprises and earnings per share, supporting the preceding conclusion on P/E. When the exchange rate strengthens, earnings per share rises, lowering the PE ratio.

Business-specific elements, including hedging, firm's size, long and short-term solvency, external debt, firm size, leverage, liquidity, and growth potential affects enterprises' foreign exchange exposure in addition to macroeconomic determinants and industrial rivalry structure Doukas, et al., [14]. Earnings management can act as hedging in difficult economic times, especially for income smoothing and reducing foreign exchange exposure. Furthermore, foreign exchange exposure in the US market leaves a beneficial impact on earnings management and fluctuations in cash flows [11].

Exchange rate fluctuations are a risk that can affect a company's cash flow and reported earnings. However, many

businesses in the United States do not use risk hedging tools [6]. When foreign exchange movements are not in their favour, corporations are compelled to utilize earnings management to hide the negative effects [34]. However, literature is scarce on currency rate changes and earnings management.

As a result, in situations where altering profits will serve to disguise a firm's actual performance, investors may not be able to effectively assess the influence of exchange rates on the firm's worth due to rapid foreign exchange swings. Stein and Wang [39] found that when enterprises are uncertain about their prospects, they have negative discretionary accruals.

2.2. Theoretical Review

2.2.1. Stock Oriented Model

Liang et. al. [24] noted the stock-oriented model was introduced by Branson and Frankel in 1983. This model explains exchange rate as a function of demand for and the supply of financial assets. It further explains that stock prices increase often enhance investors' demand for more assets, thus resulting to the appreciation of its local currency, explaining that changes in stock prices influence exchange rates. Thus, an appreciation in local currency attracts additional capital from abroad as well as the multiplicity of investments into the domestic market, which further appreciates the currency.

To improve on the stock-oriented model, as developed by Branson and Frankel, Agubata and Odubuasi [2] emphasized on how the increase in stock price improves on the inflows of capital goods. Hence, with regards to this, it is pertinent to say that exchange rate appreciates resulting from an increase in demand for domestic currencies. Hence, the price of exchange is a function of demand and supply of financial assets.

The stock-oriented model has been criticized by Richards, Simpson, and Evans, [36] as it fails to incorporate movements in international capital. The author, however, noted that the stock-oriented model is applicable both at the firm's developmental stages and its early stages [10]. This theory gives a more lucid explanation, suggesting the interconnectedness between the prevailing stock prices and exchange rates within the economy, at the end of a financial year.

2.2.2. Pecking Order Theory

The idea behind the pecking order theory could originally be traced to the proposal of Donaldson, in 1961. Afterwards, Stewart C. Myers developed it in 1984. This theory looks at how companies get their money and where it comes from. Internal and external sources of long-term corporate finance are available. According to this notion, corporations prefer to invest domestically since they are less risky [17]. If retained earnings are insufficient, the second alternative is to raise funds, through borrowings, and the third option is to raise more capital by issuing new shares [35]. Managers are concerned about how company's decision to issue shares will

be interpreted by investors and consequently decreased stock price. Such decline is seen by managers as it frequently influences the behaviour as well as the conditions and prospects of the company, given the presence of information asymmetry between management and investors [4].

2.3. Empirical Review

Researchers have used various approaches to study the nexus between the volatilities in exchange rates and earnings management, for both developed and developing economies of the world. In Malaysia, a study on the Movements in Exchange rates, Earnings Management, and Stock Returns, by Lock, et al. [25] applied discretionary accruals to explain the levels of earnings management, which was further partitioned into positive and negative earnings management. Exchange rate movement was also measured using the annual changes in the average quarterly exchange rate. These variables were analysed and the findings proved that swings in exchange rates, influences earnings management by firms, usually when exchange rates are diluted. However, where exchange rates are strengthened, earnings management does not significantly affect foreign exchange rates. The study also found that, in Malaysia, earnings management positively impacts the annual stock returns.

Sang-Hyun [37] examined how income smoothening affects earnings management and exchange rates fluctuations, considering the managerial implications for Korean Exporters in 2,402 non-financial firms listed on the Korean Stock Exchange (KRX), between 2013 and 2017. To arrive at discretionary accrual-based earnings management, the Dechow, Sloan and Sweeney Model of 1995 was employed. He found that companies experiencing higher levels of Exchange Rates Elasticity of Sales (ERES) relatively have lower tendencies of smoothening their reported earnings. This implies that fluctuation in sales resulting from exchange rate fluctuation directly impacts the earnings reported by management. In Indonesia, Yulius and Narsa [41] examined whether aggressive earnings management by management, as dictated by the movement in Rupiah, by investigating about 258 listed companies between 2009 and 2015. The findings proved that a decline in entity's operating profit is more susceptible to manage earnings through foreign exchange gain or losses, unlike companies experiencing an increase in operating profit. It was equally proved that some Managers hold some monetary liabilities in foreign currency, which are less than monetary assets in foreign currency, as the value of Rupiah appreciates, which are more susceptible to making earnings management through foreign exchange gain or losses, compared to firms having monetary liabilities in foreign currencies, which usually exceed monetary assets in foreign denominated currencies.

Christiawan and Rahmiati [13] employed quantitative research design to test whether the Foreign Exchange Loss/Gain (FEL) model, could be used to predict or detect earnings management, the financial statements of 200 listed companies (divided into about fifty firms having the highest market capitalization, fifty most active companies depending

on the trading volume, fifty companies ranked based on their trading frequency and another fifty firms, based on trade values), from the Indonesia Stock Exchange, were analysed, from 2009 to 2013, resulting to 200 observations. Their findings proved the capabilities of the FEL model at predicting earnings management.

They also employed two of the hypotheses of Positive Accounting Theory (PAT). This includes the bonus plan, and debt covenant hypotheses. For the bonus plan hypothesis, when operating profit falls, Managers manage earnings by augmenting its net income, thereby reducing exchange losses, while the debt covenant hypothesis, a company with a high profile of long-term liabilities tends to put more pressure on Managers to manage earnings. A higher long-term debt increases the likelihood of managers involvement earnings management. They also found that some regulations often give room for management, to manage their reported earnings. They sighted how accounting policies set out in the Statement of Financial Accounting Standards (SFAS-Ind) 26, allows for the capitalization of borrowing costs which are traceable to the production or construction and purchase of Property, Plant and Equipment (PPE) items, especially when funds are loaned from an external source. This exposes Managers to capitalize on foreign exchange losses.

In Malaysia, Omar, et al. [31] employed am ordinary least square on the practice of earnings management from both ethical and corporate governance perspectives, using the published audited financial reports of 49 firms from their respective websites. Both accrued and real earnings management was estimated in arriving at earnings management. They also examined the practices as well as the techniques for detecting earnings management. Aggregate accruals, cost-shifting specific accruals, disclosures, and examination of real activities are the common techniques for detecting earnings management. While the first three relates to the alteration of financial data, the last two focuses on the restructuring of financial transactions, to adjust reported earnings. They concluded that since several techniques exist, it is practically unjust to conclude whether a technique is bad or good.

Osho and Efuntade [32] investigated how exchange rate fluctuations affects the performance of multinational companies using regression analysis. As a result, the return on assets (ROA) depends on exchange rate movements, the inflation rate, and the interest rate. The fluctuation in exchange rate does have a considerable effect on the financial performance of some multinational corporations operating in Nigeria, as revealed in the overall regression result.

Kelilume [21] used cross sectional analysis on about twenty (20) listed firms on the Nigerian Exchange Group (NGX), to study volatility clustering in exchange rates on their performance in Nigeria. The empirical study developed a three dynamic panel model, which accounts for the company's variances, and also builds on recent research, by giving room for foreign investors and entities, to make investment decisions based on exchange rate volatility between Naira and selected foreign currencies. Findings revealed how volatilities in exchange rate has

considerably influenced the asset returns negatively. Generally, the study discovered that the more unpredictable the exchange rate is, the less efficient and effective the organization is.

3. Methodology

This study adopts the ex-post facto research design, to investigate how the exchange rates volatility has impacted earnings management in the manufacturing companies, listed on the Nigerian Exchange. The study observes 16 listed manufacturing firms in Nigeria using a panel regression analysis between 2011 and 2020, resulting in about 160 observations. A panel analysis was done on the financial data obtained from the annual reports of sixteen (16) manufacturing companies in Nigeria. The data were analysed, using both descriptive and inferential statistics. The observation in the study consisted of sixteen manufacturing firms in Nigeria.

***Table 1.** Sample (Listed Manufacturing Companies).*

S/N	
1	African Textiles Manufacturers Limited
2	Dangote Cement Plc
3	Dangote Sugar Refinery Plc
4	DN Tyre & Rubber Plc
5	Flour Mills Nig. Plc.
6	Glaxo Smithkline Consumer (NIG) Plc
7	Golden Guinea Brew. Plc.
8	International Breweries Plc.
9	Lafarge Africa Plc
10	Mouka Foam
11	Nestle Nigeria Plc.
12	Popton Abrasives Manufacturing Company Ltd
13	Quantum Steels (Real Infrastructure) Nigeria Ltd
14	TopSteel Nigeria Limited
15	Union Dicon Salt Plc.
16	Vitafoam Nig Plc.

Model Formulation: The model analysed the impact of volatilities in exchange rates and earnings management for manufacturing companies listed on the Nigerian Exchange. Hence, the model is specified thus:

$$EMG = f(EXV, NIM, FSZ)$$

$$EMG_{it} = \lambda_0 + \psi_1 EXV_{1,it} + \psi_2 NIM_{2,it} + \psi_3 FSZ_{3,it} + \varphi_{it}$$

λ_0 and $\psi_1 - \psi_3$ represents the intercept and coefficients of the explanatory variables (EXV, NIM, FSZ) respectively, while φ_{it} denotes the error term of the model for manufacturing companies at different time horizon. The EXV represents the Inter-bank Foreign Exchange Market (Competitive), and it is measured by estimating the average of monthly exchange rates, and was obtained from the central; SIZ denotes the size of the firm's assets, proxied by the log of total asset, given that the quantum of assets used in manufacturing companies improves on the quality of their operations; NIM connotes Net Income

Margin, as it measures the profitability performance of manufacturing companies; EMG represents Earnings Management, and it's estimated using the residuals (noise or error term) from the Kothari, et al. [22] Discretionary Accruals model.

To derive the series for EMG, the study employed the Kothari et al. Model [22].

$$\frac{TA_t}{A_{t-1}} = \beta_0 \frac{1}{A_{t-1}} + \beta_1 \frac{\Delta REV - \Delta REC_t}{A_{t-1}} + \beta_2 \frac{PPE_t}{As_{t-1}} + \beta_3 \frac{ROA_{t-1}}{As_{t-1}} + \varepsilon_t$$

TA_t = Total Accrual in period 't';
A_{t-1} = Total Assets in the previous period;
ΔREV_t = Annual changes in Revenue in 't' period;
ΔREC_t = Annual changes in Receivables in 't' period;
PPE_t = Gross amount of PPE in 't' period;
ROA = Returns on Asset in current period;
ε_t = The error term, explaining earnings management.

4. Empirical Analyses and Interpretation

The estimation table below (estimation) explicates that a positive and significant relationship exists between earnings management (EMG) and exchange rate volatility (ERV), such that a percent increase in exchange rates volatility result to about 3.44% increase in the possibilities of managing reported earnings (see appendix 1). However, both the net income margin (NIM) and firms' size (total assets) (SIZ) negatively influence the management of earnings management using the discretionary accruals. Therefore, a percent increase in NIM and SIZ dilutes the tendencies of management's involvement in managing its reported earnings, using discretionary accruals, by 0.68 percent and 0.26 percent respectively. However, while the effect of the former is more significant at 1%, the latter is estimated to be insignificant at 10 percent.

The adjusted R-squared of about 64.91 percent confirms the reliability of the estimated model, as it exceeds 50 percent. The choice of Adjusted R-squared over the R-squared is based on the fact that the former adjusts for the effect of multiple explanatory variables on the latter. The value of F-statistic compares the joint effect of all the variables at the same time, unlike the test-statistics, which test joint significance individually. The F-statistic from the analysis assesses the fitness of the estimated regression model, and the result confirms a best fit (and joint significance) of the model, as its probability value exceeds 1 percent.

***Table 2.** Estimation.*

Dependent Variable: EMG				
Explanatory Variables	Coefficient	Standard Error	Test-Statistic	Probability
ERV	3.4354	1.2925	2.6579	0.0086
NIM	-0.6785	0.0444	-15.2866	0.0000
SIZ	-0.2635	0.2972	-0.8865	0.3766
C	-17.9830	6.6398	-2.7084	0.0074
R-squared			0.6549	
Adjusted R-squared			0.6491	
F-statistic			111.9770	
Probability (F-statistic)			0.0000	
Durbin-Watson statistic			0.6980	

Author's Compilation from Eviews.

5. Conclusion and Recommendations

This research examined the effects of how volatility in exchange rates contributes to earnings management in Manufacturing companies listed on the Nigerian Exchange Group. The earnings management was estimated using the Kothari et al., [22] discretionary accruals model as a result of its prevalence over the Jones and Modified Jones Discretionary Accrual Model. The analysis and findings in this study therefore explicate that volatility in the trend movement of exchange rate influences earnings management, such that an increase in exchange rate volatility consequently increases the tendencies of using discretionary accruals in managing its reported earnings, especially when material inputs are obtained through foreign exchange. This is mainly affected by manufacturing firm with a related party in other jurisdictions, other than the place of operation. Contrariwise, less observed volatilities in exchange rates tends to mitigate management's possibilities of managing its reported earnings

through discretionary accruals. However, the profitability performance and firm's size indirectly influence earnings management, such that increase in the profitability performance and asset size of manufacturing companies reduces the possibilities of managing reported earnings using discretionary accruals. While the size of the company's assets has insignificant effects on earnings management, profitability performance has a significant effect on earnings management.

Based on the above findings, the report recommends that the Central Bank of Nigeria should develop measures to manage frequent exchange rate swings to protect the industrial sector from currency volatility. In addition, policymakers and government reassess existing import-substitution industrialization methods to encourage local manufacturers to develop commodities that are currently imported, hence increasing demand and consumption of locally produced goods. Furthermore, the Financial Reporting Council of Nigeria should keep a close eye on corporate financial reporting procedures in Nigeria to prevent

opportunistic reporting.

The Financial Reporting Council of Nigeria and Accounting professional bodies shall also mobilize all resources necessary to meet the obligation of monitoring accounting firms' practice standards in the country.

Authors' Contributions

This work was carried out in collaboration among all authors. All authors read and approved the final manuscript.
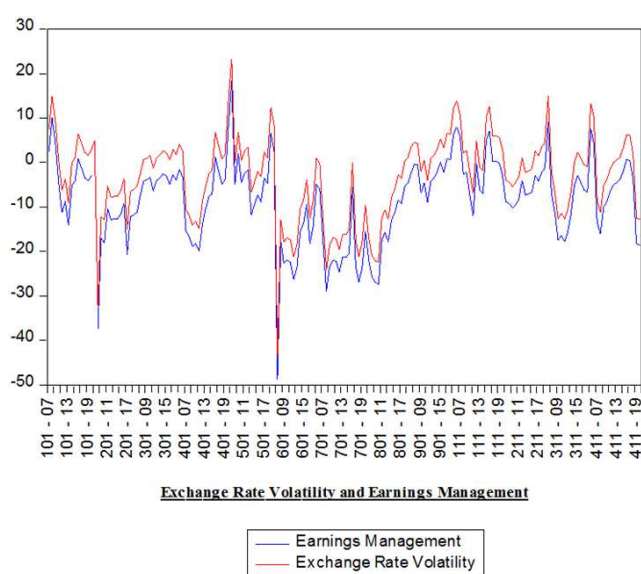
Appendix

Figure 2. *Exchange Rates Volatility and Earnings Management Nexus.*

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