International Journal of Advanced Research in Public Policy, Administration and Development Strategies (IJARPPADS)
Volume 5, Number 1 September, 2021

e-ISSN: 2489-012X
p-ISSN: 2315-8395

Executive Compensation and Earnings Management of Listed Industrial Goods Firms in Nigeria

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Abstract

The study examined the impact of executive compensations on earnings management of listed industrial goods firms in Nigeria. Correlational research design was adopted and the panel regression technique of data analysis was applied using Modified Jone's Model. Secondary data of a sample of nine (9) firms for a period of Ten years (2011-2020) was used and the study found after controlling the effects of firm size that Share-Based Payment and Fixed salary and allowances have a significant negative impact on the earnings management of listed industrial goods firms in Nigeria. Indicating that earnings management reduces as the directors receive more shares and fixed salaries and allowances from their companies, and the results is significant at 99% confidence level. The results also revealed that bonus payment has a significant positive effect on the earnings management of listed industrial goods firms in Nigeria, suggesting that earnings management increase as the directors receive more bonuses from the companies, and the results is statistically significant at 95% confidence level. The study recommends that the policy-makers should provide adequate regulation on the determination of executive compensations, especially equity share payments to the directors of listed industrial goods firms. The study also recommends that the shareholders of the listed industrial goods firms in Nigeria should consider the improvement in the remuneration of executive directors.

Keywords: *Executive compensation, Earnings Management, Firms, Industrial Good Firms*

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Article DOI: 10.48028/iiprds/ijarppads.v5.i1.05

Background to the Study

Earnings management has been the subject matter in literature of corporate research since the occurrence of financial scandals around the world in the Enron Corporation, and WorldCom in the U.S, and Cardbury in Nigeria, among others. These have attracted the attention of many among practitioners, the regulators, researchers and other stakeholders in getting possible solutions to crisis in corporate businesses around the world (Farouk, 2014). There are also cases of earnings management in Nigeria which has brought poor financial reporting and corporate failure. In addition, earnings management practice has been on the increase in recent years, especially among the Nigerian firms. For instance, cases of earnings management to obtain undeserved accounting-based rewards through the presentation of an exaggerated, misleading or deceptive state of financial affairs. This was witnessed in cases relating to the defunct Oceanic Bank Plc, Afribank Plc and Intercontinental Bank Plc. Therefore, there is the need to identify the factors that could reduce the level of earnings manipulations by corporations in Nigeria, particularly in the listed industrial goods sector which serves as one of the most vital to the Nigerian Economy.

The inconsistency in the laws and the choices allowed in the accounting policies have often called for the exercise of judgement and estimates in preparing financial statements. The implications of exercising such judgments are that the self-serving information provided by managers may be as a result of the manager's intention to influence a particular contractual outcome amongst others that relies on reported earnings or to mislead the stakeholders about the underlying economic performance of its organization. Therefore, the issue of occasional judgement in accounting has come to stay rather than its possible elimination. Hence, serious efforts need to be made by researchers to provide factors through which the level of discretion by management can be minimized.

Compensations and rewards paid to executives have been blamed for reason of committing earnings management in the corporate world. This is especially compensations are tired to firm performance which is linked to accounting earnings. Firm executive received compensations in form share-based payment and cash base. Executive compensation and equity incentives payment seems to present a paradox in terms of giving a contribution to firms. Its use may relate to some firms' characteristics and it may represent important and relevant information to owners and management. The negative side regarding the use of share-based payment related to an opportunistic behavior that may be replaced once potential users of this incentive remuneration plan are aware of the benefits of its use when appropriate. Equity compensation allows the executive of the firm to share in the profits via appreciation and can encourage retention, particularly if there are vesting requirements. Equity compensation has been used by many public companies and some private companies. From another perspective, the level of shares held by directors is expected to be associated with the level of earnings management. There are two opposing arguments in respect of directors' ownership and earnings management. First, is the alignment of interest hypothesis which was proposed by Jensen and Meckling (1976), that when managers' ownership stake in a firm increase, it reduces

the agency conflict between shareholders and managers which could, in turn, reduce the scope for opportunistic behavior on the part of managers. Second, it proposes the entrenchment hypothesis which states that ownership stakes beyond a certain level could put managers in a dominant position, which they can use to exploit external minority shareholders. However, taking a position on these arguments, it will be guided by linking executive compensation through share ownership with earnings management.

Moreover, remuneration paid to the board of directors could have a significant relationship with earnings management. There are two conflicting questions about executive remuneration. First, is it board remuneration that influences earnings management? Second, is it earnings management that drives board remuneration? The focus of this study is on the notion that when executive directors are paid high remuneration, there will not be need for them to engage in earnings management. But when their payment is tied to performance, the managers may be tempted to manipulate the accounting earnings to attract higher pay. It is based on this argument that this study examines the effects of executive compensation on earnings management of industrial goods firms in Nigeria.

Objectives of the Study

The main objective of the study is to examine the impact of executive compensations on earnings management of listed industrial goods firms in Nigeria. The specific objectives of the study are to:

i. Investigate the effects of share-based payment to directors on earnings management of listed industrial goods firms in Nigeria.
ii. Determine the effects of fixed salary and allowances payment to directors on earnings management of listed industrial goods firms in Nigeria.
iii. Examine the effects of bonus payments to directors on earnings management of listed industrial goods firms in Nigeria.

Hypotheses of the Study

Based on the above highlighted objectives, the following hypotheses are formulated in null form to be tested in chapter four of this study:

Ho_1: Share-Based payments has no significant effect on earnings management of listed industrial goods firms in Nigeria.
Ho_2: Fixed salary and allowances have no significant effect on earnings management of listed industrial goods firms in Nigeria.
Ho_3: Bonus payments have no significant effect on earnings management of listed industrial goods firms in Nigeria.

Scope and Significance of the Study

The study examines the effects of executive compensations on earnings management of industrial goods firms listed in the Nigerian Stock Exchange (NSE) as at 31st December 2020. The study covers a period of Ten (10) years, starting from 2011 to 2020. The

justification for choosing this period is that it coincided with the period of commencement of new corporate Governance practices in Nigeria.

Students and researchers will benefit from this study as it will contribute to the existing literature in this area on directors' remunerations and earnings management and financial reporting quality. It will enable the SEC and the industrial goods firms to reap the benefits of the need to re-structure, re-compose, re-organize and diversify their governance mechanisms along the findings of the study. The result would have an important policy implication as it striving to improve transparency and quality of financial reporting in the industrial sector. Especially in assessing the effectiveness and otherwise of the existing audit committee and the board in ensuring quality financial reports devoid of financial misstatement.

Literature Review

Temple, Ibanichuka and Ofurum (2020), empirically investigate equity incentives and executive compensation and how they affect real activity management in quoted industrial goods firms in Nigeria. The dependent variable that is real activity management was determined using Roychowdhury models, while the independent variables were proxy by executive stockholdings, bonuses, and fixed salaries. Cross-sectional data were sourced from the audited financial statements of the firms. The Ordinary Least Square (OLS) method of co-integration, unit root, and Granger causality tests were used to determine the extent to which equity incentives and executive compensation affect real activity management. After cross-examination of the validity of the pooled effect, fixed effect, and random effect, the study accepts the random effect model. The study found that the model, the independent variables explain only 6.9 percent variations on the real activity management. The beta coefficient found that executive stockholdings, bonuses, and fixed salaries have a positive effect on real activity management. The study concludes that equity incentives and executive compensation do not have any significant effect on real activity management of quoted industrial goods firms in Nigeria. The study recommends that the policymakers need to provide adequate regulation on the determination of equity incentives of the directors of listed companies; this will reduce the negative effect of ownership concentration for directors and the overbearing influence of directors in annual general meetings.

Douglas (2020) attempts to find correlations between indicators of real earnings management and three different forms of CEO compensation. The study follows to a paper by Roychowdhury, titled *"Earnings Management Through Real Activities Manipulation"* and calculate abnormal cash flow from operations, and abnormal production. These indicate usage of overproduction, reduction of discretionary expenses, and moving sales across periods (Roychowdhury, 2006). For forms of CEO compensation, the study measures them as a ratio of total compensation; and track salary, bonuses, and stock ownership. The findings show that all three of these are significantly correlated to both of our real earnings management indicators. Bonuses have a positive correlation to abnormal production, and a negative correlation to abnormal cash flow from operations.

Salary is positively correlated to both our indicators, and ownership is negatively correlated to both our indicators. The study concludes that yes, the makeup of a CEO's compensation has a significant effect on the usage of real earnings management within the company.

Nelson and Rahim (2018), examined earnings management's influence on directors' remuneration. Taking a calculation of the empirical evidence of earnings management, firm performance, and directors' remuneration, the study was able to demonstrate that pay-performance is not influenced by earnings management. Data for the study were extracted from the annual reports of 678 non-financial public listed companies in Malaysia from 2009- 2011 giving rise to final 2021 observations. The findings highlighted that earnings management played no role in determining the directors' remuneration. However, the findings documented a significant and positive association between the directors' influence and the directors' remuneration. This study contributes to the growing literature by providing evidence which demonstrates that pay-performance was not directly influenced by earnings management but by the influence of the executive directors. More importantly the study documents even under strong governance, Malaysian listed firms are influenced by the executive directors.

Chou and Chan (2018), investigated the impact of CEO characteristics on real activities manipulation achieved by changing the normal operational decisions purposely using a sample of 73 banking institutions with SIC code 6020, 6035 and 6036 during the period 2004 to 2007. Their results present a negative relationship between real earnings management (REM) and some CEO characteristics, including CEO tenure, the directorship on the audit committee and the level of diligence as well. High CEO compensation is found to increase the real earnings management while the levels of pay-performance sensitivities have different influences on it at banks with CEO high (HPPS) and low (LPPS) pay performance-sensitivity respectively. CEO experiences turn out to have a positive effect on earnings management at HPPS banks and a negative effect on LPPS. CEO power has a significant influence on HPPS bank's REM but it is not supported in LPPS banks. Holding other directorship has a significantly positive effect on earnings management at HPPS while it is not at LPPS bank. On the contrary, the CEO's meeting attendance and total compensation have positively affected REM at LPPS but they are not at HPPS. Lastly, they astonishingly found that only CEO experience and profession have a significant moderate effect on the bank's REM after the financial crisis of 2008, however, all CEO characteristics have significant impacts on the bank's earnings management before the crisis. They concluded that experienced CEOs are easy to window-dressing financial statements when facing a serious financial crisis.

Kim et al. (2018), studied CEO and outside director equity compensation: Substitutes or complements for management earnings forecasts. The study was aimed at examining how chief executive officers' equity compensation and that given to the outside directors affect management earnings forecasts and to also ascertain the relationship between these officers as concerns their compensation. The researchers carried out the

investigation by using data for CEO and director compensation and management earnings forecasts from 2006 to 2011. The results of their findings showed that equity compensation has a positive relationship with various measures of disclosure quality including management forecast likelihood, management forecast frequency, and management forecast accuracy and also the incentive mechanism involving equity compensation of chief executive officers and the monitoring mechanism related with equity compensation of directors act as proxies for each other in adding to the frequency of management forecasts and management update.

Ines (2017), examined the effect of discretionary accruals and governance mechanisms in the occurrence of financial statement fraud. The sample consists of 250 annual reports spanning from 2006 to 2010 for listed French companies, which 45 detected fraudulent companies by the Financial Market Authority (AMF). Their findings revealed that discretionary accruals have a positive effect on corporate fraud when distinguishing between positive discretionary accruals (aggressive accounting policy) and negative discretionary accruals (conservative accounting policy); they provide evidence that aggressive accounting manipulation increases the likelihood of financial statement fraud. By contrast, conservative accounting policy is negatively associated with corporate fraud. Additionally, the outside director and ownership concentration are the most significant variables of governance to explain corporate fraud.

Li and Kuo (2017), in a study on CEO equity compensation and earnings management: The role of growth opportunities, obtained the firm characteristics and CEO compensation data of the United States of America non-financial companies from Compustat and exec-comp respectively. The study final sample comprised 6063 firm-year observations of 1487 distinct firms from 2005 to 2009. They identified firm's growth opportunity determined by the Book-to-Market ratio as an organizational environmental factor and used the panel threshold model to examine whether the firm growth opportunity variable was capable of moderating this positive relation. Their results revealed that, for firms with relatively low growth potential, equity incentives motivate managers to manipulate earnings. They maintained that as firm growth opportunities arrive at certain thresholds, equity pay can successfully lessen the agency problem inherent with earnings management. They found that their results still hold and become even more pronounced for the financial crisis period.

Debnath (2017), attempted to analyze the nature and extent of earnings management practices and also to assess the impact of the firm's growth and performance on earnings management through discretionary accruals estimation in India. The study uses a cross-sectional modified Jones model to estimate discretionary accruals, a proxy for earnings management. The researcher used a sample of 756 firm-year observations from the non-financial corporate sector from 2007 to 2015, using a fixed-effect model. The findings of the study confirmed that there is an existence of earnings management practices across the Indian non-financial firms under study, which followed a mixed trend. The findings further showed that the growth of the firm is positively associated with discretionary

accruals while performance is negatively correlated. Nonetheless, among the other control variables viz; the firm's size and age were also found statistically significant influencing variables.

Fabrizi and Parbonetti (2017), using a sample of quarterly observations from US firms over the period 2003-2010, analyzed the impact of CEOs' equity incentives, risk-based incentives, and career concerns on decisions related to the earnings game. Their findings indicated that CEOs trade off the various earnings game strategies according to their incentives. Particularly, they also found that CEOs with high equity incentives and high career concerns take on less in real activity manipulations as compared to executives with low incentives, and they are prone to substituting real earnings management with accrual-based earnings management and/or guiding analysts' expectations. Apart from the above analysis and findings, the researchers also analyzed the economic impact of using real earnings management instead of accrual-based earnings management or guiding analysts' expectations, to meet/beat targets. Their results here indicated that real activity manipulation is associated with lower future market performance. They opined that CEOs appear to understand and anticipate this effect, and when equity incentives and career concerns support their interests with those of shareholders, they keep away from resorting to real earnings management.

Moradi et al (2015), studied the analysis of incentive effects of managers' bonuses on real activities manipulation relevant to future operating performance. In doing this, the researchers carried out their investigation into three stages. Foremost, they investigated the relationship between managers' bonuses, accrual earnings management, and real earnings management. Secondly, they examined if the management has any penchant for earnings management techniques to increase its bonuses and in the end, the researchers investigated the likely effects of earnings management on the future operating performance of the firms. Their study sample was made up of compositional data from 2006 to 2012 study periods. Their findings showed that there is a negative relationship between real earnings management and managers' bonuses. It was discovered that managers have a preference to use accrual earnings management to receive more bonuses. The results also indicated that real earnings management will decrease the performance of the firms in the future and conversely that increased in the managers' bonuses relates to the enhancement of the performance of the firm in the future. They concluded that managers are not ignorant of the negative effects of real earnings management on the future performance of the firm. Furthermore, they stated that managers have a preference to get better the performance of the firm to secure their bonuses especially when the management of accruals is inhibited by their lack of ability.

Marilyn (2014), examined the association between earnings management and CEO compensation during the period 2004 to 2013. He focused on the "option and incentive" component of CEO compensation and the use of real earnings management and accrual-based earnings management. The period of examination excluded the year 2008, as it was the cut-off point that divides the sample period in a pre- and post-crisis sample. The study

sample consisted of 84 individual U.S. Fortune 500 firms (756 firm-year observations) which had CEO compensation data and financial data available. He got his data from the Execu Comp and Compustat database in Wharton Research Data Services (WRDS). The findings indicated a positive association between "option and incentive" compensation and the financial crisis. The study also showed that there is no significant (negative/ positive) association between (real-/accrual-based) earnings management and the financial crisis and that there is a positive association between real earnings management and CEO compensation.

Chu and Song (2012), investigated the inter-relationship between executive compensation, earnings management, and over-investment. Using a sample of 196 Malaysian public listed firms, the findings show a positive endogenous relationship between executive compensation and over-investment. Measuring equity compensation in incentive ratio, for each percent of over-investment, one percent improvement in share prices will increase 23% of executive directors' equity value. Over-investment, however, leads to a decline in executive directors' equity value in large shareholders-controlled firms. Also, one percent of over-investment can explain 12% of earnings management. Nevertheless, earnings management does not explain the executive directors' compensation. In summary, aligning over investment with executive compensation schemes has implied that the existing compensation is insufficient for executive directors to align their interests with the objective to maximize shareholders' value.

Research Design

The study employs correlational research design using panel data to assess the effect of directors' compensation on earnings management of the listed industrial goods firms in Nigeria. The choice of correlational research design in this study is informed by the nature of the research objectives, and the effectiveness of the design in testing relationships and impact of one variable on another. The study is designed in two steps; in the first part, the study estimates earnings management (discretionary accruals from the Modified Jone's Model) from the residuals of the model one; in the last part, the study assesses the effect of directors' compensation on earnings management of listed industrial goods firms in Nigeria.

The population of the study comprise of all the Thirteen (13) companies listed in the Nigerian Stock Exchange Market as at 31st December, 2020. This population is chosen because the industry is the most suitable for studying earnings management due to the largest and most important accrual in their transaction, as such, high managerial discretions. The sample size of the study is Nine (9) firms based on the availability of data that is the financial statements of 4 firms out of the 13 were not accessible, because the firms were not listed on the NSE for all the period covered by this study (2011 through 2020) as shown in Table 3.

Table 1: Population and Sample of the Study

SN	Population of the study	Sample of the study
1	Austin Laz & Company Plc	Berger paints plc
2	Berger Paints Plc	Beta Glass plc.
3	Beta glass plc.	BUA Cement plc
4	BUA Cement plc	CAP plc
5	CAP plc	Cutix plc.
6	Cutix plc.	Dangote Cement plc
7	Dangote cement plc	Greif Nigeria plc
8	Greif Nigeria plc	Lafarge Africa plc.
9	Lafarge Africa plc.	Meyer plc.
10	Meyer plc.	
11	Notore Chemical IND plc	
12	Portland Paints & Products Nigeria plc	
13	Premier Paints plc.	

Source: NSE 2020

Sources and Method of Data Collection

The study uses the secondary sources of data, while the method of data collection involves financial statements; income statement and the statements of financial position of the sampled firms, for the period of ten years (2011-2020). This is because the nature of the study warrants using quantitative data and quantitative methods of analysis. The technique for data analysis is Panel regression technique after addressing the effect of Hettereskedasticity and other factors that may bias the results. The analysis is conducted using STATA 13.0.

The variables of the study comprise of directors' compensation and earnings management. Earnings management in the context of this work is measured by absolute discretionary accruals. Table 3 resent the measurements of the variables of the study.

Table 2: Variables Definitions and Measurements

Variables	Definition/Measurements
Earnings Management (EMG)	Defined as level of discretionary accruals. Measured as residuals from the Model One.
Share-Based Payment (SBP)	Defined and measured as the total value of shares paid to executive at year end.
Fixed Salary and Allowances (FSA)	Defined and measured as the total annual salary and allowances paid to the executive directors at year end.
Bonuses (BNS)	Defined and measured as the total bonuses paid to the directors at year end.
Firm Size (FSZ)	As control variable, is defined and measured as the natural logarithm of total firm's assets.

Therefore, our model from which earnings management is estimated is expressed as follows;

$$TACC_{it} = \beta_0 + \beta_1(\Delta REV_{it} - \Delta REC_{it}) + \beta_2 PPE_{it} + \varepsilon_{it} \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots i$$

Where:

$TACC_{it}$ = Total accruals (earnings minus operating cash flows) of firm i in year t scaled by total assets.

ΔREV_{it} = Changes in revenue (current year sales revenue minus previous year sales revenue) of firm i in year t scaled by total assets.

ΔREC_{it} = Changes in receivables (current year receivables minus previous year receivables) of firm i in year t scaled by total assets.

PPE_{it} = Total Plant, Property and Equipment of firm i in year t scaled by total assets.

And β_1- β_2 are the coefficients/ parameters estimates; $\beta_0$intercept

ε_{it} = Residual (Earnings Management)

After the estimation of the proxy of earnings management from model one above, the study tests the effect of directors' compensation on the earnings management using model two (model of the study). The model is mathematically expressed as follows;

$$EMG_{it} = \beta_0 + \beta_1 SBP_{it} + \beta_2 FSA_{it} + \beta_3 BNS_{it} + \beta_4 FSZ_{it} + \varepsilon_{it} \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots ii$$

Where:

EMG_{it} = Earnings management of firm i in year t

SBP_{it} = Executive directors share-based payment of firm i in year t scaled by total assets

FSA_{it} =Executive directors fixed salary and allowances of firm i in year t scaled by total assets

BNS_{it} = Total bonuses paid to executive directors of firm i in year t scaled by total assets

FSZ_{it} = Firm size of firm i in year t

β_1, β_2, β_3, β_4, are coefficients; $\beta_0$intercept

ε = Residuals

Results and Discussions

Descriptive Statistics

This part deals with the descriptive statistics of the data collected for the study. The descriptive statistics of the data collected for the variables of the study are presented in table 3 as follows:

Table 3: Summary of Descriptive Statistics

Variables	Mean	SD	Minimum	Maximum	OBS
EMG	13.308	4.2806	2.7447	19.767	90
SBP	0.0762	0.0884	0.0000	0.2586	90
FSA	0.5255	0.1572	0.2194	0.6820	90
BNS	0.2379	0.0907	0.0804	0.3912	90
FSZ	20.879	0.9486	19.111	22.311	90

Source: STATA Output (Appendix)

The results in table 3 show that the measure of earnings management (EMG) of listed industrial goods firms in Nigeria has an average value of 13.308 with standard deviation of 4.2806, and minimum value of 2.7447 and 19.767 as the maximum value. The standard deviation signified that data for the EMG deviate from both side of the mean value by 4.2806 during the period under review. This is also an indication of wide dispersion of the data from the mean, thus, the data does not meet the normal distribution.

The summary descriptive statistics in table 3 shows that one of the measures of executive compensation, Share-Based Payment (SBP) of listed industrial goods firms in Nigeria has an average value of 0.0762 (0.076%) with standard deviation of 0.0884, and minimum value of 0 and 0.2586 (0.258%) as the maximum value. The standard deviation signified that data for the SBP deviate from both side of the mean value by 0.0884 during the period under review. This is also an indication of wide dispersion of the data from the mean, and the data does not meet the normal distribution. Table 3 also shows that Fixed Salary and Allowances (FSA) of listed industrial goods firms in Nigeria has an average value of 0.5255 (0.526%) with standard deviation of 0.1572, and minimum value of 0.2194 (0.219%) and 0.682 (0.682%) as the maximum value. The standard deviation signified that data for the FSA deviate from both side of the mean value by 0.1572 during the period under review. This also indicate that the data is widely dispersed from the mean, and the data does not meet the normal distribution.

Moreover, table 3 indicates that Bonuses (BNS) of listed industrial goods firms in Nigeria have an average value of 0.2379 (0.238%) with standard deviation of 0.0907, and minimum value of 0.0804 (0.0804%) and 0.3912 (0.3912%) as the maximum value. The standard deviation signified that data for the BNS deviate from both side of the mean value by 0.0907 during the period under review. This is also an indication of wide dispersion of the data from the mean, and the data does not meet the normal distribution. The table also shows that Firm Size (FSZ) of listed industrial goods firms in Nigeria has an average value of 20.879 (natural logarithm of total assets) with standard deviation of 0.9486, and minimum value of 19.1106 and 22.311 as the maximum value. The standard deviation signified that data for the FSA deviate from both side of the mean value by 0.9486 during the period under review. Therefore, the test of normality is conducted and the results of data normality test of the variables are presented in table 4 as follows;

Table 4: Results for Normal Data Test

Variables	W	V	Z	P-Values	OBS
EMG	0.9358	4.855	3.485	0.0003	90
SBP	0.7260	20.723	6.686	0.0000	90
FSA	0.8076	14.556	5.906	0.0000	90
BNS	0.9755	1.856	1.364	0.0862	90
FSZ	0.9215	5.937	3.929	0.0000	90

Source: STATA Output (Appendix)

The study applies Shapiro-Wilk (W) test for normal data, under this technique, null hypothesis principle is used to check a variable that came from a normally distributed population. The null hypothesis of the test is that the data is normally distributed. In this study, table 4 indicates that data from all the variables of the study are not normally distributed because the P-values are significant at 1% level of significance. Except for BNS which is not statistically significant at 5% level of significance. Based on this, the null hypothesis (that, the data is normally distributed) is rejected for EMG, SBP FSA and FSZ. However, this suggests a more generalized tool for inferential analysis. Therefore, the inferential statistics of the data collected from which the hypotheses of the study are tested are presented and interpreted in the following section.

Correlation Results

In this section, the summary of the Pearson correlation Coefficients of the variables of the study are presented in Table 5 as follows;

Table 5: Summary of Coefficient of Correlation

VARIABLES	EMG	SBP	FSA	BNS	FSZ
EMG	1.0000				
SBP	-0.3895	1.0000			
	(0.0001)				
FSA	0.1704	-0.8556	1.0000		
	(0.1084)	(0.0000)			
BNS	0.3999	0.3186	-0.3559	1.0000	
	(0.0001)	(0.0022)	(0.0006)		
FSZ	0.3277	0.1104	-0.1112	0.3412	1.0000
	(0.0016)	(0.3003)	(0.2968)	(0.0010)	

Source: STATA Output (Appendix)

The results in table 5 show the relationships between the executive compensation (Share-Based Payments, Fixed Salary and Allowances and Bonuses) and earnings management of listed industrial goods firms in Nigeria. The table indicates that there is a significant negative relationship between Share-Based Payment (SBP) and earnings management of listed industrial goods firms in Nigeria during the period covered by the study, from the

correlation coefficient of -0.3895, which is statistically significant at 1% level of significance (p-value 0.0001). This result suggests that earnings management likely decreases with increase in the share payments to executive directors.

The result from the table also shows a positive relationship between Fixed Salary and Allowances (FSA) and earnings management from the correlation coefficient of 0.1704 which is not significant at all levels of significance (p-value 0.1084). This implies that earnings management increases with the increases in the payment of fixed salary and allowances in the listed industrial goods firms Nigeria during the period under review. The result from the table 5 shows a significant positive relationship between Bonuses (BNS) and earnings management from the correlation coefficient of 0.3999 which is statistically significant at 1% level of significance (p-value 0.0001). This implies that earnings management increases with the increases in the payment of bonuses in the listed industrial goods firms Nigeria during the period under review.

Lastly, the result from the table shows a significant positive relationship between Firm Size (FSZ) and earnings management from the correlation coefficient of 0.3277 which is statistically significant at 1% level of significance (p-value 0.0016). This implies that earnings management increases with the increases in the assets size in the listed industrial goods firms Nigeria during the period under review.

Presentation of Regression Results and Hypotheses Testing

This section presents and analyzes the regression results of the models of the study. The hypotheses formulated for the study are also tested in this section based on the results, as presented in table 6a and 6b below;

Table 6a: Summary Robust Fixed Effects Regression Results (Model I)

Variables	Coefficients	Probability-Value
R^2	0.2731	
F-Statistic	27.97	0.0002
Hausman Chi2	7.71	0.0212
Hettest Chi2	7.66	0.0056
Mean VIF	3.73	
REV_REC	-0.8876	0.001
PPE	-0.3404	0.000
CONSTANT	37.960	0.000

Source: STATA Output (Appendix)

Table 6a shows that the Model One of the studies required a fixed effect regression model, because of the Hausman Specification test of the model suggested fixed effects regression model (Hausman Chi2 of 7.71 with p-value of 0.0212). The Breusch and Pagan test for heteroscedasticity (Hettest Chi2 value of 7.66 with p-value of 0.0056) suggested that there is a problem of heteroscedasticity. But the problem is corrected using robust corrected standard error. In addition, the table shows an absence of multicollinearity as evident by

the mean Variance Inflation Factor (VIF) value of 3.73. The VIF value of 10 and above is a sign of perfect collinearity among the independent variables. The results from table 6a also indicate that the independent variables of Model One explained 27.31% of the total variations in the dependent variable, total accruals of listed industrial goods firms in Nigeria during the period under review, from the coefficient of multiple determinations (R^2 value of 0.2731). The table also shows that the model is fitted as evident by the F-Statistics of 27.97 which is statistically significant at 1% level of significance (as indicated by the P-value of 0.0002).

Lastly, table 6a shows that all the parameters of the model REV_REC and PPE are statistically significant at 1% level of significant (P-values of 0.001 and 0.000 respectively). Therefore, the proxy for earnings management which is the residuals from the model are estimated and used in the model two of the study, to test the effects of executive compensation on earnings management of listed industrial goods firms in Nigeria.

Table 6b: Summary Robust Fixed Effects Regression Results (Model II)

Variables	Coefficients	Probability-Value
R^2	0.4649	
F-Statistic	118.87	0.0000
Hausman Chi2	333.77	0.0000
Hettest Chi2	4.82	0.0282
Mean VIF	2.50	
SBP	-0.1188	0.000
FSA	-0.0302	0.024
BNS	0.0369	0.045
FSZ	0.7177	0.001
CONSTANT	-11.6039	0.003

Source: STATA Output (Appendix)

Fixed effects regression model is the most appropriate for model two as suggested by the Hausman Specification test of the model (Hausman Chi2 of 333.77 with p-value of 0.000). Table 6b also shows that Breusch and Pagan test for heteroscedasticity (Hettest Chi2 value of 4.82 with p-value of 0.0282) suggested that there is a problem of heteroscedasticity. But the problem is corrected using robust corrected standard error. The table shows an absence of multicollinearity as evident by the mean Variance Inflation Factor (VIF) value of 3.73. The VIF value of 10 and above is a sign of perfect collinearity among the independent variables. The results from table 6b indicate that the independent variables of the study (Share-Based Payments, Fixed Salary and Allowances and Bonuses, and Firm Size) explained 46.49% of the total variations in the dependent variable (earnings management) of listed industrial goods firms in Nigeria, from the coefficient of multiple determinations (R^2 value of 0.4649). The table also shows that the model is fitted as evident by the F-Statistic of 118.87 which is significant at 1% level of significance (as indicated by the P-value of 0.0000). Therefore, the test of the research hypotheses can be conducted from the results in table 6b.

Table 6b shows that Share-Based Payment (SBP) has a significant negative impact on the earnings management of listed industrial goods firms in Nigeria as indicated by the coefficient of -0.1188 which is statistically significant at 1% level of significance (from the P-value of 0.000). This implied that earnings management reduces as the directors receive more shares from the companies, and the results is significant. Based on this, the study rejects the null hypothesis one (H_{01}) which state that, Share-Based payments has no significant effect on earnings management of listed industrial goods firms in Nigeria. Therefore, the study infers that share-based payment has a significant negative impact on the earnings management of listed industrial goods firms in Nigeria during the period.

The table also indicates that fixed salary and allowances (FSA) has a significant negative effect on the earnings management of listed industrial goods firms in Nigeria, from the coefficient of -0.0301 which is statistically significant at 5% level of significance (from the p-value of 0.024). This implied that earnings management reduces as the directors receive more fixed salary and allowances from the companies, and the results is statistically significant at 99% confidence level. Based on this, the study rejects the null hypothesis two (H_{02}) which states that, Fixed salary and allowances have no significant effect on earnings management of listed industrial goods firms in Nigeria. Therefore, the study infers those executive compensations in form of fixed salary and allowances reduces earnings management of listed industrial goods firms in Nigeria during the period covered by the study.

The regression results from table 6b shows that Bonus payment (BNS) has a significant positive effect on the earnings management of listed industrial goods firms in Nigeria, from the coefficient of 0.0369 which is statistically significant at 5% level of significance (from the p-value of 0.045). This implied that earnings management increase as the directors receive more bonuses from the companies, and the results is statistically significant at 95% confidence level. Based on this, the study rejects the null hypothesis three (H_{03}) which states that, bonuses have no significant effect on earnings management of listed industrial goods firms in Nigeria. Therefore, the study infers those executive compensations in form of bonuses increase earnings management of listed industrial goods firms in Nigeria during the period covered by the study.

Lastly, the table shows that firm size (FSZ) has a significant positive effect on earnings management of listed industrial goods firms in Nigeria, from the regression coefficient of 0.7177, which is statistically significant at 1% level of significant (p-value of 0.001). This implied that larger firms have higher earnings management.

Conclusions and Recommendations

Emanating from the research findings, the study concludes a significant relationship between the executive compensation (Share-Based Payments, Fixed Salary and Allowances and Bonuses) and earnings management of listed industrial goods firms in Nigeria during the period under review. The study concludes after controlling for firm size, that Share-Based Payment and fixed salary and allowances have a significant

negative impact on the earnings management of listed industrial goods firms in Nigeria. Indicating that earnings management reduces as the directors receive more shares and fixed salary and allowances as compensations from their companies, and the results is statistically significant. The study also concludes that Bonus payment to executive directors has a significant positive effect on the earnings management of listed industrial goods firms in Nigeria, suggesting that earnings management increase as the directors receive more bonuses from the companies, and the results is statistically significant at 95% confidence level.

Based on the findings and conclusions drawn, the study recommends that the policy-makers should provide adequate regulation on the determination of executive compensations, especially equity incentives of the directors of listed industrial goods firms. The study also recommends that the shareholders of the listed industrial goods firms in Nigeria should consider the improvement in the remuneration of executive directors. This will go a long way in preventing them from engaging in earnings management. Also, the remuneration of the executive directors should not be tied to their performance in order to prevent earnings manipulation from directors just to get higher pays. Lastly, the study recommends that there should be a defined salary structure of the executive directors of the quoted industrial goods firms.

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APPENDICES

```
. xtset id year, yearly
       panel variable:  id (strongly balanced)
        time variable:  year, 2011 to 2020
                delta:  1 year

. xtsum emg sbp fsa bns fsz
```

Variable		Mean	Std. Dev.	Min	Max	Observations	
emg	overall	13.30833	4.280648	2.744791	19.76727	N =	90
	between		1.572919	11.95214	15.34881	n =	9
	within		4.012489	2.898824	21.12346	T =	10
sbp	overall	.0762067	.0883541	0	.2586	N =	90
	between		.0405564	.02672	.11395	n =	9
	within		.0795485	-.0294133	.2607167	T =	10
fsa	overall	.5254856	.1571889	.2194	.682	N =	90
	between		.061731	.45973	.59458	n =	9
	within		.1458869	.1759256	.7405755	T =	10
bns	overall	.2379989	.090719	.0804	.3912	N =	90
	between		.0340876	.20742	.29046	n =	9
	within		.0847672	.0883989	.4049889	T =	10
fsz	overall	20.8799	.9486475	19.11056	22.31127	N =	90
	between		.5523445	19.75815	21.7012	n =	9
	within		.7910113	19.44555	22.49019	T =	10

```
. swilk emg sbp fsa bns fsz
```

Shapiro-Wilk W test for normal data

Variable	Obs	W	V	z	Prob>z
emg	90	0.93581	4.855	3.485	0.00025
sbp	90	0.72603	20.723	6.686	0.00000
fsa	90	0.80756	14.556	5.906	0.00000
bns	90	0.97546	1.856	1.364	0.08621
fsz	90	0.92151	5.937	3.929	0.00004

$$TACC_{it} = \beta_0 + \beta_1(\Delta REV_{it} - \Delta REC_{it}) + \beta_2 PPE_{it} + \varepsilon_{it} \dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots i$$

```
. reg tacc rev_rec ppe
```

Source	SS	df	MS		
Model	1632.50672	2	816.253362	Number of obs	= 90
Residual	4306.38551	87	49.4986841	F(2, 87)	= 16.49
				Prob > F	= 0.0000
Total	5938.89224	89	66.7291263	R-squared	= 0.2749
				Adj R-squared	= 0.2582
				Root MSE	= 7.0355

tacc	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
rev_rec	-.9091848	.1630806	-5.58	0.000	-1.233325	-.5850446
ppe	-.3718803	.0916658	-4.06	0.000	-.554076	-.1896846
_cons	39.7787	5.96166	6.67	0.000	27.92926	51.62815

```
. hettest

Breusch-Pagan / Cook-Weisberg test for heteroskedasticity
         Ho: Constant variance
         Variables: fitted values of tacc

         chi2(1)      =     7.66
         Prob > chi2  =   0.0056
. vif
```

Variable	VIF	1/VIF
ppe	3.73	0.267883
rev_rec	3.73	0.267883
Mean VIF	3.73	

```
. xtreg tacc rev_rec ppe, fe

Fixed-effects (within) regression               Number of obs      =        90
Group variable: id                              Number of groups   =         9

R-sq:  within  = 0.2846                         Obs per group: min =        10
       between = 0.2091                                        avg =      10.0
       overall = 0.2731                                        max =        10

                                                F(2,79)            =     15.71
corr(u_i, Xb)  = -0.0042                        Prob > F           =    0.0000
```

tacc	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
rev_rec	-.8876139	.1626161	-5.46	0.000	-1.211293	-.5639346
ppe	-.3404079	.0886705	-3.84	0.000	-.5169021	-.1639137
_cons	37.96049	5.776948	6.57	0.000	26.46176	49.45921
sigma_u	2.9903276					
sigma_e	6.7520979					
rho	.16397553	(fraction of variance due to u_i)				

```
F test that all u_i=0:     F(8, 79) =     1.93                 Prob > F = 0.0665

. est store fixed
```

```
. xtreg tacc rev_rec ppe, re

Random-effects GLS regression                   Number of obs      =        90
Group variable: id                              Number of groups   =         9

R-sq:  within  = 0.2830                         Obs per group: min =        10
       between = 0.2314                                        avg =      10.0
       overall = 0.2749                                        max =        10

                                                Wald chi2(2)       =     33.07
corr(u_i, X)   = 0 (assumed)                    Prob > chi2        =    0.0000

------------------------------------------------------------------------------
        tacc |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
     rev_rec |  -.9071875   .1624744    -5.58   0.000    -1.225631   -.5887435
         ppe |  -.3694515   .0911421    -4.05   0.000    -.5480868   -.1908161
       _cons |   39.63585   5.932133     6.68   0.000     28.00908    51.26261
-------------+----------------------------------------------------------------
     sigma_u |  .62097178
     sigma_e |  6.7520979
         rho |  .00838704   (fraction of variance due to u_i)
------------------------------------------------------------------------------

. est store random

. hausman fixed random

                 ---- Coefficients ----
             |      (b)          (B)            (b-B)     sqrt(diag(V_b-V_B))
             |    fixed        random       Difference          S.E.
-------------+------------------------------------------------------------
     rev_rec |  -.8876139    -.9071875        .0195736        .0067877
         ppe |  -.3404079    -.3694515        .0290436               .
------------------------------------------------------------------------------
                           b = consistent under Ho and Ha; obtained from xtreg
            B = inconsistent under Ha, efficient under Ho; obtained from xtreg

    Test:  Ho:  difference in coefficients not systematic

                  chi2(2) = (b-B)'[(V_b-V_B)^(-1)](b-B)
                          =    -1.39    chi2<0 ==> model fitted on these
                                        data fails to meet the asymptotic
                                        assumptions of the Hausman test;
                                        see suest for a generalized test

. hausman fixed random, sigmamore

                 ---- Coefficients ----
             |      (b)          (B)            (b-B)     sqrt(diag(V_b-V_B))
             |    fixed        random       Difference          S.E.
-------------+------------------------------------------------------------
     rev_rec |  -.8876139    -.9071875        .0195736        .0441705
         ppe |  -.3404079    -.3694515        .0290436        .0110436
------------------------------------------------------------------------------
                           b = consistent under Ho and Ha; obtained from xtreg
            B = inconsistent under Ha, efficient under Ho; obtained from xtreg

    Test:  Ho:  difference in coefficients not systematic

                  chi2(2) = (b-B)'[(V_b-V_B)^(-1)](b-B)
                          =        7.71
                Prob>chi2 =      0.0212
```

```
. xtreg tacc rev_rec ppe, fe robust

Fixed-effects (within) regression               Number of obs      =        90
Group variable: id                              Number of groups   =         9

R-sq:  within  = 0.2846                         Obs per group: min =        10
       between = 0.2091                                        avg =      10.0
       overall = 0.2731                                        max =        10

                                                F(2,8)             =     27.97
corr(u_i, Xb)  = -0.0042                        Prob > F           =    0.0002

                                    (Std. Err. adjusted for 9 clusters in id)
------------------------------------------------------------------------------
             |               Robust
        tacc |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
     rev_rec |  -.8876139   .1721419    -5.16   0.001    -1.284574   -.4906539
         ppe |  -.3404079    .045696    -7.45   0.000     -.445783   -.2350328
       _cons |   37.96049   3.496084    10.86   0.000      29.8985    46.02247
-------------+----------------------------------------------------------------
     sigma_u |  2.9903276
     sigma_e |  6.7520979
         rho |  .16397553   (fraction of variance due to u_i)
------------------------------------------------------------------------------

. predict residual
(option xb assumed; fitted values)
```

$$EMG_{it} = \beta_0 + \beta_1 SBP_{it} + \beta_2 FSA_{it} + \beta_3 BNS_{it} + \beta_4 FSZ_{it} + \varepsilon_{it} \dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots ii$$

```
. pwcorr emg sbp fsa bns fsz, star (0.05) sig

             |      emg      sbp      fsa      bns      fsz
-------------+-------------------------------------------------
         emg |   1.0000
             |
             |
         sbp |  -0.3895*  1.0000
             |   0.0001
             |
         fsa |   0.1704  -0.8556*  1.0000
             |   0.1084   0.0000
             |
         bns |   0.3999*  0.3186* -0.3559*  1.0000
             |   0.0001   0.0022   0.0006
             |
         fsz |   0.3277*  0.1104  -0.1112   0.3412*  1.0000
             |   0.0016   0.3003   0.2968   0.0010

. reg emg sbp fsa bns fsz

      Source |       SS       df       MS              Number of obs =      90
-------------+------------------------------           F(  4,    85) =   26.14
       Model |  75.5465601     4   18.88664             Prob > F      =  0.0000
    Residual |  61.4208904    85  .722598711            R-squared     =  0.5516
-------------+------------------------------           Adj R-squared =  0.5305
       Total |  136.967451    89  1.53896012            Root MSE      =  .85006

------------------------------------------------------------------------------
         emg |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
         sbp |   -.132947   .0197168    -6.74   0.000    -.1721493   -.0937448
         fsa |  -.0354622    .011242    -3.15   0.002    -.0578144    -.01311
         bns |    .063636   .0112399     5.66   0.000     .0412882    .0859839
         fsz |   .2922535   .1010763     2.89   0.005     .0912868    .4932202
       _cons |    -2.9709    2.15998    -1.38   0.173    -7.265518    1.323719
------------------------------------------------------------------------------

. hettest

Breusch-Pagan / Cook-Weisberg test for heteroskedasticity
         Ho: Constant variance
         Variables: fitted values of emg

         chi2(1)      =     4.82
         Prob > chi2  =   0.0282
```

```
. vif
```

Variable	VIF	1/VIF
fsa	3.85	0.260000
sbp	3.74	0.267536
bns	1.28	0.780888
fsz	1.13	0.883078
Mean VIF	2.50	

```
. xtreg emg sbp fsa bns fsz, fe

Fixed-effects (within) regression               Number of obs      =        90
Group variable: id                              Number of groups   =         9

R-sq:  within  = 0.6875                         Obs per group: min =        10
       between = 0.0397                                        avg =      10.0
       overall = 0.4649                                        max =        10

                                                F(4,77)            =     42.36
corr(u_i, Xb)  = -0.2371                        Prob > F           =    0.0000
```

emg	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
sbp	-.1187508	.0164275	-7.23	0.000	-.1514622	-.0860395
fsa	-.0301595	.0090774	-3.32	0.001	-.0482348	-.0120841
bns	.0368836	.00992	3.72	0.000	.0171302	.0566369
fsz	.7176778	.102837	6.98	0.000	.5129032	.9224525
_cons	-11.60385	2.15892	-5.37	0.000	-15.90281	-7.304889
sigma_u	.7047724					
sigma_e	.68171733					
rho	.51662378	(fraction of variance due to u_i)				

```
F test that all u_i=0:     F(8, 77) =     6.90                 Prob > F = 0.0000

. est store fixed


. xtreg emg sbp fsa bns fsz, re

Random-effects GLS regression                   Number of obs      =        90
Group variable: id                              Number of groups   =         9

R-sq:  within  = 0.6123                         Obs per group: min =        10
       between = 0.2573                                        avg =      10.0
       overall = 0.5516                                        max =        10

                                                Wald chi2(4)       =    104.55
corr(u_i, X)   = 0 (assumed)                    Prob > chi2        =    0.0000
```

emg	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
sbp	-.132947	.0197168	-6.74	0.000	-.1715912	-.0943029
fsa	-.0354622	.011242	-3.15	0.002	-.0574962	-.0134282
bns	.063636	.0112399	5.66	0.000	.0416063	.0856658
fsz	.2922535	.1010763	2.89	0.004	.0941476	.4903594
_cons	-2.9709	2.15998	-1.38	0.169	-7.204382	1.262583
sigma_u	0					
sigma_e	.68171733					
rho	0	(fraction of variance due to u_i)				

```
. est store random
```

```
. hausman fixed random
```

	Coefficients (b) fixed	(B) random	(b-B) Difference	sqrt(diag(V_b-V_B)) S.E.
sbp	-.1187508	-.132947	.0141962	.
fsa	-.0301595	-.0354622	.0053028	.
bns	.0368836	.063636	-.0267525	.
fsz	.7176778	.2922535	.4254243	.0189482

b = consistent under Ho and Ha; obtained from xtreg
B = inconsistent under Ha, efficient under Ho; obtained from xtreg

Test: Ho: difference in coefficients not systematic

chi2(4) = (b-B)'[(V_b-V_B)^(-1)](b-B)
= 333.77
Prob>chi2 = 0.0000
(V_b-V_B is not positive definite)

```
. xtreg emg sbp fsa bns fsz, fe robust

Fixed-effects (within) regression               Number of obs      =        90
Group variable: id                              Number of groups   =         9

R-sq:  within  = 0.6875                         Obs per group: min =        10
       between = 0.0397                                        avg =      10.0
       overall = 0.4649                                        max =        10

                                                F(4,8)             =    118.87
corr(u_i, Xb)  = -0.2371                        Prob > F           =    0.0000

                                    (Std. Err. adjusted for 9 clusters in id)
```

emg	Coef.	Robust Std. Err.	t	P>|t|	[95% Conf.	Interval]
sbp	-.1187508	.0180927	-6.56	0.000	-.1604727	-.077029
fsa	-.0301595	.0108058	-2.79	0.024	-.0550776	-.0052413
bns	.0368836	.0155682	2.37	0.045	.0009832	.0727839
fsz	.7176778	.1330137	5.40	0.001	.4109476	1.024408
_cons	-11.60385	2.719848	-4.27	0.003	-17.87583	-5.331867
sigma_u	.7047724					
sigma_e	.68171733					
rho	.51662378	(fraction of variance due to u_i)				

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