

# **Diverse Performance Measurements and Earnings Management in Quoted Manufacturing Companies in Nigeria**

## **Abstract**

The increasing rate of business failure in Nigeria shortly after posting impressive results has raised the issue of earnings management to the forefront. This study examined the relationship between diverse performance measurements and earnings management in quoted manufacturing companies in Nigeria. Twenty seven firms quoted on the Nigerian Stock Exchange (NSE) were through purposive sampling selected for the study. Financial statements for 2008 – 2015 were used as secondary data while a questionnaire was administered on both the consumers of the products and staff of the sampled companies. The hypotheses were tested using Ordinary Least Squares (OLS) regression analysis. Findings from the study suggested that the impact of financial performance measures on earnings management is negatively significant while the relationship between non-financial performance measures and earnings management is positively non-significant. It was revealed that the combined influence of financial and non-financial performance measures on earnings management in quoted manufacturing companies in Nigeria is 35.5%. It was concluded that firms were only concerned about financial performance measures to engage in earnings management. It was recommended that investors and analysts should pay close attention to financial performance measures of manufacturing firms. Regulatory authorities such as Economic and Financial Crime Commission (EFCC) should intensify efforts at ensuring that firms do not manage earnings to look impressive in order to obtain loans. Government should create conducive environment for companies to operate maximally to avoid earnings management.

**Key Words: Diverse performance measures, Earnings Management, Financial performance Measures, Non-financial Performance Measures.**

## **1. INTRODUCTION**

Investors in a firm use earnings as a measure of success in business and a guide to future actions about their investment in the firm. Earnings are the basis upon which dividends are declared, the tax liability is determined and future expansion is hinged. It is, therefore, imperative that earnings must reflect economic reality faithfully. However, earnings at times are manipulated by managers to reflect good performance even when actual performance is to the contrary. This action by management may mislead investors and other users of accounting reports on conclusions about the reported results of the firm, especially when evaluating the firm's performance using only financial performance measures.

Earnings management has led to a number of business failures. Enron in the United States of America and Oceanic bank in Nigeria are examples of firms that have been liquidated as a result of earnings management. Since earnings management involves taking deceptive steps to present financial statements that suit or protect management interests, the firms were operating in falsehood until reality caught up with them, thereby, resulting in their liquidation.

Although the managers of the liquidated firms prepared their financial statements annually, shareholders and other users of the financial statements could not detect the failures early by using only the financial performance evaluation measures. This is as a result of the fact that the financial performance measures are under the control of the managers of the firms. As stated by Daferighe (2014), accounting numbers as presented in traditional financial statements seem to be losing relevance for investment, credit and management decision making.

Management of firms is aware that many investors are only interested in the reported earnings and dividend declared, hence, management sometimes engage in earnings management to impress investors and project the firm as doing well to outsiders. Earnings management affects shareholders and lenders of firms negatively. Consequently, many investors have not just lost confidence in the credibility of financial statements but have also lost wealth due to earnings management.

Previous studies on performance measurements and earnings management focused on either financial performance measures and earnings management or non-financial performance measures and earnings management without combining the two performance measurements in one study. In addition, most early studies on earnings management were concerned with the detection of earnings management without evaluating the impact of diverse performance measures on earnings management. The continuous evaluation of firm's performance using only financial performance measures or non-financial performance measures may give managers loopholes to engage in earnings management.

This study is an attempt to contribute to the existing literature by examining the relationships between financial, non-financial performance measures and earnings management in quoted manufacturing companies in Nigeria as a developing economy.

The specific objectives that the study is aimed at achieving are; to evaluate the relationship between financial performance measures and earnings management in quoted manufacturing companies in Nigeria; assess the impact of non-financial performance measures on earnings management in quoted manufacturing companies in Nigeria and examine the combined impact of the financial and non-financial performance measures on earnings management in quoted manufacturing companies in Nigeria.

### **1.1 Research Hypotheses**

The following null hypotheses were formulated for the study:

- H<sub>01</sub>: There is no significant relationship between financial performance measures and earnings management in quoted manufacturing companies in Nigeria.
- H<sub>02</sub>: Non-financial performance measures do not significantly influence earnings management in quoted manufacturing companies in Nigeria.

H<sub>03</sub>: The combined impact of financial and non-financial performance measures on earnings management is not significant in quoted manufacturing companies in Nigeria.

## 1.2 Concept of Earnings Management

Earnings information is relevant to accountants, shareholders, creditors and other users of accounting reports in assessing corporate performance and it is capable of making a difference in decisions if the information is reliable. Earnings however, is a measure of firm's performance that may have questionable reliability. This is as a result of the fact that earnings are sometimes managed through various techniques to achieve some specific objectives.

Duncan (2001) asserts that earnings reliability becomes questionable when motivation exists for the reported earnings. Earnings management in this study is defined as the distortion of accounting values reported in financial statements to suit the interests of management. When there is earnings management, the earnings figure used to evaluate the financial performance may not be a true and fair representation of the business transactions of the company. This reduces the reliability of the accounting information in the financial statements.

Doorn (2013) states that earnings management is a manager's choice of accounting policies or actions affecting earnings, so as to achieve some specifically reported objectives. Nejad, Zeynali and Alavi (2013) describe earnings management as the manipulation of reported earnings that will not represent economic earnings at every point in time. This means that earnings management involves adjustment of earnings to ensure that it reaches desired level. This view is supported by Soumehsaraei and Jafarpour (2014) in their definition of earnings management as efforts at concealing actual operating performance of the company while using created artificial accounting records.

## 1.3 Motives for Earnings Management

Earnings management is carried out in order to achieve a specific objective. According to Healy and Wahlen (1999), earnings management is the use of judgment in financial reporting either to mislead stakeholders about a firm's underlying economic performance or to influence contractual outcomes that depend on reported accounting numbers.

Fiserova (2011) identifies two striking reasons for the pervasiveness of earnings management as either deliberate action or lack of knowledge. In this study, these two reasons are regarded as interwoven, especially, in owner-managed firms. Many entrepreneurs deliberately distort accounting information as a result of insufficient knowledge of the consequences of their actions. Their actions result from the need to make immediate gains such as payment of low taxes or to secure contracts.

Many of these entrepreneurs ask for revenues to be adjusted upward so as to secure contracts and that the same revenues should be adjusted downwards when preparing tax returns. This action had made some of the firms to lose their bids because of the contradicting figures as reported in the accounts submitted and the value stated in the tax clearance certificates. Even when accountants

caution them of the consequences of their actions, they insist and query the accountants' interest in the alternative.

The ownership structure of the company must be examined when considering the reasons for earnings management. For owner-managed firms, reasons for earnings management could be: (1) to avoid high tax payments (2) circumvention of government regulations (3) obtaining favourable loan terms, and (4) seeking for contracts.

Where, however, principal-agent relationship is established by employing managers to oversee the affairs of the company on behalf of the equity-holders, earnings management motives as identified by American Institute of Certified Public Accountants (AICPA) are: (1) investors desire for decreased risk but high returns (2) reduction in risk when variability of earnings decreased (3) increased rewards when income continuously increase, and (4) enhanced market value when analysts' forecast is met. Popescu and Nisulescu (2013) state that earnings management has various effects on the financial reports such as change of value and structure of costs, change of value and structure of revenues, change in the value of assets and liabilities.

#### **1.4 Techniques for Earnings Management**

Earnings management is practised through some techniques employed by management. The procedure adopted in classifying transactions, fictitious revenue, timing differences, concealed expenses and related party transactions can lead to earnings management. According to Graham, Harvey and Rajgopal (2005), the manipulation of accounts includes how to classify items in the profit or loss statement and the statement of financial position. AICPA (2005) specifies some techniques used in earnings management as (i) not recording accounts payable, (ii) not recording accrued liabilities, (iii) recording unearned revenues as earned, and (v) not recording loans or keeping liabilities off the books. Akers, Giacomino and Bellovary (2007) highlight various earnings management techniques as changing accounting methods, recognising one-time items, deferring expenses and accelerating revenues.

Odia and Ogiedu (2013) document some earnings management techniques as (1) change in accounting policy (2) management of discretionary accruals (3) timing of some transactions to smooth revenue based on the level of income and (4) re-classification and presentation of financials to obtain a good level of profitability.

This study focuses on discretionary accruals as a technique for earnings management. Scholer (2005) states that discretionary accruals are generally accepted as the influence management has had on preparing the financial statements since they represent the part of the total accruals which cannot be explained by the natural development in certain key accounting item. The part of total accruals that can be explained by natural development is the non-discretionary accruals.

#### **1.5 Environmental Factors in Earnings Management**

Earnings management do not occur in a vacuum; managers, auditors and bankers are parties involved (Crutchley, Jensen & Marshall, 2007). Managers especially may manipulate earnings based on the environmental factor. During an economic recession, earnings may be managed not to

scare investors but to pretend that the company is not affected by the recession. Davidson (2002) posits that due to pressure on companies during economic turbulence, managers often improve the bottom-line figure. Pressures on managers to improve financial figures could be as a result of market expectations, personal realisation of a bonus, maintenance of position within a group of companies, or achievement of consensus estimates (Odia & Ogiedu, 2013).

## 1.6 Detection of Earnings Management

Earnings management can be carried out through real earnings manipulation or through discretionary accruals. Real earnings management involves changes in accounting policies, reclassification of items and direct manipulation of transactions such as sale and leases back. These practices can easily be detected by users of accounting reports. However, earnings management that is done through discretionary accruals is more difficult to detect.

Attempt to discover earnings management through discretionary accruals was first made by Healy (1985) by equating discretionary accrual to total accrual. Discretionary accruals were used as a proxy for earnings management. Healy (1985) model was criticised for disregarding non-discretionary accruals.

Jones (1991) divides total accruals into non-discretionary and discretionary accruals and discretionary accruals were used as earnings management proxy. Non-discretionary accruals are obligatory expenses or non-avoidable expenses that have not been settled but recorded in the books of accounts. Discretionary accruals which are abnormal accruals were taken as the difference between total accruals and non-discretionary accruals. Jones (1991) model is the foundation for detection of earnings management.

Kothari, Leone and Wasley (2005) modified Jones model by factoring return on assets (ROA) into the model. ROA was used to mitigate the effect of variation in performance over the study period. Kothari *et al.* (2005) model was criticised for mis-specification of the variables.

## 1.7 Performance Measurement

Operations of companies cannot be ascertained until their performances are evaluated through any performance measurement. Performance measurement plays an important role in executing strategy and enhancing organisational performance (Stede, Chow & Lin, 2006). According to Institute of Chartered Accountants Nigeria (ICAN) (2014), “a performance management system may be linked to a system of rewarding individuals for the successful achievement of planning targets”.

Performance measurement can generally be grouped into financial performance measures and non-financial performance measures. The two represent the diverse ways of measuring performance.

## 1.8 Financial Performance Measurement

Financial performance measurement is the identification of the relationship between variables in a firm's financial statements in a view to ascertaining the financial strength and weaknesses of the

firm. Block and Hirt (2000) assert that financial performance measurement is used to weigh and evaluate operating performance of the firm. There are various indexes used to evaluate the financial performance of companies and they are products of accounting information extracted from the Income Statement, Statement of Financial Position, Statement of Changes in Equity and Statement of the Cash flow of the firm.

Financial performance measures can be classified into four important categories such as profitability, leverage, liquidity and activity (Pandey, 2005).

## **1.9 Financial Performance Measures and Earnings Management**

Earnings represent the profit declared by the firm during a specific period. There are specific financial performance measures that impact on earnings management. In this study three of such indicators, namely, Return on Equity (ROE), leverage and growth in revenue are considered to be of importance.

### **(a) Return on Equity**

ROE is a ratio that shows earning power on shareholders' book investment. ROE is a veritable reason for the manipulation of earnings when managers want to impress shareholders. The higher the return on equity, the higher the perceived value addition to shareholders' wealth.

### **(b) Leverage**

Leverage represents the extent to which external financial assistance has been given to the company in relation to the companies' assets. The higher the ratio, the lower the claim of ownership of the company by equity owners. Leverage is a veritable reason for the manipulation of accounting numbers. Duke and Hunt (1990) assert that leverage is a proxy for tightness of debt covenant restraints and that the higher the leverage, the higher the probability for the firm to violate debt covenant. Consequently, firms with high leverage have the incentive to manipulate earnings to be favoured. Callao and Jarne (2010) also canvassed this view that higher leverage causes greater earnings management.

### **(c) Growth in Revenue**

Growth is the increase in the index used for its determination by the company in one year over another year. Growth is a variable used for performance differences. In this study, growth is determined as the percentage change in revenue in the year under study over the preceding year revenue. Skinner and Sloan (2002) argue that firms that experience growth engage more in earnings management because the market has higher expectations for growing firms. Managers in such firms would want to report certain earnings to avoid disappointment from shareholders.

## **1.10 Non- Financial Performance Measurement**

Non-financial performance measures are evaluation measures that do not involve the use of monetary values but will add value to organisational performance. Specifically, non-financial performance indicators can be grouped into three such as human resources, customer satisfaction and product quality.

Non-financial performance measurement variables used by Zuriekat, Salamech and Alrawashdeh (2011) are customers, operations, innovation, employees, suppliers and quality. Spencer, Joiner and Salmon (2009) post six non-financial variables as the development of new products, sales volume,

market share, personnel development and political-public affairs. Non-financial performance measures could be classified into labour rate turnover, absenteeism rates, average hour worked, training days per year, percentage of new returning customers, customer satisfaction, speed of complaint's resolution, proportion of reworked items during production, proportion of failed products, the number of successful inspection and proportion of returns (ICAN, 2014).

The use of non-financial performance measures may enhance performance thereby, reducing earnings management. As stated by Ittner, Larcker and Randall (2003), the addition of non-financial performance measures in performance evaluation will keep managers from sub-optimising or improve one measure at the expense of others. Edvinsson and Malone (1997) and Lillis (2002) state that the broadening of the set of performance measures enhances organisational performance as managers have incentives to concentrate on those activities for which their performance is measured at the expense of those not measured, but greater measurement diversity can reduce such dysfunctional effects. The following non-financial performance measures impact on performance and are likely to affect earnings management; Strength of Corporate Culture, Executive Compensation Policy, Board Size, Auditor Quality and Customer Satisfaction.

Customer satisfaction enhances customer patronage as high satisfaction creates an emotional bond with the brand or company (Kotler, 2003). Satisfaction is a function of the use and esteem values derived from the product. The perceived quality and perceived value of a product affect customer satisfaction. A satisfied customer is likely to continue to patronise the products and also promote the company's products through positive words of mouth. In this study, customer satisfaction variables are perceived quality and perceived value.

### **Perceived Quality**

Perceived quality is simply the overall customer's assessment of the standard process of receiving customer services (Hellier, Ceursen, Carr & Rickard 2003 as cited in Ranjbarian, Sanayei, Kaboli & Hadadian, 2012). The quality of the product is that which satisfies the needs of users which may include different features and it enhances the performance of the product (Dunk, 2002 as cited in Saleem, Ghafar, Ibrahim, Yousuf & Ahmed, 2015). Parasuraman, Zeithanol and Berry (1994) find evidence of the relationship between perceived quality and customer satisfaction. When customers are satisfied with the quality of the product, decisions will be made to purchase the product continually, thereby, increasing revenue and earnings of the firm.

### **Perceived Value**

Perceived value is the consumer's overall assessment of the utility of a product based on perceptions of what is received and what is given (Zeithaml, 1988 as cited in Adeola and Adebisi, 2014). According to Kotler (2003), customer perceived value is the gap between all benefits expected and all the costs of a market offering. When the customer's perception of the value received from a product is equal to the money paid for such product, the customer will not only make a repeat purchase but also promote the product through positive words of mouth to other prospective buyers. This will enhance profitability thereby, minimising earnings management.

### **Employees' Satisfaction**

Employees' satisfaction is the actions taken to enhance employees' comfort and welfare while in the employment of the firm as well as after the retirement from service. Investment in employees' development, training, wages and reward policies and career plans will enhance productivity and impact on profitability. Employees' satisfaction variables are the degree of empowerment and training.

### **Degree of Employees' Empowerment**

Employees' empowerment relate to career plans, salaries, wages and bonus policy, retirement plans and general welfare. Employees that are well taken care of will be committed to their work under normal circumstances. A committed worker will ensure increased productivity. With increased productivity, products will be available when required. Committed workers will ensure that orders are promptly served and that will enhance profitability, thereby minimising earnings management.

### **Employees' Training**

Training includes exposing workers to new skills, career development and involvement in decision making that affects their jobs. An employee that is constantly trained will introduce product innovations that will improve product quality and enhance product patronage. Training of employees includes exposure to efficient delivery of customers' orders, attention to customers' complaints and quick replacement of returned or damaged products. When patronage of the firm's products is increased, profitability will increase while earnings management will be reduced.

## **1.11 Theoretical Review of Literature**

This study is built on the agency and information theories as reasons for examining diverse performance measurements and earnings management.

### **(i) Agency Theory**

Jensen and Meckling (1976) explain agency theory as the relationship where in a contract one or more persons, the principal engage(s) another person, the agent, to perform some services on his/their behalf which involves delegating some decision-making authority to the agent. Nadurata (1999) states that agent, having been employed, follow accounting procedure that tends to deliberately overstate assets, understate liabilities and overstate capital (window dressing) or deliberately understate assets, overstate liabilities or understate capital resulting in secret reserve.

The problem of agency theory is that of how to ensure goal congruence between the two primary stakeholders because management may have selfish interests that are against investor's interests. According to Beattie, Brown, Ewers, John, Manson, Thomas and Turner (1994), "a basic assumption in positive accounting theory is that agents are rational individuals concerned with furthering their own self-interest". When agents engage in self-interest activity, the principal may not be able to either detect or verify it. The inability of the principal to verify agent's manipulation of accounting figures can result from any of the following situations; (1) the principal is too busy, and (2) the principal lack required knowledge to verify.

If the principal is too busy to neither verify work of the agent nor monitor the agent's work, but use the reward system to induce the agent to discharge his work 'faithfully', the same reward proposed may be the reason why the agent will manipulate the accounting figures. This is so when



performance is below the benchmark set for the rewards to be earned by the managers. Every reward system requires a minimum level of performance to justify the reward, and when the minimum level is not attained, the reward is forfeited. Dechow and Skinner (2000) argue that a more fruitful way to identify firms whose managers practice earnings management is to focus on managerial incentives.

Where the principal lacks the knowledge to understand the agent's reports, the agent may take advantage of his superior knowledge to present information that will suit his interest. This view was expressed by Healy and Wahlen (1999) in their definition of earnings management as "manager's use of judgment in financial reporting and in structuring transactions to alter financial reports to either mislead some stakeholders about the underlying economic performance of the company or to influence contractual outcomes that depend on reported accounting numbers". Moehrle and Renolds-Moehrle (2005) argue that managers might increase earnings to reach earnings benchmarks such as managers wanting to avoid reporting a net loss or an earnings decline relative to the same quarter of the prior year. In all, earnings management is carried out in order to achieve a specific objective while deceiving the end users of the financial reports. The evaluation of performance using financial and non-financial performance measures by the principal may expose earnings management practice by the agent.

## **(ii) Information Theory**

The information content of financial statements is the most important attribute of the report as it provides stakeholders with the accounting numbers that are used to evaluate management performance. In some business relationships, one party may have the information advantage over the other party thereby resulting in the imbalance of information. The unbalanced proportion in information is called information asymmetry. Information asymmetry occurs when some parties in business transactions have the information advantage over others. Vladu and Matis (2010) argue that information asymmetry has the potential to explain the multiple incentives found on the financial market to manipulate accounting data and to assess the consequence of such behaviour. Odi and Ogiedu (2013) state that managers may choose to exploit their privileged positions for private gain due to information asymmetry.

Imbalance in information allows managers to manipulate accounting numbers in order to sustain or enhance the market value of the company. Basu (1997) affirms that firms can produce earnings persistence in the presence of good news and mean reversion in the presence of bad news. Managers are expected to always aspire to report earnings that are higher than previous period's earnings as a way of disseminating good news that will elicit the positive response from the capital market. Reporting declines in earnings in relation to previous period is bad news that would attract reduction in the market value of the company. This is probably, the manager's justification for earnings management. Management would want increases in market values of the shares of the firms to earn their rewards and to be seen as effective workers.

## CONCEPTUAL FRAMEWORK

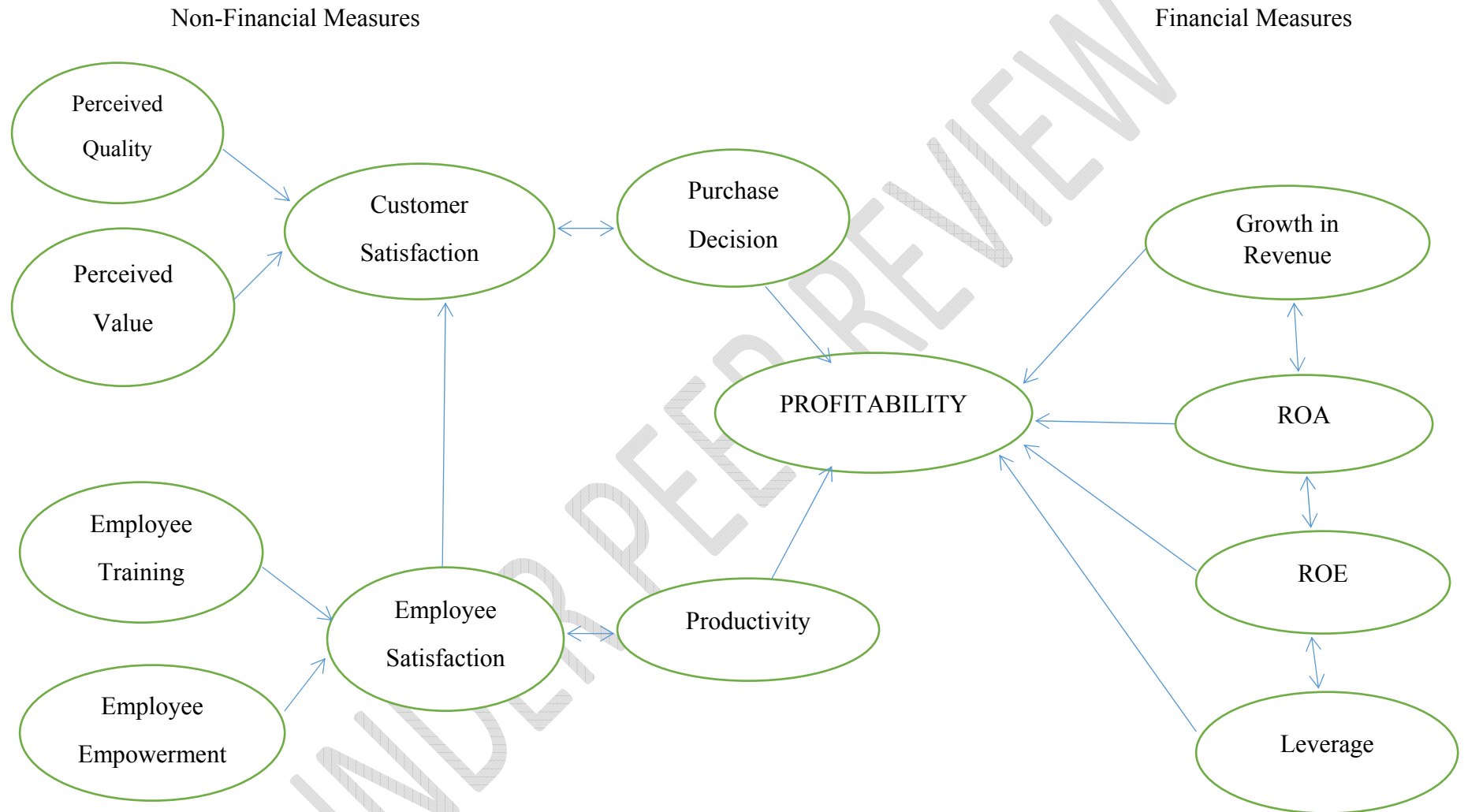


Figure 1.1: Diverse Performance Measurement Framework

Source: Developed by Researcher (2017) from Literature Review

## 2 Research Methods

### 2.1 Research Design

Ex-post facto and survey research designs were used. Ex-post facto is suitable for the secondary data while survey design was considered most appropriate for primary data since the primary data involved the administration of a questionnaire.

### 2.2 Theoretical Specification of Model

The dependent variable is earnings management and discretionary accruals were used as the proxy. Jones (1991) model was adopted in estimating earnings management. To estimate discretionary accruals, total accruals using Jones (1991) model is first estimated as follows:

$$TA_{it} = \Delta \text{Current Assets} - \Delta \text{Cash} - \Delta \text{Current Liabilities} - \text{Depreciation} \quad \text{Equation 3.1}$$

The next step is to estimate non-discretionary accruals as follows:

$$NDA = \beta_0(1)/(A_{t-1}) + \beta_1(\Delta \text{REV}_{it})/(A_{t-1}) + \beta_2(\text{PPE}_{it})/(A_{t-1}) + e \quad \text{Equation 3.2}$$

The last step is to determine discretionary accruals as the difference between total accruals and non-discretionary accruals. The discretionary accruals were used to test the hypothesis on the relationship between earnings management and financial, non-financial performance measures. Discretionary accrual model is as follows:

$$DA_{it} = [(TA_{it})/(A_{t-1})] - [\beta_0(1)/(A_{t-1}) + \beta_1(\Delta \text{REV}_{it})/(A_{t-1}) + \beta_2(\text{PPE}_{it})/(A_{t-1}) + e] \quad \text{Equation 3.3}$$

Where:

TA = total accruals.

$\Delta$ current assets = change in current assets from year  $t-1$  to  $t$ .

$\Delta$ cash = change in cash and cash equivalent from year  $t-1$  to  $t$ .

$\Delta$ Current liabilities = change in current liabilities from year  $t-1$  to  $t$ .

NDA = Non-discretionary accruals.

$\Delta$ REV = change in revenue from year  $t-1$  to  $t$ .

PPE = gross property, plant and equipment divided by assets in the preceding year.

$A_{t-1}$  = total assets at the end of the preceding year.

DA = discretionary accruals

$e$  = error term.

$i$  = the companies sampled for the study

$t$  = the study period; 2008 to 2015.

$\beta_0, \beta_1, \beta_2$  = firms' specific parameters

### 2.3 Empirical Specification of Model

The relationship between financial, non-financial performance measures and earnings management were examined using Ordinary Least Squares (OLS) regression analysis and Pearson Product Moment Correlation (PPMC). The independent variables are financial and non-financial performance measures, while earnings management is the dependent variable.

## Independent Variables

### (i) Financial Performance Measures

Financial performance measures used are (1) leverage, (2) return on equity, and (3) growth in revenue. The ratios are determined as follows:

$$\text{Leverage} = (\text{Total liabilities})/(\text{Total assets})$$

$$\text{Return on equity} = (\text{Profit after tax})/(\text{Equity})$$

$$\text{Growth in revenue} = (\text{Difference in revenue between current and preceding year})/(\text{Preceding year's revenue})$$

### (ii) Non-financial Measures

Non-financial performance measures are (1) customer's satisfaction and (2) employees' satisfaction. Customer's satisfaction variables are:

(a) Perceived quality. Perceived quality was measured by six questions covering the relationship between what the consumer purchased and what he/she believed to want to purchase. Perceived quality is coded PERLITY

(a) Perceived value was measured by questions on what was paid for the product and the 'use value' derived from the product. Perceived value is tagged PERVA

Employees' satisfaction variables are:

(a) Employees' training was measured by six questions based on skills development that will enhance productivity. Employees' training is called EMTRA

(b) Employees' empowerment covered worker's earnings, career development and employees' contentment. Empowerment is tagged DEMENT.

## 2.3.1 Financial Performance Measures and Earnings Management Model

The financial performance measures and earnings model is:

$$DA_{it} = f(\lambda, \lambda_1, \lambda_2) \quad \text{Equation 3.4}$$

Where :

DA = Earnings management

$\lambda, \lambda_1, \lambda_2$  = Financial performance measures

i = the companies sampled

t = the study period; 2008 - 2015

The regression model for financial performance measures and earnings management, is as follows:

$$DA_{it} = \alpha_0 + \alpha_1 ROE_{it} + \alpha_2 LEVERAGE_{it} + \alpha_3 GROWTH_{it} + e \quad \text{Equation 3.5}$$

Where:

DA = the earnings management

Leverage = ratio of total liability to total assets in year<sub>t</sub>.

Growth = percentage change in revenues in year<sub>t</sub>.

ROE = return on equity

$\alpha_0$  = Constant of the model

$\alpha_1, \alpha_2, \alpha_3$  = the coefficients of the proxies used for the regression.

- i = the companies sampled  
 t = the study period; 2008 - 2015  
 e = error terms

### Non-financial Performance Measures and Earnings Management Model

To examine the relationship between non-financial performance measures and earnings management, the following general approach was adopted.

$$DA_{it} = f(x, x_1, x_2, x_3) \quad \text{Equation 3.6}$$

Where:

- DA = Earnings management  
 x, x<sub>1</sub>, x<sub>2</sub>, x<sub>3</sub> = Non-financial measures  
 i = the companies sampled  
 t = the study period; 2008 – 2015

The model in its econometrics form is as follows:

$$DA_{it} = \beta_0 + \beta_1 \text{PERLITY}_{it} + \beta_2 \text{PERVA}_{it} + \beta_3 \text{EMTRA}_{it} + \beta_4 \text{DEMENT}_{it} + e \quad \text{Equation 3.7}$$

Where:

- DA = Earnings management  
 PERLITY = Perceived Quality  
 PERVA = Perceived Value  
 EMTRA = Employees' Training  
 DEMENT = Degree of Empowerment  
 e = error term  
 $\beta_0$  = Intercept of the regression  
 $\beta_1, \beta_2, \beta_3, \beta_4$  = the coefficients of the variables used for the regression  
 i = the companies sampled  
 t = the study period; 2008 - 2015

### 2.3.2 Financial, Non-financial performance Measures and Earnings Management Model

To test the combined impact of diverse performance measurements on earnings management, discretionary accrual is the dependent variable while non-financial and financial performance measures are the independent variables. The general model is as follows:

$$DA_{it} = f(\lambda, \lambda_1, \lambda_2 + x, x_1, x_2, x_3) \quad \text{Equation 3.8}$$

The regression model is:

$$DA_{it} = \delta_0 + \delta_1 \text{ROE}_{it} + \delta_2 \text{LEVERAGE}_{it} + \delta_3 \text{GROWTH}_{it} + \delta_4 \text{PERLITY}_{it} + \delta_5 \text{PERVA}_{it} + \delta_6 \text{EMTRA}_{it} + \delta_7 \text{DEMENT}_{it} + e \quad \text{Equation 3.9}$$

Where:

- $\delta_0$  = Constant of the model  
 $\delta_1, \delta_2, \delta_3$  = the coefficients of the proxies used for the regression.  
 i = the companies sampled  
 t = the study period; 2008 - 2015  
 e = error terms

## 2.4 Method of Data Collection

Published financial statements for 2008 – 2015 of each selected company were collected from the Nigerian Stock Exchange. A questionnaire was served on selected employees of each selected company. Consumers of the products were selected for each company based on convenience. The questionnaire was graded in the form of a five-point Likert scale. Strongly agree (SA) attracted 4 points, Agree (A) 3 points, Disagree (D) 2 point, Strongly disagree (SD) attracts 1 point and Neutral 0 point.

The responses to the questionnaire were coded while the data were organised and analysed using statistical software programme, SPSS 22. The SPSS output shows the descriptive statistics such as the mean of the series, standard deviation, correlation matrix, the t-statistic and F-statistic. The multiple regression models were used to analyse the anticipated joint actions of the independent variables on the dependent variable. The partial coefficient of correlation was used to determine the significance of each individual variable on the dependent variable. The Normality test was conducted using Histogram of residuals and Normal Probability Plot (NPP). The plot of residuals is essential in determining whether the fitted model satisfies the basic assumptions of Ordinary Least Squares (OLS) – Linearity, Independence, and Normality of the error distribution. The F-statistic was used to tests the null hypothesis at 5% level of significance.

## 2.5 Validity and Reliability of Research Instrument

Validity tests were carried out to check the ability of the research instrument to measure the variables it was intended to measure. To achieve this, the questionnaire was verified by experts in the field to review the content and appropriateness of the questions in relation to the stated objectives of the study.

To ensure stability, dependability and predictability of the research instrument, reliability test was conducted. Cronbach's coefficient alpha was calculated to determine the reliability of the instruments.

Nunnally (1978) as cited in Daferighe (2013) indicates 0.7 to be an acceptable reliability coefficient. The reliability test of the internal consistency among a set of indicators (questionnaire items) showed measurement practice (2 items) of 0.809, for customer's satisfaction. The reliability test of the internal consistency for employees' satisfaction showed measurement practice (2 items) of 0.845. These values indicate the stability and consistency of the research instrument and were above the acceptable level.

**Table 2.1 Reliability Statistics for Customers' Satisfaction**

| Cronbach's Alpha | Cronbach's Alpha Based on |            |
|------------------|---------------------------|------------|
|                  | Standardized Items        | N of Items |
| .809             | .817                      | 2          |

Source: Field Survey (2017)

**Table 2.2 Reliability Statistics for Employees' Satisfaction**

| Cronbach's Alpha | Cronbach's Alpha Based on |            |
|------------------|---------------------------|------------|
|                  | Standardized Items        | N of Items |
| .845             | .852                      | 2          |

Source: Field Survey (2017)

### 3. DATA PRESENTATION AND RESULT OF ANALYSIS

**Table 3.1 Descriptive Statistics for Combined Measures**

|          | Mean | Std. Deviation | N  |
|----------|------|----------------|----|
| DA       | .759 | .2338          | 27 |
| ROE      | .172 | .207           | 27 |
| LEVERAGE | .596 | .201           | 27 |
| GROWTH   | .128 | .115           | 27 |
| PERLITY  | .758 | .112           | 27 |
| PERVA    | .633 | .113           | 27 |
| EMTRA    | .770 | .044           | 27 |
| DEMENT   | .747 | .037           | 27 |

Source: Author's computation (2017)

The mean of the discretionary accruals is 0.76 with standard deviation of 0.234; ROE 0.17, standard deviation of 0.208; LEVERAGE 0.60, standard deviation of .20; GROWTH in revenue has mean value of 0.13 and standard deviation of .116. The non-financial performance measures have customer's perceived quality (PERLITY) with mean value of .76 and standard deviation of .112; customer's perceived value (PERVA) of .63 and standard deviation of .113; employees' training (EMTRA), .77 and standard deviation of .044; employees' degree of empowerment (DEMENT) has mean value of .75 and standard deviation of .037.

#### Test of Hypotheses

In this section, the hypotheses formulated were tested using Ordinary Least Squares (OLS) regression analysis. Hypotheses one to three were used to achieve objectives.

**H<sub>01</sub>:** There is no significant relationship between financial performance measures and earnings management in quoted manufacturing companies in Nigeria.

**Table 3.2 Result of Analysis of variance for Hypothesis one**

|            | Sum of Squares | Df | Mean Square | F     | p-value |
|------------|----------------|----|-------------|-------|---------|
| Regression | .468           | 3  | .156        | 3.760 | 0.025   |
| Residual   | .954           | 23 | .041        |       |         |
| Total      | 1.422          | 26 |             |       |         |

a. Dependent Variable: DA

b. Predictors: (Constant), ROE, LEVERAGE, GROWTH

R = 57.4, R<sup>2</sup> = .329

Source: Author's Computation (2017)

**Table 3.3 Correlations Matrix for Hypothesis One**

|             |          | DA    | ROE   | LEVERAGE | GROWTH |
|-------------|----------|-------|-------|----------|--------|
| Pearson     | DA       | 1.000 | -.216 | -.420    | -.495  |
| Correlation | ROE      | -.216 | 1.000 | .152     | .223   |
|             | LEVERAGE | -.420 | .152  | 1.000    | .316   |
|             | GROWTH   | -.495 | .223  | .316     | 1.000  |

Source: Author's Computation (2017)

The correlation matrix shows negative correlation between DA (earnings management) and the explanatory variables. The  $R^2 = 0.329$  implies that the overall influence of the independent variable, ROE, LEVERAGE and GROWTH in revenue on earnings management is 32.9%. The absence of autocorrelation is confirmed by Durbin-Watson value of 2.063.

The highest value of VIF is 1.151. This is less than the critical value of 10, above which the variables are said to be highly collinear. The absence of severe collinearity problem is further confirmed by the tolerance factor with a minimum of 0.385 which is above zero that is the critical value.

**Table 3.4 Summary of Regression Results for Hypothesis one**

|            | Unstandardized Coefficients |            |        |         | Collinearity Statistics |       |
|------------|-----------------------------|------------|--------|---------|-------------------------|-------|
|            | B                           | Std. Error | T      | p-value | Tolerance               | VIF   |
| (Constant) | -.445                       | .125       | -3.548 | .002    |                         |       |
| ROE        | -.097                       | .198       | -.491  | .628    | .943                    | 1.061 |
| LEV.       | -.331                       | .209       | -1.580 | .128    | .893                    | 1.120 |
| GROWTH     | -.778                       | .370       | -2.101 | .047    | .869                    | 1.151 |

$R^2 = .329$ ,  $F(3,23) = 3.760$   $F_{tab} = 3.023$ ,  $t_{cal} = 3.548$ ,  $t_{tab} = 2.069$ ,  $s.e = .20$ , 5% level of significance

Source: Author's computation (2017)

### Decision Rule

Reject the null hypothesis ( $H_{01}$ ) if F-calculated value is greater than the F-critical value. The relationship is significant if p-value is less than 0.05. Since F-calculated value  $df(3,23)$   $3.760 > 3.023$ , the F-critical value, the null hypothesis is rejected. P-value  $0.025 < 0.05$ . It can therefore be concluded that there is an evidence of significant relationship between financial performance measures and earnings management in quoted manufacturing companies in Nigeria.



Return on equity (ROE) has 9.7% negative relationship with discretionary accruals, leverage has 33.1% negative relationship and growth in revenue has 77.8% significant negative relationship with discretionary accruals. The model expression is as follows:

$$DA = -.45 - .097ROE - .331LEVERAGE - .778GROWTH$$

**H<sub>02</sub>:** Non-financial performance measures do not significantly influence earnings management in quoted manufacturing companies in Nigeria.

**Table 3.5 Result of Analysis of Variance for Hypothesis Two**

| Model      | Sum of Squares | df | Mean Square | F     | p-value |
|------------|----------------|----|-------------|-------|---------|
| Regression | .253           | 4  | .063        | 1.192 | .342    |
| Residual   | 1.169          | 22 | .053        |       |         |
| Total      | 1.422          | 26 |             |       |         |

a. Dependent Variable: DA

b. Predictors: (Constant), DEMENT, PERLITY, EMTRA, PERVA

R=.224; R<sup>2</sup> = .178

Source: Author's Computation (2017)

**Table 3.6 Correlations Matrix for Hypothesis Two**

|             |         | DA    | PERLITY | PERVA | EMTRA | DEMENT |
|-------------|---------|-------|---------|-------|-------|--------|
| Pearson     | DA      | 1.000 | .316    | .420  | .172  | .143   |
| Correlation | PERLITY | .316  | 1.000   | .686  | .132  | .016   |
|             | PERVA   | .420  | .686    | 1.000 | .438  | .370   |
|             | EMTRA   | .172  | .132    | .438  | 1.000 | .750   |
|             | DEMENT  | .143  | .016    | .370  | .750  | 1.000  |

Source: Author's Computation (2017)

The correlation matrix shows positive correlation between DA (earnings management) and all categories of non-financial measures. R<sup>2</sup> = 0.178 implies that the influence of non-financial performance measures on earnings management is 17.8%. The absence of autocorrelation is confirmed by Durbin-Watson value of 1.686 (see Appendix 1).

The VIF for the variables in this model range between 2.159 and 2.596. Variables are said to be highly collinear if VIF exceeds 10. The absence of severe collinearity problem is further confirmed by the tolerance factor. The tolerance factor in this model ranges between 0.385 and 0.463. Tolerance factor shows collinearity if it is zero.

**Table 3.7 Summary of Regression Results for Hypothesis Two**

|            | Unstandardized Coefficients |            |        |         | Collinearity Statistics |       |
|------------|-----------------------------|------------|--------|---------|-------------------------|-------|
|            | B                           | Std. Error | T      | p-value | Tolerance               | VIF   |
| (Constant) | -1.334                      | 1.067      | -1.250 | .224    |                         |       |
| PERLITY    | .107                        | .591       | .180   | .859    | .463                    | 2.159 |

|        |       |       |       |      |      |       |
|--------|-------|-------|-------|------|------|-------|
| PERVA  | .798  | .642  | 1.243 | .227 | .385 | 2.596 |
| EMTRA  | -.042 | 1.584 | -.026 | .979 | .408 | 2.450 |
| DEMENT | .027  | 1.893 | .014  | .989 | .409 | 2.447 |

$R^2 = 0.178$ ,  $F(4,22) = 1.192$ ,  $F_{\text{tab}} = 2.817$ ,  $t_{\text{cal}} = 1.250$ ,  $t_{\text{tab}} = 2.074$ ,  $s.e. = .23$ , 5% level of significance

**Source: Author's Computation (2017)**

**H<sub>03</sub>:** The combined impact of financial and non-financial performance measures on earnings management is not significant in quoted manufacturing companies in Nigeria.

Table 3.8 Result of Analysis of Variance for Hypothesis Three

| Model      | Sum of Squares | Df | Mean Square | F     | p-value |
|------------|----------------|----|-------------|-------|---------|
| Regression | .504           | 7  | .072        | 1.491 | .229    |
| Residual   | .918           | 19 | .048        |       |         |
| Total      | 1.422          | 26 |             |       |         |

a. Dependent Variable: DA

b. Predictors: (Constant), DEMENT, PERLITY, ROE, GROWTH, LEVERAGE, EMTRA, PERVA

$R = .595$ ;  $R^2 = .355$

**Source: Author's Computation (2017)**

Table 3.9 Correlations Matrix for Hypothesis Three

|                     |          | DA    | ROE   | LEVERAGE | GROWTH | PERLITY | PERVA | EMTRA | DEMENT |
|---------------------|----------|-------|-------|----------|--------|---------|-------|-------|--------|
| Pearson Correlation | DA       | 1.000 | -.216 | -.420    | -.495  | .316    | .420  | .172  | .143   |
|                     | ROE      | -.216 | 1.000 | .152     | .223   | .248    | .196  | .365  | .239   |
|                     | LEVERAGE | -.420 | .152  | 1.000    | .316   | -.592   | -.481 | -.137 | -.107  |
|                     | GROWTH   | -.495 | .223  | .316     | 1.000  | -.334   | -.504 | -.250 | -.274  |
|                     | PERLITY  | .316  | .248  | -.592    | -.334  | 1.000   | .686  | .132  | .016   |
|                     | PERVA    | .420  | .196  | -.481    | -.504  | .686    | 1.000 | .438  | .370   |
|                     | EMTRA    | .172  | .365  | -.137    | -.250  | .132    | .438  | 1.000 | .750   |
|                     | DEMENT   | .143  | .239  | -.107    | -.274  | .016    | .370  | .750  | 1.000  |

**Source: Author's Computation (2017)**

The correlation matrix shows negative correlation between DA (earnings management) and financial performance measures (ROE, LEVERAGE and GROWTH) but positive correlation between DA and non-financial performance measures (PERLITY, PERVA, EMTRA and DEMENT). The  $R^2 = 0.355$  implies that the overall influence of financial and non-financial performance measures on earnings management is 35.5%. The absence of autocorrelation is confirmed by Durbin-Watson value of 1.788.

The absence of multicollinearity is confirmed by the highest VIF of 3.238 which is less than the critical value of 10. The absence of severe collinearity problem is further confirmed by the lowest tolerance factor of .309 which is higher than zero; the critical value.

**Table 3.10 Summary of Regression Results for Hypothesis Three**

|            | Unstandardized Coefficients |            |        |         | Collinearity Statistics |       |
|------------|-----------------------------|------------|--------|---------|-------------------------|-------|
|            | B                           | Std. Error | t      | p-value | Tolerance               | VIF   |
| (Constant) | -.888                       | 1.384      | -.641  | .529    |                         |       |
| ROE        | -.205                       | .283       | -.722  | .479    | .537                    | 1.864 |
| LEV.       | -.234                       | .298       | -.784  | .443    | .513                    | 1.950 |
| GROWTH     | -.573                       | .483       | -1.185 | .251    | .593                    | 1.686 |
| PERLITY    | .004                        | .691       | .006   | .995    | .309                    | 3.238 |
| PERVA      | .398                        | .646       | .616   | .545    | .346                    | 2.890 |
| EMTRA      | .515                        | 1.585      | .325   | .749    | .370                    | 2.700 |
| DEMENT     | -.368                       | 1.831      | -.201  | .843    | .397                    | 2.518 |

$R^2 = .355$ ,  $F(7,19) = 1.491$   $F_{tab} = 2.544$ ,  $t_{cal} = .641$ ,  $t_{tab} = 2.093$ ,  $s.e. = .22$ , 5% level of significance

**Source: Author's computation (2017)**

### 3.1 Presentation of Empirical Results

The findings of the study are presented in this section by looking at the results of the hypotheses testing and other basic findings.

Hypothesis one ( $H_{01}$ ), states that there is no significant relationship between financial performance measures and earnings management in quoted manufacturing companies in Nigeria. This was tested using OLS regression analysis. The result shows a negative relationship between all the explanatory variables and discretionary accruals. The overall association was 24.2% (significant at  $p$ -value < 0.05).  $H_{01}$  was rejected based on the result  $F$ -calculated value >  $F$ -critical value. However, the estimated model shows a negative degree of influence of 9.7%, 33.1% and 77.8% respectively on earnings management.

Several reasons may be adduced to the negative impact of financial performance measures on earnings management. Firstly, when the financial measures are improving, there is less need for earnings management. If ROE and growth in revenue are encouraging on their own, there is less need for earnings management. Secondly, the measures put in place by regulatory authorities such as Economic and Financial Crimes Commission (EFCC) and Assets Management Company of Nigeria (AMCON) might have restricted firms from managing earnings so as to obtain loans. More importantly, none of the Nigerian quoted company issued debenture capital. Rather, term loans are obtained from financial institutions that take so much precautions before granting the loans in view

of the activities of the EFCC. This may be responsible for the negative relationship between leverage and earnings management.

Hypothesis two ( $H_{02}$ ) states that non-financial performance measures do not significantly influence earnings management in quoted manufacturing companies in Nigeria. This was tested at  $p > 0.05$  using OLS regression analysis. It shows positive overall influence of 17.8% on earnings management. This result suggests that the perception of customers of the firms' performance does not have significant influence on earnings management. However, the higher the customer's perception of the firm's quality and value, the higher the earnings management. It can be suggested that although the influence of customers' satisfaction on earnings management is negligible, firms capitalise on the perception of customers to determine their earnings level so as to boost their market capitalisation.

Hypothesis three ( $H_{03}$ ) states that the combined impact of financial and non-financial measures is not significant in quoted manufacturing companies in Nigeria. The result from OLS regression analysis shows that the correlation between earnings management and financial performance measures together with employees' degree of empowerment is negative, while the correlation with the remaining non-financial performance measures; customer's perceived quality, customer's perceived value and employees training is positive. The negative correlation of the degree of empowerment may be as a result of the fact that workers consider the future to be more important than the present. A well empowered worker think less of earnings management as earnings management may disrupt the retirement benefits of such the workers if the firm is forced into liquidation.

$P > 0.05$  signifies that the combined impact of financial and non-financial performance measures on earnings management is not significant. This suggests that only financial performance measures significantly influence earnings management in quoted manufacturing companies in Nigeria. Management of firms are not significantly influenced by perception of customers and workers to engage in earnings management.  $H_{03}$  was retained based on the results of the data analysis.

### 3.2 Discussion of Findings

It was discovered that financial performance measures have significant negative impact on earnings management in quoted manufacturing companies in Nigeria. This suggests that when performance is low, earnings management will be high, conversely, when performance is increased, earnings management practice will reduce. This is in line with the finding of Shirzad, et al. (2015) that when company's performance is weak, earnings management increases.

It was revealed that growth in revenue has significant relationship with earnings management. However, the relationship is inverse in nature. As firms genuinely grow in revenue, the need to engage in earnings management will reduce. This is contrary to the finding of Skinner and Sloan (2002) that growing firms engage more in earnings management to sustain their position. This may be due to the fact that the subject of earnings management and creative accounting are being explored by researchers and firms are aware of the fact that the public and financial analysts are concerned about financial reports of growing firms.

It was also revealed that leverage has negative relationship with earnings management. This is in line with Anagnostopoulous and Tsekrekos (2013) assertion that high leverage could bring along

strong outsider scrutiny. It is however, contrary to the finding in Callao and Jarne (2010) that higher leverage causes greater earnings management. This may be due to the fact that Nigerian firms unlike their counterpart in advance economies, do not issue debenture capital that requires impressive results of past performance before subscribers can invest in it. Rather, term loans are secured for their operations and financial institutions take precautionary measures before granting loans. More so, the efforts of EFCC at reducing financial crimes by ensuring that public funds are not misapplied by banks might have deter firms from obtaining loans by just making their performance look impressive.

Return on Equity (ROE) has insignificant negative relationship with earnings management. This shows that when profit is growing, the need to engage in earnings management reduces.

It was discovered that non-financial performance measures influence earnings management positively. However, the influence of non-financial performance measures on earnings management is not significant. The implication is that although management of firms are influenced to engage in earnings management based on customer's perception of the quality and value of their products, the influence is negligible.

It was also discovered that employees' training have insignificant influence on earnings management. This means that irrespective of the level of training of workers, their exposure does not directly impact on earnings management. Rather, it is management that is involved in earnings management.

The degree of empowerment of workers will reduce earnings management practice insignificantly. If the firm does not engage in earnings management, it may not be forced into liquidation thereby, ensuring their salaries, gratuity and other retirement benefits.

#### **4 CONCLUSION AND RECOMMENDATIONS**

The increasing rate of business failures in Nigeria has prompted investors and other users of financial reports to query the reliability of financial statements for decision making. This study was designed to examine the relationship between diverse performance measurements and earnings management in quoted manufacturing companies in Nigeria in the light of Agency theory and Information theory. Three models were developed and tested using twenty seven (27) companies drawn from the NSE.

The financial performance measures such as ROE, LEVERAGE and GROWTH in revenue relate negatively with earnings management. However, non-financial performance measures such as customer's perceived quality, customer's perceived value and employees' training relate positively with earnings management at insignificant level. The employees' degree of empowerment relate negatively with earnings management insignificantly.

##### **4.1 Business Implications of Findings**

It was revealed that manufacturing companies in Nigeria engage in earnings management. However, the higher the performance of the firm, the lower the earnings management level. Non-financial performance measures have insignificant positive influence on earnings management. The findings in this study implies that firms engage in earnings management when performance is not growing. In addition, management of firms are mostly induced to engage in earnings management for financial reasons and not on the basis of customers' and employees' perception.

- i Based on the finding that financial performance measures have significant relationship with earnings management, investors and capital market regulatory authorities should pay close attention to financial performance measures in their performance measurements.
- ii Government should create conducive environment for companies to operate optimally to reduce earnings management practice since financial performance measures relate negatively with earnings management.
- iii Leverage has negative relationship with earnings management. Financial institutions in Nigeria should therefore, sustain and increase the precautionary measures put in place in granting loans to firms. More importantly, the EFCC should not relent in their efforts at preventing financial crimes through earnings management.

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**APPENDIX I**

**Questionnaire**

**SECTION A – Personal Data**

**Instruction:** Kindly tick as appropriate

**Age:** 21-30 years ( ) 31 – 40 years ( ) 41-50years ( ) 51-60years ( )

**Sex:** Male ( ) Female ( )

**Highest Educational Qualification:** OND/NCE ( ) HND/BSC ( ) Masters/Ph.D( )

**Professional Qualifications:** .....

**Work experience:** 1-5yrs ( ) 6- 10yrs ( ) 11 - 15 yrs ( ) above 15yrs ( )

Key: SA=Strongly agree; A=Agree; D=Disagree; SD=Strongly disagree; N=Neutral

**SECTION B – Staff**

**Employees’ Training**

|  | SA | A | D | SD | N |
|--|----|---|---|----|---|
| You have the training that you need to do your job |    |   |   |    |   |

|   |    |   |   |    |   |
|---|----|---|---|----|---|
| Training helped you to improve your work efficiency                                       |    |   |   |    |   |
| You experience personal growth such as updating skills and learning different job         |    |   |   |    |   |
| There are opportunities for improving your skill and knowledge in the course of your work |    |   |   |    |   |
| The company offers career advancement opportunities                                       |    |   |   |    |   |
| Everyone is aware of the advancement opportunities that exist in the company              |    |   |   |    |   |
| <b>Employees' Empowerment</b>   | SA | A | D | SD | N |
| The basic pay and bonus are satisfactory  |    |   |   |    |   |
| The career progression at the company is satisfactory                                     |    |   |   |    |   |
| The company's retirement plan is good   |    |   |   |    |   |
| The company rewards employees for the quality of their efforts                            |    |   |   |    |   |
| Employees are involved in decisions that affect their work                                |    |   |   |    |   |
| The company pension plan is satisfactory and in total conformity with the pension Act     |    |   |   |    |   |

### SECTION C - Customers

Which of the company's products do you consume/use \_\_\_\_\_

|  |  |  |  |  |  |
|--|--|--|--|--|--|
| <b>Perceived Quality</b>   |  |  |  |  |  |
| The product is exactly what you need   |  |  |  |  |  |
| You are satisfied with the decision to buy the product                                   |  |  |  |  |  |
| You truly enjoy the product  |  |  |  |  |  |
| When need be, you will repeat the purchase of the product                                |  |  |  |  |  |
| You will recommend the product to friends and relations                                  |  |  |  |  |  |
| Your personal need was met by the product  |  |  |  |  |  |
|  |  |  |  |  |  |
| <b>Perceived Value</b>   |  |  |  |  |  |
| The quality of the product compares to the price paid                                    |  |  |  |  |  |
| The price is reasonable  |  |  |  |  |  |
| Based on advertised features, quality relate to price                                    |  |  |  |  |  |
| Compared to maximum price you are willing to pay, the selling price conveys a good value |  |  |  |  |  |

|   |  |  |  |  |  |
|---|--|--|--|--|--|
| The product's quality is regularly improved upon by the producer. |  |  |  |  |  |
|---|--|--|--|--|--|

**Model Summary<sup>b</sup>**

| Model | R                 | R Square | Adjusted R Square | Std. Error of the Estimate | Durbin-Watson |
|-------|-------------------|----------|-------------------|----------------------------|---------------|
| 1     | .574 <sup>a</sup> | .329     | .242              | .203667513533              | 2.063         |

a. Predictors: (Constant), GROWTH, ROE, LEVERAGE

b. Dependent Variable: DA

**Model Summary<sup>b</sup>**

| Model | R                 | R Square | Adjusted R Square | Std. Error of the Estimate | Change Statistics |          |     |     |               | Durbin-Watson |
|-------|-------------------|----------|-------------------|----------------------------|-------------------|----------|-----|-----|---------------|---------------|
|       |                   |          |                   |                            | R Square Change   | F Change | df1 | df2 | Sig. F Change |               |
| 1     | .422 <sup>a</sup> | .178     | .029              | .230484499963              | .178              | 1.192    | 4   | 22  | .342          | 1.686         |

a. Predictors: (Constant), DEMENT, PERLITY, EMTRA, PERVA

b. Dependent Variable: DA

**Model Summary<sup>b</sup>**

| Model | R                 | R Square | Adjusted R Square | Std. Error of the Estimate | Change Statistics |          |     |     |               | Durbin-Watson |
|-------|-------------------|----------|-------------------|----------------------------|-------------------|----------|-----|-----|---------------|---------------|
|       |                   |          |                   |                            | R Square Change   | F Change | df1 | df2 | Sig. F Change |               |
| 1     | .595 <sup>a</sup> | .355     | .117              | .219773274188              | .355              | 1.491    | 7   | 19  | .229          | 1.788         |

a. Predictors: (Constant), DEMENT, PERLITY, ROE, GROWTH, LEVERAGE, EMTRA, PERVA

b. Dependent Variable: DA