

**ASSESSING THE RELATIONSHIP BETWEEN ASSETS COMPOSITION AND FINANCIAL PERFORMANCE OF LISTED CONSUMER GOODS FIRMS IN NIGERIA**

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**ABSTRACT**

This study assessed the relationship between assets composition and financial performance of listed consumer goods firms in Nigeria. Specifically, it ascertained the effect of property, plant and equipment as well as intangible assets on the financial performance of consumer good firms in Nigeria. secondary data was used for data collection. The regression results showed that property, plant and equipment have positive and significant effect on the performance of quoted manufacturing companies in Nigeria Exchange Group and that intangible assets have positive but insignificantly effect on the performance of quoted manufacturing companies in Nigeria Exchange Group. The study concluded that the recent economic instability couple with the desire for wealth maximization has led management of most company to explore better ways to invest scarce resource in other to achieve the organizational goals. It was recommended that that management of manufacturing companies in the Nigeria should formulate policy that will enhance their investment in property plant and equipment as this will increase the performance of their companies and enable them achieve shareholders wealth maximization objective. Besides, management of manufacturing companies in their effort to enhance the performance of manufacturing companies should increase the level of intangible assets, which will positively enhance its effect on the performance of their firms.

**Keywords:** Assets composition, financial assets, wealth maximization, intangible assets.

## Introduction

The level of competition in the business environment has placed a greater responsibility on managers which require the effective and efficient use of firm resources in meeting performance target (Robert, 2011). Performance has now become one of the major signals that draws the attention of investors to a firm is the performance of the firm, especially the financial performance of the firms. The performance of the firm is also used to assess the effectiveness of the policies and activities of the management. The information on the performance of the firm is used to make several economic decisions by the stakeholders in the circle of financial reporting (Fauzi, Svensson, & Rahman, 2018). Positive performance is the output of many factors which includes the effective use of the resources available to management. According to Chen and Wong (2014), corporate performance reveals the unique ability of a companies to gain and utilize its resources in several ways to improve on its competitive advantage. Corporate performance can be divided into two broad groups: financial performance and non-financial performance.

The composition of assets as a resource available to management has been linked to better performance, as achieving a competitive edge and meeting obligations depends on the quality and effective usage of assets (Delcours, 2006). It means that businesses with a lot of tangible assets will have a lot of flexibility in terms of expanding their operations. The combination of various class of assets for production purpose could lead to better profit and firm value for the firms. The question that remained empirically unanswered is what extent does assets composition effect performance of firms, and what could constitute the appropriate mix of assets (tangible and intangible) and the extent it effects on the performance of consumer good firms, this has not been exhaustively answered.

Every manager strives to maintain optimal level of assets as excess would increase operational cost through depreciation and impairment, while low level of assets will affect the ability of the firm to meet its obligation. Assets are organizational resources at the disposal of the management to achieve the wealth maximization objective of the firm (Ocak& Findik2019). Having the appropriate mix of these assets can enable the management achieve competitive edge and better performance, which in return can enhance the performance of the firm (Oliver, Ugbor&Chukwuani 2017). However, what constitutes the appropriate mix of assets (tangible and intangible) and the extent it effect on the performance of consumer good firms remains an issue over the years. This study would fill this gap in knowledge by ascertaining the appropriate assets composition (mix) and the extent that the various component of an organization's assets affect the financial performance listed consumer goods firms in Nigeria.

Most of these empirical studies done has been on the effect of assets composition on firm performance and various methodology were adopted; for instance, the study in of Hong Kong, Li and Wang, (2014) adopted the descriptive method and used regression

for data analysis, Olatunji and Adegbite (2014); Okwo, Ugwunta and Nweze (2012) carried out a study and adopted the ex-post facto design and used multiple regression analysis for the pool data used in the study without considering the fixed and random effect, thereby making the result not robust enough for policy purpose. A similar study by Ngunya and Mwangi (2018); Mwaniki and Omagwa (2017) both in Kenya adopted the binary logit analysis while the study of Anas and Mohammad (2015) adopted the descriptive design and used multiple regression without controlling for cross section effect on the data. No firm uses single assets in its production process, while most firms are constrained with the available resource, hence there is need to ascertain the best combination of assets that could enhance the possibility of higher performance. Empirical studies adopting an interactive approach to select the best combination of assets that contributes to the performance of firms is lacking. Hence, this study is carried out to bridge the empirical gap of Nigeria.

### **Objectives of the Study**

The main objective of this study is to evaluate the effect of assets composition on performance of consumer good firms listed in the Nigeria. The specific objectives are to:

- i. Ascertain the effect of property, plant and equipment on the financial performance of consumer good firms in Nigeria.
- ii. Investigate the effect of intangible assets on the financial performance of consumer good firms in Nigeria.

### **Hypotheses**

The following are the null hypotheses formulated for the study:

**H0<sub>1</sub>:** Property, plant and equipment has no significant effect on the financial performance of consumer good firms in Nigeria.

**H0<sub>2</sub>:** Intangible assets have no significant effect on the financial performance of consumer goods firms in Nigeria.

## **REVIEW OF RELATED LITERATURE**

### **Conceptual Review**

#### **Financial Performance**

Corporate performance refers to how well an organization has managed its resources to meet its financial and non-financial objectives (Olatunji & Adegbite 2014). Various indicators have been used to measure the performance of companies by various researchers. According to Chen and Wong (2004), corporate performance is the unique ability of a company to gain and utilize its resources in several ways to improve on its competitive advantage. Corporate performance can be divided into two broad groups: financial performance and non-financial performance. It is considered to depend on the

type of organization to be evaluated and the objectives to be achieved through that evaluation. Financial performance have been measured using various standards including gross profit, net profit, return on equity, economic value added, and return on assets. The financial performance emphasizes on variables related directly to financial issues and report.

In the study of Chukwu and Egbunike (2017), company performance, was measured using return on assets. In this study, corporate performance will also be measured using return on asset and Tobin q (market based performance measure).

Accounting-based measurement is generally considered as an effective indicator of company's performance. The accounting-based measurement indicators of performance include return on assets (ROA), return on investment (ROI), operating cash flow (OCF), earnings per share (EPS), net profit margin (NPM), return on capital employed (ROCE) etc.

Return on asset (ROA), an accounting-based measurement, gauges the operating and financial performance of the firm (Chukwu & Egbuhuzor 2017). The measurement is such that a higher ROA, reflects an effective use of assets to the advantage of shareholders (Haniffa & Hudaib, 2006). Higher ROA also reflects the company's effective use of its assets in serving the economic interests of its shareholders (Ibrahim & AbdulSamad, 2011). This work defines Firm/corporate performance to be the measurement of the efficiency of the management of the firm in term of the extent the resources/assets were used in achieving the wealth maximization objective of the firms. The measurement of performance could take the form of production of goods and services, the operation of the company's many divisions, the performance of its personnel, and the overall results of their work. In this study, ROA would be used as a proxy for firm performance.

### **Assets Composition**

According to the International Accounting Standards (IAS) 16, asset is a resource held by a specific entity as a result of previous transactions or events from which future economic advantages flow to the company. Assets are owned and used by entity and used in production of goods and service.

**Assets:** An asset is a resource having a monetary worth that a person, company, or nation possesses or controls in the anticipation of future gains. Assets are items you own that can be sold for cash. Any resource that a company owns or manages is considered an asset in accounting.

**Recognizing Assets:** Assets are items that generate revenue for a business or offer it access to resources that no one else does. It is lawful to have a right or other access to something. This implies that an owner can prevent or restrict how a business uses economic resources. A corporation is free to use resources anyway it sees fit.

A corporation must have the legal right to an asset for its financial statements to reflect it as an asset as of the statement date. An economic resource is a unique possession that may boost a nation's economy by bringing in cash or preventing it from running out of money.

Asset structure, according to Koralun-Berenicka (2013), is a combination of several asset components such as financial non-current assets, tangible non-current assets, current assets, current investments, and cash in hand and at bank. Schmidt (2014) takes a similar approach, describing asset structure in terms of current assets, long-term investments and funds, Property, Plant, and Equipment, intangible assets, and other assets. Mawih (2014), on the other hand, looked at the assets structure as a component of both non-current and current assets. According to empirical research, asset structure is important to corporate organizations.

According to ZhengSheng and NuoZhi (2013), asset structure has higher practical utility and universal significance than capital structure research since assets are the primary source of building company value and avoiding hazards. Investments in non-current assets have a large and favorable statistical influence on the profitability of the banking sector in Nigeria, according to Olatunji and Adegbite (2014).

### **Property Plant and Equipment**

According to Chukwu and Egbuhuzor (2017) property, plant and equipment includes land, building, motor vehicle, plant and machinery as immovable assets which are expected to be used for more than one accounting year, they are most often capital intensive in nature and cannot be easily converted into cash without the loss of value.

According to Mawih (2014) property, plant and equipment are immovable assets which cannot be easily converted into cash. They constitute major portion of total assets of firms especially firms in the manufacturing sector. The quality of it can help determine the quality of product and the long run survival plan of the firm. Investment in tangible noncurrent assets help build up a firms statement of financial position and stripping them can be a veritable source of finance to firm when all other sources fails.

In the study of Ibam (2008), every company's investment in property and equipment is heavily influenced by its area of business. This hold true as some businesses operates in capital intensive industry like oil and gas than other operating in industry with less capital concentration. Most firms operating in oil and gas or other natural resources sector need large and technology driven non-current assets than firms in service sector whose assets is in majorly intangible in nature.

The investment in property, plant and equipment account for the highest proportion of the total assets of a firm. The value of property, plant and equipment are huge. In this study, the value of property, plant and equipment used are the value stated in the financial statement of the firms used in the study (Mwaniki& Job, 2017). However in the study of Saleh (2018), the logarithm of the value of property, plant and equipment



were used to reduce the value to base 10. This we believe was done to reduce the value of the variables to similar unit. This study adopts this approach.

### **Intangible Assets**

The Standard (IAS 38) defines intangible assets as identifiable, non-monetary assets without physical substance kept by an organization for use in the production or supply of products or services, rental, or other administrative function. IAS 38 requires that an asset be identified in such a way that it can be distinguished from goodwill in order for it to be recognized as an intangible asset. Zambon, (2003) classified intangible assets into two using their source of cash inflow to the firm: those that internally generated revenue for the firm (research and development, goodwill) and those that externally generated revenue for the firm (patent, brand name, copy right, trade mark, royalty).

Ngunya and Mwangi (2018) further classified intangible assets as patent, trademark, copy right royalty etc as skill or competence; it includes expertise, distributors, suppliers corporate culture. Lev and Daum (2004) give two reasons for this. First, on a stand-alone basis, intangibles are inert, they can neither create value nor generate growth and need to be combined with other production factors to do so. Secondly, the components of intangibles are intertwined making them difficult to isolate and quantify.

According to Zeghal and Maaloul (2011), the lack of measurement and open market valuation of intangibles has affected the value-relevance of financial information. In this study, intangible assets are:- patent, brand name, copy right, trade mark, royalty(Zambon, 2003). One of the unique attributes of intangible assets is their non-physical nature and non-tradability, which differentiates them from other assets. They may not be traded in an active and open market. For instance goodwill, they are difficult to be traded in active and open market, this may be due to lack of detailed information which is usually not available to the public resulting to information asymmetries between their owners and investor/outside (Zeghal&Maaloul 2011).

The intangible assets are identifiable, nonmonetary assets without physical substance held for use in production or supply of goods or services or rental or another administrative purpose by an organization. One of the unique attributes of intangible assets is their non-physical nature and non-tradability in the active and open markets, which differentiates them from other assets.

Zambon, (2003) grouped intangible assets into two classes using their cash inflow generation: (1) those that internally add value to the firm e.g research and development, goodwill; and (2) those that generated revenue for the firm externally (patent, brand name, copyright, trade mark, royalty). According to Zeghal and Maaloul (2011), the lack of measurement and open market valuation of intangibles has affected the value-relevance of financial information. In this study, intangible assets (external) are:- patent, brand name, copyright trademark royalty(Zambon, 2003). Intangible Asset (patent right+ copy right+ goodwill+ trade market) / Total Assets.

## **Financial Assets**

According to Cheptoo (2018), financial assets are company's investment in inventory, security of other companies and government bonds on the short term or long term basis. They also include investment in convertible security with the aim of maintaining high level of liquidity. They are non-physical assets who derive their value from contractual claims or the market value of other security. Example of financial assets includes: Certificate of Deposit: these are financial asset whose value and maturity depends on agreement between an investor and a commercial or money deposit bank, agreement which require the customer to keep certain amount of money with the bank on agreed term in exchange for a guaranteed rate of interest at maturity.

According to Zeghal and Maaloul (2011), financial asset which include Bonds are debt instrument sold by companies or government in order to raise some money to meet short-term projects. Equity inventories are long term investment which gives the holder the right and privilege as part owner of the company. The holder is entitled to interest, capital gain and right to participate in the management of the company through the board.

Financial assets can be classified in line with the international accounting standard 39 into three basic categories: financial assets held for trading: these are financial assets acquired for the purpose of selling them for a margin 2. Financial assets held to maturity: these are assets that have fixed maturity date and payment 3. Financial assets available for sale: these are assets that the company has put on sales but has not yet been bought over. Those financial assets are more liquid than any other form of non-current assets even though they are mostly of long term.

According to Pandey (2008) the decisions to invest in financial assets entail decision to invest its current assets (resources) in long-term assets in anticipation of expected inflow of benefits or capital gain which can span over period of years.

According to Simeyo, Bernard, Patrick and Francis (2013) the investment in financial assets involves the outlay funds as investment with the anticipation of a future cash inflow which is the compensation for the risk plus premium to cover inflation, and interest foregone.

Financial assets are measured using the market value of the security as at the year end. In this study, the market value of those securities as reported in the financial statement at the reporting date was used as measurement for financial assets.

## **Theoretical Framework**

### **Resource Based Theory**

The resource-based theory was propounded by Barney's (1991). The resource-based theory believed that a direct relationship exist between the assets composition, utilization and advocates firm can gain a competitive edge and achieve the goal of wealth maximization if they have the appropriate mix of assets and effectively utilize those assets. The theory holds that the strategy adopted by an entity depends on the resource; hence entity with heterogeneous resources could operate similar strategies.

The theory advocated for manager to focus on the identification of internal resources in order to identify those assets, capabilities and competencies that can give the firm competitive advantages. This provides managers with the framework needed to identify these strategic resources that have the potential to deliver comparative advantage to a firm.

The theory draws the attention of corporate entities to their internal resources as a means by which they can organise their processes in order to achieve competitive advantage (Gladys & Job 2017). Those internal resources that can give the entity competitive advantage must be unique, valuable, rare, imperfectly imitable (firm-specific) and not substitutable. In order to exploit the internal resource, corporate organizations adopt strategies that can ensure effective and efficient utilization of those unique, rare, firm specific and not substitutable internal resources to gain competitive advantage and maximize profit.

The resource-based theory argues that one of the ways which the firm can compete favorably and achieve competitive advantage is to deploy its unique assets. Those unique assets and peculiar to the firm and cannot be duplicated. It is believed that there are some unique attributes which give the firm a competitive edge (Murat & Derya 2019). The promoter of this view believes that when an entity is diversified, it will be in a better position to capture managerial economies of scale (reduction due to the spread of managerial human capital non-current cost over multiple production processes). The resource-based theory provides the theoretical framework which evaluates the nexus that exist between assets composition and corporate performance. The existence of economies of scale which give managers opportunity to utilize resources in different lines of business, thereby increasing their chances to make more profit. These provide the motivation for the firm to expand its scope through diversification strategies.

The study of Anas and Mohammad (2015), evaluated the extent of relationship between current assets and profitability and performance of industrial companies quoted on the floor of Amman Inventory Exchange. Current assets (ratio of current assets to total assets), profitability (return on asset- ROA), and firm performance (Tobin q - book to market performance). The study was based on descriptive research design and multiple regression analysis was employed on the secondary data collected. The study found that investment in current assets can effect about 44.1% of the changes in performance of industrial companies, while the result of the relationship between current assets and firm performance shows that investment in current assets effect of about 39.6% on the firm performance of industrial firm. The finding shows that the investment in current assets can lead to better performance and positively effect on the performance of the firms. The finding from the study suggests that industrial companies should adopt a moderate policy of investment in current assets.



The study of Ehie and Olibe, (2010) examined the effect of investment in research and development on the market value of firms in the service and manufacturing sectors of the United States of America. The finding from the study shows that investment in research and development in both service and manufacturing sectors positively effected on the firms value and value. The effect of investment in research and development especially those relating to getting new customer and improving existing customer services among service firms revealed that the investment accounts for the high return experience by service firms (Golec& Gupta, 2014).

## **METHODOLOGY**

### **Research Design**

The study will adopt the ex post facto research design. The ex-post facto research design is a design best used when the researcher is trying to determine the casual effect relationship between variables using past data which is usually difficult to manipulate all or any of the variables or when laboratory control is impracticable, costly or ethically questionable (Onwumere 2013). The ex post facto design will be used in this study because the researcher's aim is to determine the cause and effect relationship that could exist between the dependent and independent variables using data that is already in existence and will make no attempt to modify its nature or values. The data that would be used has the characteristics of cross section and time series.

### **Population of the Study**

The population of this study is the thirty -six quoted consumer good firms in Nigeria Exchanges Group. The Nigeria Exchange Group has a total of thirty-six (36) consumer goods companies quoted at different time and date.

### **Sample Size and Sampling Techniques**

The sample size of the study is twenty-nine (29) consumer goods companies selected using the purposive sampling techniques. Purposive sampling is a non-random sampling technique that utilizes a specific criterion to select sample. Adopting the purposive sampling, the researcher deliberately chooses a sample of firms that has data for the variable for the period of ten years. Twenty nine out of thirty-six firms were selected for the study representing eighty one percent of the entire population of the consumer goods firms quoted on the Nigeria Exchange group.

### **Sources of Data Collection**

The study will use secondary data. The data for the variables will be sourced from the annual financial reports of the consumer goods firms used for the study through the Talk data platform. The data from annual report covering the period of ten years between 2012 and 2021. For authenticity and standardization, the study relied on data from such authoritative sources.

## **Method of Data Analysis**

**Interaction analysis:** The study would carry out interaction approach to select the best combination of assets that will maximize the performance of the firm's used in the study. The result of such analysis can aid management in their investment decision policy formulation.

An interaction effect exists when the effect of an independent variable on a dependent variable change depending on the value(s) of one or more other independent variables. In more complex study areas, the independent variables might interact with each other to determine the best mix that has more effect on the dependent variable. Interaction effects indicate that a third variable influences the relationship between two variables. In this situation, it is better that these variables interact because the relationship between an independent and dependent variable change depending on the value of a third variable. For instance, all firms have more than one class of assets in use in achieving the goal of profit maximization. In making assets investment decision, management needs to know the best combination of assets that could lead to higher profit than others. To achieve this, the various classes of assets need to be interacted with each other to identify the best combination that would lead to higher profit. This type of effect makes the model more complex, but if the real world behaves this way, it is critical to incorporate it in your model.

Adding interaction terms to a regression model has real benefits. It greatly expands your understanding of the relationships among the variables in the model. And you can test more specific hypotheses.

**Panel Regression Analysis:** The study would consider the use of panel data as it considers the cross sectional and time series nature of the sample data to be used. Since the panel would accommodate the time series and heterogeneity effect of the quoted firms. The panel data analysis captures the aforementioned characteristics by including the company's specific effect which may be random or non-current. To achieve a robust analysis, the study would consider the use of Hausman effect test to select between non-current and random estimation techniques. The estimation result would be evaluated based on individual statistical significance test (t-test) and the overall statistical significance test (R. squared adjusted) while the goodness of fit of the model will be tested using the F-statistics. The study also wishes to (conduct some preliminary analysis such as descriptive statistics, correlation and regression analysis using E-view 8 software. The descriptive statistics would be used to analyze the following data characteristics: mean, maximum, minimum, and standard deviation, as well as checks for data normality. Correlation analysis would be performed to assess the connection between the variables and to look for multi-collinearity. Multiple regression analysis would be used to assess the effect of the independent factors on the dependent variable. It indicates the degree to which the independent factors effect and affect the dependent variable. Other preliminary test would be carried out to ascertain the normality of the

data, Variance inflator factor (VIF), test for multi-collinearity using variance inflator factor analysis and effect test.

### Model Specification

The model for the study was anchored on the sub-objective of the study. The study adopts the model of Mwaniki and Omagwa (2017) and Saleh (2018). Mwaniki and Omagwa (2017) conducted research on the effect of asset structure on financial performance using listed consumer good and associated firms in Kenya. A casual research design was used in the study. In Kenya, the study used the following response variables: tangible non-current assets, intangible non-current assets, current assets, and business performance. Model establishes the relationship between the dependent firm value and independent variables: tangible non-current assets, intangible non-current assets.

This study would modify the model to suit the variables used in the study. Mwaniki and Omagwa (2017) model  $ROA = PPE, INTANG, LTINV, CA$ .

The model was modified to suit the variables selected for this study, as follows (general model):

$$ROA = f(INTA, FAS, CA, R\_D, NCA, BEFF) \dots \dots \dots 1$$

This was econometrically expressed as follows:

$$ROA_{it} = C_0 + C_1INTA_{it} + C_2FAS_{it} + C_3CA_{it} + C_4R\_D_{it} + C_5NCA_{it} + C_6BEFF_{it} + \varepsilon_{it} \dots 2$$

Equation 2 is the linear regression model that will be used in testing the null hypotheses formulated.

### Where:

- ROA = Return on assets (Performance)
- CA = Current Assets
- FAS = Financial assets
- INTA = Intangible Assets
- R\_D = Research and Development
- NCA = Noncurrent assets
- BEFF = Board Effectiveness
- C<sub>0</sub> = Constant;
- C<sub>1</sub> ... C<sub>6</sub>, = Coefficient of the regression equation.
- ε = Error term;
- i = is the cross section of firms used;
- t = is years.

### Interaction model:

$$PERF_{it} = C_0 + C_1PPE*INTA_{it} + C_2PPE*LTIN_{it} + \varepsilon_{it} \dots 3$$

No firm in the consumer goods sector can operation successfully without having one form or the other of property, plant and equipment, and current assets. This study used property, plant and equipment as the interactor variable of its economic and long terms value to the firms and sector.

### Decision Rule for Hypotheses Testing:

Accept  $H_0$  and reject  $H_1$ – when the probability value is above 5%

Accept  $H_1$  and reject  $H_0$ – when the probability value is less than 5%

### Decision Rule for Hausmann Effect Test:

$H_0$  – random effect is preferable than non-current effect

$H_1$  – non-current effect is more preferable to random effect

Rejects  $H_0$  and accepts  $H_1$ : When chi-square probability value is less than 10.

Accepts  $H_0$  and rejects  $H_1$ : When chi-square probability value is greater than 10.

### Data Presentation

The details of the data used for this study is presented in appendix 1. The secondary data were collated from cross section of manufacturing companies in Nigeria within the period of ten year (10years). The data were analysed using the ordinary least square regressions to identify the causal effects relationship that exists between assets composition and company performance. The study however conducted some preliminary analysis such as descriptive statistics, Shapiro wilk normality test, correlation analysis and variance inflator factor to ascertain the normality of the data and check for the presence of multi-colinearity in the data collated.

### Descriptive Statistics

The descriptive statistics result shows the mean value for each of the variables, their maximum value, minimum values, and standard deviation. Table 4.1 below, is the descriptive statistics result.

**Table 4.1 Descriptive Statistics**

Variable	Obs	Mean	Std. Dev.	Min	Max
ROA	290	1.679556	17.73338	-17.92	10.89
CA	290	34.26e+7	8.99e+07	19.273	65.73e+8
NCA	290	38.36e+0	2.17e+08	21.434	61.52e+0
R_D	290	1.291048	.455094	0	2.35e+34

FAS		290	4.26e+07	3.21e+07	3.3542	8.40e+08
INTA		290	8.615574	1.55e+07	1.5320	9.95e+07
BEFF		290	4.630189	1.353669	1	11
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**Source:** Descriptive Statistics Result Stata 14.0

The descriptive statistics result shows that on the average, manufacturing companies used in the study has positive performance (ROA) of 1.67, maximum value of 10.89 and minimum value of -17.92. The positive average value has revealed that manufacturing companies used in the study on the average have positive performance within the period under review. The difference between the average performance, maximum performance and minimum performance shows that most of the companies made positive performance (ROA). Few of the firm's experience losses within the period under review.

Property, plant and equipment (Property, plant and equipment) which shows the extent of capital assets possessed and used in the production process by a company. The result shows a mean value of 38.36, maximum value of 61.52 and minimum value of 2.43. This reveals that manufacturing companies in Nigeria on the average, holds about 42 percent of their total assets in the form of property, plant and equipment (property, plant and equipment). Though some manufacturing companies hold as high as 61 percent of their assets in the form of property, plant and equipment. Holding high proportion of assets in form of property, plant and equipment would result to high level of depreciation and maintenance cost however, it can be useful tool in leverage financing. Also, if effectively and efficiently used can enhance production process stability.

The result of the intangible assets reveals that on the average, manufacturing companies maintain about 8.6 percent of their assets in intangible form, while some companies maintain intangible assets of 9.95 percent other maintain minimum intangible assets of 1.55 percent. The difference in the average intangible assets, maximum and minimum value reveals the premium attached to intangible assets by management of manufacturing companies in Nigeria. As the level of technological advancement in the business environment increases the rate most assets become obsolete due to rapid change in technology. Most firms hold their assets in the intangible form.

The result shows that while some firms maintain high level of intangible assets when compared with other class of assets, some maintain minimum level.

The result of the financial assets reveals that on the average, manufacturing companies maintain about 4.26 percent of their assets in financial form, while some companies maintain intangible assets of 8.40 percent other maintain minimum financial assets of 3.35percent. The difference in the financial assets shows most of the companies held little of their assets in financial forms. As the level of uncertainty in the business environment increases, most companies would prefer to hold part of their resources in near cash form.



The result of the current assets reveals that on the average, manufacturing companies maintain about 34.26 percent of their assets as current assets, while some companies maintain maximum current assets of 65.7 percent others maintain minimum current assets of about 19.27 percent of total assets. The difference in the current assets the maximum value, mean value and minimum value reveals the investment preference of management of manufacturing firms in Nigeria. This indicates the level of liquidity of manufacturing firms in Nigeria.

The result of the research and development as a unique aspect of intangible assets reveals that on the average, manufacturing companies invest about 1.29 percent of their total assets investment as research and development, while some companies maintain maximum value of 3.4 percent others did not invest in research and development.

## Normality Test

**Table 4.2: Normality test:**

Shapiro-Wilk W test for normal data						
Variable	Obs	W	V	z	Prob>z	
ROA	290	0.65881	66.221	9.792	0.00000	
BEFF	285	0.96056	7.529	4.710	0.00000	
NCA	290	0.40922	114.664	11.074	0.00000	
INTA	290	0.29331	137.161	11.493	0.00000	
CA	290	0.49439	98.134	10.711	0.00000	
FAS	290	0.41438	113.662	11.054	0.00000	
R_D	290	0.98992	1.943	1.550	0.06052	

**Source:** Shapiro wilk normality test using STATA14.0

The Shapiro wilk normality test shows that firm performance, property, plant and equipment, intangible assets, financial assets, and current assets, are normally distributed at one percent significance. While research and development, is normally distributed at 5 percent level. The normality test result reveals that all the variables used are normally distributed at 1%. This indicates that the result of the analysis can be relied upon in making generalization and in policy formulation. The result of the Shapiro normality test.

## Correlation Analysis.

In examining the relationship that exist among the variables and check for multi-collinearity, the study employed the spearman rank correlation, and the results are presented in table 4.2

**Table 4.3 Pearson Correlation coefficient analysis**

. spearman ROA BEFF NCA INTA CA FAS R\_D

	ROA	BEFF	NCA	INTA	CA	FAS	R_D
ROA	1.0000						
EFF	0.2256	1.0000					
NCA	0.2584	0.1887	1.0000				
INTA	0.1937	0.3069	0.6457	1.0000			
CA	0.3735	0.3048	0.7418	0.6550	1.0000		
FAS	0.4358	0.3704	0.7167	0.6110	0.6178	1.0000	
R_D	0.1833	0.1276	0.1762	0.1658	0.2459	0.2658	1.0000

**Source:** Correlation analysis result using Stata 14.0

The result shows that company performance (ROA) is positively associated with property, plant and equipment (0.258), the result reveals that an increase in property, plant and equipment would lead to increase in the performance of manufacturing firms. However, the increase can occur if the property, plant and equipment is effectively utilized in the production process. Company performance is positively associated with intangible assets (0.194). An increase in the intangible assets will lead to increase in the performance of manufacturing companies in Nigeria. This result may hold true under a short run and long run. On the long run, the assets will lead to better performance if effectively utilize in the production process.

Company performance is positively associated with financial assets (0.436). This shows that the more company invests in financial assets (investment security, cash, Time deposit etc) the better their performance. Thus, increase in the financial assets will lead to increase in the performance of manufacturing companies in Nigeria. This result may hold true especially in an economy with high inflation rate and cost of borrowing. Most firms investing in financial assets do that to enhance their liquidity position and their ability to meet up short term obligations to various stakeholders.

Company performance has a positive association with current assets (0.374). This reveals that the current assets can lead to increase in performance of manufacturing firms as more company invests in current assets the better their performance tend to be. Thus, increase in the performances of current assets will lead to increase in the performance of manufacturing companies in Nigeria. Current assets reveal the level of liquidity, over trading or under trading and ability of firms to meet its obligation as at when due has positive association with the performance of firms.

Company performance (ROA) is positively associated with research and development (0.183). This reveals that more investment in research and development can lead to increase in performance of manufacturing firms as the more company invests in research and development the lower their performance would tend to be. Thus,

increasing in the investment in research and development will lead to increase in the performance of manufacturing companies in Nigeria.

Property, plant and equipment have strong positive association with intangible assets (0.646), current assets (0.742), financial assets (0.717), and with research and development (0.176). The result shows that increase in Property, plant and equipment can lead to increase in the performance of intangible assets, financial assets, current assets and research and development.

Intangible assets, have strong positive association with financial assets (0.611), current assets (0.655), and with research and development (0.166). The result shows that increase in the intangible assets is associated with the financial assets, current assets and research and development.

Current assets have strong positive association with financial assets (0.618), and with research and development (0.246). The result reveals that increase in the investment in current assets can lead to increase in the financial assets, and research and development.

The study observed that no two variables were perfectly correlated using the 75% association benchmark. This shows the absent of multi-collinearity among the variables used in the study.

#### Variance Inflation Factor test

In checking for multi-collinearity among the variables used, the study carried out the variance inflation factor (VIF) test. The VIF result is presented below:

**Table 4.4: Variance Inflation Factor test:**

Variable	VIF	1/VIF
CA	12.28	0.081449
FAS	9.75	0.102611
NCA	5.12	0.195343
INTA	1.24	0.806281
R_D	1.08	0.928798
BEFF	1.06	0.942116
Mean VIF	5.09	

The variance inflation factor test result table above shows the mean performance of 5.09. The mean performance (5.09) is less than 10 rejection benchmarks. The mean value indicates the absence of multi-collinearity in our model. This result (Variance inflation factor test result) confirms the finding from the correlation analysis which shows the absence of multi-co linearity among the variables used.

## Hypothesis testing

### Regression analysis result

Below is the analysis of return on assets model.

**Table 4.5:** Regress ROA BEFF R\_D LNCA LINTA LCA LFAS

Source	SS	df	MS	Number of obs	=	263
Model	5625.53824	6	937.589707	F(6, 256)	=	3.06
Residual	78471.6394	256	306.529842	Prob > F	=	0.0066
				R-squared	=	0.6669
				Adj R-squared	=	0.6450
Total	84097.1777	262	320.981594	Root MSE	=	64.508

  

ROA	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
BEFF	1.103101	.8177018	1.35	0.179	-.5071776	2.71338
R_D	1.471581	2.332926	0.63	0.529	3.122588	6.065751
LNCA	-4.463553	1.421732	-3.14	0.002	-7.263333	-1.663773
LINTA	-.7258462	.4835857	-1.50	0.135	-1.678159	.2264666
LCA	7.924597	2.645292	3.00	0.003	2.715292	13.1339
LFAS	2.581535	1.608244	1.61	0.110	.585538	5.748609
_cons	-40.77218	9.881868	-4.13	0.000	-60.23228	-21.31208

The analysis result of the firm performance model shows an R-sq of 0.667 and R-sq (adj) 0.645 respectively. The R-squared adjusted performance of 0.645 (64.5%) indicates that assets composition can explain about 64.5 percent of changes in the level of firm performance among manufacturing companies in Nigeria. That is, about 64.5% changes in firm performance among manufacturing companies in Nigeria can be attributable to their asset's composition. The F-statistics performance of 3.06, and its probability performance of 0.007, shows that the regression model used is well specified and the specification is statistically significant at 1% levels.

***H0<sub>1</sub>: Property, plant and equipment has no significant effect on the financial performance of consumer good firms in Nigeria.***

The analysis result of the effect of Property, plant and equipment on company performance (ROA) shows coefficient performance of 4.46. This indicates that Property, plant and equipment positively affect the level of performance of manufacturing companies quoted in Nigeria Exchange Group. The probability value of 0.002 shows that the positive effect of property, plant and equipment on performance of manufacturing companies in Nigeria is statistically significant at 1 percent level. The result reveals that increasing the level of Property, plant and equipment can positively impact on performance of companies in Nigeria. Based on the result, the study rejects the null hypothesis and accepted the alternate hypothesis.

***H0<sub>2</sub>: Intangible assets have no significant effect on the financial performance of consumer goods firms in Nigeria.***

The analysis result of the effect of Intangible assets on performance of manufacturing firms in Nigerian shows coefficient performance of -0.726 and probability performance of 0.135. The coefficient value indicates that intangible assets negatively affect performance of quoted manufacturing companies in Nigeria Exchange Group. The probability value of 0.135 shows that the negative effect of intangible assets is insignificant on the performance of manufacturing companies quoted in Nigeria. The result shows that increasing the level of intangible asset would negatively affect the performance of manufacturing companies, but the negative effect is not significant to drive the companies' performance in Nigeria. Based on the result, the study rejects the alternate hypothesis and concludes that the effect of intangible assets on firm performance insignificant.

## Interaction analysis

**Table 4.6:** Regression analysis result

Source	SS	df	MS	Number of obs	=	263
				F(6, 256)	=	4.11
Model	5625.53824	6	937.589707	Prob > F	=	0.0000
Residual	78471.6394	256	306.529842	R-squared	=	0.6870
				Adj R-squared	=	0.6333
Total	84097.1777	262	320.981594	Root MSE	=	66.238

  

ROA	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
BEFF	2.140281	.8319221	2.57	0.011	.5019981	3.778563
NCA*INTA	-1.04e-08	7.68e-08	-0.14	0.892	-1.62e-07	1.41e-07
NCA*CA	4.19e-08	1.21e-08	3.46	0.020	1.09e-08	1.25e-07
NCA*FAS	3.43e-08	1.04e-07	3.29	0.003	2.19e-07	1.90e-07
NCA*R_D	4.487012	2.471303	1.82	0.071	-.379661	9.353686
_cons	-10.5464	3.973825	-2.65	0.008	-18.37195	-2.720852

**Source:** Interaction analysis result. Stata 14.0

The interaction result above shows that:

1. Property, plant, equipment combined with Intangible assets has a coefficient value of -1.04, and probability value of 0.892. The coefficient and probability value indicates that the combination of property, plant, equipment and intangible assets negatively and insignificantly effect the performance of manufacturing firms in Nigeria.
2. Property, plant, equipment combined with current assets has a coefficient value of 4.19, and probability value of 0.020. The coefficient value indicates that the



combination of property, plant, equipment and current assets positively and significantly affect the performance of manufacturing firms in Nigeria.

### **Discussion of findings**

The study finds that on assets composition positively affect about 64.5 percent of changes in corporate performance among the manufacturing companies used in the study. This reveals that the structure of assets can increase the level of performance among manufacturing companies in Nigeria Exchange Group. This finding is in line with the finding from the study of Zaher (2019), Mwanik and Job (2018), and Irungu, Muturi, Nasieku and Ngumi (2018) who examined assets composition/structure and performance of firms quoted in Kenya Stock Exchange. The finding of the various hypothesis is shown below:

### **Property, plant and equipment and company performance**

This study finds that property, plant and equipment positively affect the level of performance of manufacturing companies quoted in Nigeria. This indicates that, increasing the investment in property, plant and equipment can significantly impact on performance of companies in Nigeria. The result is in line with the finding from the study of Mwanik and Job (2018) in Kenya who evaluates the effect of asset structure on performance of firms quoted under the manufacturing sector of Nairobi securities exchange but contrary to the finding from the study of Ocak, and Findık (2019) whose finding shows a negative but insignificant relationship between tangible property, plant and equipment and firm performance.

### **Intangible assets and company performance**

The study finds that Intangible assets has positive impact on the performance of manufacturing firms in Nigeria however, the effect is insignificant. This means that intangible assets though positively affect performance of quoted manufacturing companies in Nigeria, the effect is insignificant to drive/cause a major change. The finding from the study is in line with the finding from similar study carried out in Egypt by Mehdi, Pajoochi, and Mohammad (2012) and Mwanik and Job (2018) in Kenya, on the nexus between intangible assets and performance of firms under the metals industry of Egyptian stock exchange. But contrary to the finding from the study of Ocak, and Findık (2019), Glova and Mrázková (2018) on the impact the components of intangible assets have on the performance of firms quoted in Turkey stock exchange who found significant impact of intangible assets on performance of firms.

### **Conclusion**

The recent economic instability couple with the desire for wealth maximization has led management of most company to explore better ways to invest scarce resource in other to achieve the organizational goals. The composition of assets has merit and demerit to manufacturing companies and have been empirically established to have much influence on the performance, liquidity, short- and long-term survival of the organization and ability to meet stakeholder demand. Hence the composition of assets

can be one of the deliberate policy and decision of management. Financial assets is one of the most liquid assets beside cash, which can enable a company meet its short term obligation without much loss of value.

### **Recommendations**

1. The study recommends that management of manufacturing companies in the Nigeria should formulate policy that will enhance their investment in property plant and equipment as this will increase the performance of their companies and enable them achieve shareholders wealth maximization objective.
2. The study recommends that management of manufacturing companies in their effort to enhance the performance of manufacturing companies should increase the level of the of on intangible assets. Increasing the investment in intangible assets would positively enhance its effect on the performance of their firms.

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