

Original Research Article

Investment in Non-Current Assets and Financial Performance of Quoted Manufacturing Firms in Nigeria

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Abstract: This study examined the investment in non-current assets and the performance of quoted manufacturing firms in Nigeria. Secondary data were collected from annual reports and accounts of the fifteen (15) selected quoted firms for the period of eight (8) years spanning from 2012 to 2019. Data collected were analysed using descriptive statistics, correlation and regression analyses. The empirical results revealed that investment in tangible non-current assets has positive and significant effect on the return on assets (ROA) of the selected manufacturing firms as confirmed by the coefficient and probability value of 0.95(P=0.000). Investment in intangible non-current assets also has positive and significant effect on the return on assets with the coefficient and probability value of 0.44(P=0.000); debt to assets ratio has a positive and significant effect on return on assets; while assets turnover ratio has negative but insignificant effect on return on assets. The overall coefficient of determination, adjusted (R^2) of 0.923 showed that about 92% of the total variation in the ROA is explained by investment in Tangible Non-Current Asset (TNCA), Intangible Non-Current Assets (INCA), Debt-Assets Ratio (DAR) and Assets Turnover Ratio (ATR). The study concluded that the influence of tangible non-current assets on the financial performance of the manufacturing companies is more than that of the intangible non-current assets in Nigeria and therefore recommended that attention should be paid to optimum asset utilization by the manufacturing firms in Nigeria. The study also recommended that manufacturing firms in Nigeria can leverage on debts to fund their assets.

Keywords: Investment, tangible non-current assets, intangible non-current assets, Performance, Quoted Manufacturing Firms in Nigeria.

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1. INTRODUCTION

Nigeria is a country with an abundance of natural resources. Since crude oil was discovered in Oloibiri, in the Niger Delta Region of Nigeria in 1957, both production and exports of oil have increased. In a sense, these have helped in creating a platform for an industrial 'take-off' or 'big push' in a developing economy like Nigeria. The enormous returns realized through crude oil enabled the governments of the oil producing nations to spend and invest massively with no recourse to non-oil sources of revenues. It is equally believed that where the revenue realized from oil exploration is properly utilized, it helps to enhance Foreign Direct Investment (FDI) and increase in foreign reserves of countries exporting crude oil which could be used in the future as a collateral in attracting more foreign investments to the country. It further encourages

adequate provision for intermediate inputs, speed up the boom of oil-related services as well as increase and sustain the Foreign Direct Investment (FDI) flow to the economy (Ramirez, 2016). Therefore, there is abundant empirical evidence from past accounting literature on the contributions of the oil sector to economic growth and development in Nigeria.

It is generally believed that where oil is being discovered, it could be completely relied on for sustained growth and development of an economy (Rosser, 2006). Such over-reliance, overtime, has resulted to a mono-economy in the case of Nigeria. For instance, inflows from oil in Nigeria constitute more than 90% of total foreign exchange earnings and over 70% of government revenue (Akinlo, 2012). As time progresses, re-occurring issues such as the rate of Corporate Social Responsibility

(CSR) of multinational oil firms, fluctuation of oil prices in the international market and the spillover effects it has on governments of oil producing states in executing their macroeconomic objectives have overwhelmingly shown that there is an urgent need to diversify the economy. The rationale is, had the economy been further expanded, the impact of the fluctuations of crude oil prices in the international petroleum markets on the economy would have been very minimal (Akinlo, 2012). Also, it is believed that expansion in the energy sector does not help in creating the much- anticipated employment opportunities since the sector is highly more capital intensive than labour (Oduaro, 2008). Therefore, there is a growing concern among stakeholders in the oil sector, the government as well as scholars for the economy to be diversified into one of the economic growths and development inducing sectors like the manufacturing sector, in order to absorb these shocks (Okoroma, *et al.*, 2015). In fact, findings from studies such as Saikkonan (1991) and Stock and Watson (1993) have harmoniously shown that diversification of the economy towards the manufacturing sector would inevitably lead to a stronger growth in Gross Domestic Product (GDP).

In recent times, the manufacturing sector of the country has progressively proven to be one of the real contributors to the course of National development and economic growth. It has gradually transformed the economy from one that is purely agrarian to one which relies on finished goods (Oburota & Okoi, 2017). It is further argued that the manufacturing sector in Nigeria plays a critical role in providing transitional inputs, increase in foreign exchange earnings, increase in employment opportunities, reduction in poverty level and as a catalyst to facilitate real growth of the economy (Ekpo, 2011).

Nonetheless the claim of contribution, the 2016 statistics of the Central Bank of Nigeria (CBN) indicated that the manufacturing sector in Nigeria has contributed less than 12% to the course of national growth and development since 1981. Similarly, World Bank (2013) economic report submits that the oil sector in Nigeria contributes over 40% to Nigeria's GDP while the manufacturing sector contributes less. This assertion corroborates with the views of Ayadi (2005). The poor economic contribution from the manufacturing sector despite the over 200 million market participants and consumers in Nigeria indicates a lack of operating strategies within the sector. Appropriate investment in the asset base of firms in that industry could rank as one of such strategies. Since the manufacturing firms need assets for transforming their materials inputs into finished goods before selling them to the consumers, appropriate assets strategy could result to economic growth and development.

Meanwhile, an investment is an asset or item acquired with the goal of generating income or

appreciation. Appreciation refers to an increase in the value of an asset over time. When an individual purchases a good as an investment, the intent is not to consume the good but rather to use it in the future to create wealth. An investment always concerns the outlay of some asset today— time, money, or effort— in hopes of a greater payoff in the future than what was originally put in. In investing on asset base of an organization, there is an age-long debate on which class of asset of an organization requires investing more on (Lim, 2014; Ifeanyi & Caroline, 2016). In terms of investing in tangible non- current assets, it is believed that appropriate investment in such assets are essential for manufacturing companies to provide the required services to their customers (Okobo & Monday, 2017). Olatunji and Adegbite (2014) further maintain that investment in non-current assets enhances the profit generation ability of a firm as it enables them to carry out their daily operations. Elsewhere, Carl (2010) posits that the profit realization ability of a firm hugely depends on their investment on non- current assets. This view corroborates with the assertions of Trujillo (2014). Accordingly, past studies opined that the financial health of an organization stems from their investment in intangible non-current assets (Ehie & Olibe, 2010; Okafor, Ohachosim, & Oji, 2022; Okafor, Itah, Bassey, Obukor, & Edem, 2023). Drawing from dynamic capabilities and knowledge based theories, a unique investment in intangible assets can further serve as a source of competitive advantage to firms in terms of structure differentiation, unique capabilities, and ability to sustain competitive advantage overtime (Okafor, & Daferighe, 2019). Furthermore, investment in intangible non-current assets makes a firm more attractive to investors and shareholders in terms of better understanding of firms earning prospect and future cash flows (Aggelopoulos, *et al.*, 2016; Okafor, Ohachosim, & Oji, 2022).

Historically, it was largely believed that investment in tangible non-current assets of a firm improves the profitability capacity of the firm more than the intangible non-current assets. This belief is premised on the rationale that the tangible non-current assets of an organization remain continuously in use while they may likely not reap investment in their human capital as they could leave the firm given any opportunity. However, changes in today's business environment are providing strong indications that firms' investment in areas such as: Research and Development, innovations, digitization, e-commerce, which constitute intangible non-current assets, are responsible for enhanced competitive advantage and better financial performance overtime. Therefore, the need to empirically ascertain which of these categories of non-current assets requires more investment for an improved contribution to corporate performance.

Prior studies have moreover demonstrated the importance of appropriate investment on assets as a

prerequisite for optimizing contribution of the manufacturing industry to the economy. This raises the poser: should manufacturing firms in Nigeria invest more on tangible non-current assets or on intangible non-current asset? Unarguably, investment in either of these classes of assets enhances the profitability of a firm, but the extent of each contribution is still empirically unclear. Hence, the objective of the study is to assess the contributions of investment in tangible non-current assets and intangible non-current assets to the performance of quoted manufacturing firms in Nigeria. While both tangible non-current assets and intangible non-current assets are the independent variables and proxies for investment in non-current assets, return on assets (ROA) is the dependent variable and the determinant for financial performance.

The remaining sections of this paper are organized as follows. Section two is theoretical framework, empirical literature, and research hypotheses while section three is the methodology. Section four sets out the empirical analysis and interpretation of results, which are discussed in Section five. Section six is the conclusion and recommendations of the study.

2. Theoretical Framework, Empirical Literature, and Research Hypotheses

2.1 Theoretical Framework

Resource-Based theory and Efficient Market Hypothesis seem most appropriate for establishing the explanatory nexus between investment in non-current assets and the performance of manufacturing firms in Nigeria.

Resource-Based Theory

The resource-based view (RBV) of the firm is the foundation for the development of a predominant theory used in the field of knowledge management and intellectual capital/Intangible asset called “knowledge-based view” or “knowledge-based theory”. The resource-based view was first introduced by Penrose (Penrose, 1959) and then expanded by Wernerfelt (1984). According to this view, a firm’s sustainable advantage in a given market can be determined by its resources. In this view, firms are considered as idiosyncratic entities characterized by their exclusive resources (Barney, 1991). Penrose (1959) emphasized the internal resources of a firm that would make the productive services available to a firm. In order to benefit from the firm’s resources, the environment is considered an “image” in the entrepreneur’s mind of the possibilities and restrictions with which it encounters. Such an image will have an impact on an individual’s behaviour. What distinguishes the economic activity inside the firm and the economic activity in the market is that, unlike the market activity, firm-wide activity is conducted within an administrative organization.

Penrose (1959) maintains that a firm is even beyond an administrative organization; a firm is a

collection of productive resources where administrative decisions will determine the choice of different uses of these resources over time. She argues that there are two types of resources a firm possesses. The physical resources of the firm consist of tangible assets such as property, plant, equipment, land and natural resources, raw materials, semi-finished goods, waste products and by-products, and even unsold stock of finished goods. Human resources available in a firm include unskilled and skilled labour, clerical, administrative, financial, legal, technical, and managerial staff.

Penrose (1959) argues that the services that the resources can provide are more important than the resources per se. Resources consist of a pool of potential services and can be defined independent of their use, while services cannot be so defined. It is largely in this distinction that the source of uniqueness of an individual firm is found. She also mentions managerial ability, product or factor market and uncertainty as limitations for the growth of firms.

Wernerfelt (1984) develops the argument further by stating that the strategy involves a balance between the utilization of existing resources and the development of new resources. Building upon previous works, Barney (1991), in a seminal paper, mentions four criteria for assessing what kinds of resources would provide sustainable competitive advantages: (i.) valuable, (ii.) rare compared to the competition (iii.) imitable and (iv.) non-substitutable. It is argued that Penrose’s two insights have differentiated her theory from others and placed the resource-based view in the centre of the knowledge-based theory of the firm. First, the services provided by firm resources are partially determined by the external market. The services are affected substantially by the managerial knowledge of how best to utilize these resources. Second, Resource-Based Theory embraces non-rival resources knowledge such as employees’ skills as well as traditional rival resources.

Efficient Market Hypothesis

The efficient-market hypothesis (EMH) is a theory in financial economics that states that asset prices fully reflect all available information. A direct implication is that it is impossible to “beat the market” consistently on a risk-adjusted basis since market prices should only react to new information (Nwaolisa & Kasie, 2012). It was developed by Eugene Fama in the 1970s who argued that stocks always trade at their fair value, making it impossible for investors to either purchase undervalued stocks or sell stocks for inflated prices. As such, it should be impossible to outperform the overall market through expert stock selection or market timing, and that the only way an investor can possibly obtain higher returns is by chance or by purchasing riskier investments. His 2012 study with Kenneth French supported this view, showing that the distribution of abnormal returns of US mutual funds is very similar to

what would be expected if no fund managers had any skill—a necessary condition for the EMH to hold.

This theory states that two contesting views exist about the stock market and the new economy. One view argues that intangible assets help explain why companies market values are greater than their book values. The opposing view argues that valuations have become detached from company fundamentals resulting in an overvaluation of companies' stock. The Efficient Market Hypothesis (EMH) is applicable to the intangible assets debate in the way that the EMH assumes that the stock market equates the company's market value to its fundamental value, defined as the expected present value of future payments to shareholders. Nwaolisa and Kasie (2012) state that the efficient market hypothesis entails that security prices reflect all available information. They also identified three forms of market efficiency (i) weak form; based on available information of historical price data, (ii) semi-strong form; based on publicly available data and (iii) strong form; based on private, insider information, since intangible information is not reported in public financial statements, except for purchased intangibles, all internally generated intangibles are part of private information.

According to Titan (2015), several researchers argue that the informativeness of the firm's fundamentals represented in its financial statements are reduced. Hence, the assumption that the capital market is semi-strong form efficient can explain the sharp increase in stock prices in the new economy by the supposed increase in intangible capital. Titan (2015) stated that the capital asset pricing model (CAPM), which assumes strong form efficient capital markets align to this work in that it facilitates explaining the risk-return relationship of assets. Titan further stated that the expected return on a certain security is a combination of the risk-free rate, the volatility of a security's return and the covariance and correlation with the market portfolio. The CAPM assumes that investors require an additional return resulting from the riskiness of a security. Because of high degree of uncertainty associated with future expected benefits from intangibles, companies investing heavily in intangible assets are considered riskier. Therefore, investors require a higher return on the securities of intangibles-intensive companies. Consequently, intangible-intensive firms are expected to produce higher market returns than tangible-intensive firms.

Relevance of the Theories

Efficient Market Hypothesis mainly explains why company's market values are greater than their book values. It highlights the assumptions of Capital Asset Pricing Model which states that investors require an additional return resulting from the riskiness of security. Although the traditional view is challenged by the emergence of intangible assets because they are not physically present and therefore it is more difficult to determine their risk-return characteristics. The resource-

based theory in turn explains the special characteristics of intangible assets and why they are important for companies in order to gain a sustainable competitive advantage. The new standards affording goodwill an indefinite life in contrast to other intangibles conform to the semi strong form of the EMH theory as financial, operation and organizational synergies grow in perpetuity given that new strategies are inherited through Mergers and Acquisitions (M and A) deals and stale ideas expunged simultaneously. In addition, sound recruitment and retraining procedures ensure continual influx of positive synergies.

The Resource-Based Theory is more relevant to this study given the fact that it looks at what resources the firm possesses and assesses the potential of the firm for improved performance and value generation. The theory ends up by identifying resource gaps which need to be filled to gain competitive advantage and improve performance. As a practical framework, the Resource-Based Theory adopts a resource-based approach to strategy analysis as follows:

- i. identification and classification of the firm's resources: The resources are the inputs into the production process which constitute the basic unit of analysis, for instance, capital equipment, land and building, plant and machinery, skills of employees, patents, brand and other related assets;
- ii. identification of the firm's capabilities: Capabilities connote a team of resources used to perform some tasks or activities;
- iii. appraisal of the rent generating potential of resources;
- iv. selecting a strategy which best exploits the firm's resources relative to external opportunities;
- v. Identification of resource gaps which need to be filled: This is done by upgrading the resource pool. This resource pool can be upgraded organically or through acquisitions. The organizing framework is a five-stage procedure for strategy formulation.

2.2 Empirical Literature

Olatunji and Adegbite (2014) examine the effect of investment in non-current assets on profitability of selected Nigerian banks. The researchers analysed the significant components of fixed assets (book values of building, land, leasehold premises, fixtures and fittings and investment in computers) of thirteen (13) deposit money banks. Pearson product moment correlation and multiple regressions were used to analyse the relationship between the dependent variable (net profit) and independent variables (building, land, leasehold premises, fixtures and fittings, and investment in computers). The results showed that investment in non-current assets have strong and positive statistical impact on the profitability of the banking sector in Nigeria. The researchers recommend that fixed assets utilization and

productivity needs to be monitored to boost profitability for shareholders' satisfaction.

Kamasak (2013) investigates the contribution of tangible and intangible resources, and capabilities to a firm's profitability and market performance in Turkey. The study sought to investigate the relative contribution of tangible and intangible resources and capabilities on firm performance based on the measures of market share sales turnover and profitability and explore the complex interaction and foundation of different resource sets and capabilities in the process of performance creation. Mixed-methods research approach incorporating both quantitative and qualitative components were utilized. The qualitative data analysis indicated organizational assets, human capital, business processes and networking capabilities. Data were obtained from COMPUSTAT, PIMS and FTC. The Firms were selected based on diversity along the industry dimensions (manufacturing, services and finance) and type of firm (international and multinational). The firm size was also considered as a selection criterion. In the study, tangible resources were classified into financial and physical assets, intangible resources were grouped into organizational assets, intellectual property assets and reputational assets while capabilities are all sort of organizational enablers (human capital, networking abilities, business processes, knowledge management skills and organizational routines).

The results of the study showed that human capital was seen as the most important strategic initiative and enabler of resource interaction in the process of performance in Turkish business context; there is a significant effect of business processes and knowledge management skills on performance and it was further discovered that intangible resources have a greater impact on a firm's performance than resources that are tangible in nature. The author concluded that, though capabilities can contribute to a firm's performance more than tangible and intangible resources and intangible resources can contribute to firm performance more than tangible resources, they do not necessarily do so under all circumstances.

Chiarello *et al.*, (2013) studied financial performance, intangible assets and value creation in the Brazilian and Chilean information technology companies. The studies revealed that Intangible assets disclosure, even with recent obligation, has brought benefits to companies' value and financial performance assistance. This study used descriptive analysis through both documentary research and quantitative approach; Descriptive statistics analysis, t- test and Pearson's correlation helped confirm that the Chilean companies disclose more intangible assets and make greater value through reaching good results in financial performance. Thus, the higher the financial performance, the greater the value creation, and the greater the intangible assets

disclosure within the Chilean information technology companies.

Hanran and Wang (2014) conducted a study to find out the relationship between intangible assets and financial performance of the listed technology firms in Hong Kong exchange market. Through reviewing the listed firms' annual reports for a five-year period (from 2008 to 2012), they collected data of three kinds of intangible assets, which are research and development cost, employee benefit expense, and sales training. Meanwhile, total assets and net profit were used as control variables in analysing the relationship between intangible assets and financial performance, represented by return on assets (ROA) of firms. Using lagged Research and Development expenditure as instrumental variable; their results suggested that research and development investment and sales training are beneficial to firms' financial performance while employee benefit expense is not.

Kamasak *et al.*, (2016) carried out a study to investigate the relative contribution of tangible and intangible resources, and capabilities on a firm's performance based on the measures of market share, sales turnover and profitability and explore the complex interaction and foundation of different resource sets and capabilities in the process of performance creation within the context of resource-based theory. In order to address these objectives, a mixed- methods research approach incorporating both qualitative and quantitative components was used. While qualitative data analysis indicated organizational culture, reputational assets, human capital, business processes and networking capabilities as the most important determinants of a firm's performance, the survey that was conducted on a total of 243 questionnaires obtained from 951 firms revealed that intangible resources and capabilities contributed more greatly to a firm's performance compared to tangible resources. Moreover, some noteworthy results were elaborated based on the developed and emerging market differences. Overall, the study raises some questions with respect to resource contributions on a firm's performance and offers a fruitful avenue for further research.

Mawih (2014) examines the effects of assets structure (Non-current assets and current assets) on the financial performance of some manufacturing companies listed on Muscat Securities Market (MSM). The methodology of the study was content analysis of annual reports of a sample of 28 out of 70 (40%) companies for the period 2008-2012. The asset structure is measured by Non-current assets turnover and current assets turnover while the financial performance is measured by return on assets (ROA) and return on equity (ROE). The study examines two main hypotheses. The first one examines the effects of total assets turnover on ROA whereas the second one examines the effects of total assets turnover on ROE. The overall result for the study revealed that the

structure of assets does not have a strong impact on profitability in terms of ROE. This result means that if the structure of assets is changing then the ROA will not change. Another result of the study indicates that only the Non-current assets have impact on ROE unlike ROA.

Alexandra *et al.*, (2016) evaluated the effect of Non-Current fixed Assets on Profitability and Asset Management Efficiency. The article investigated the problem, which stems from non-current fixed assets affecting profitability and asset management efficiency. Tangible assets, intangible assets and financial assets are all included in non-current fixed assets. The research was aimed at identifying the impact of estimates and valuation in accounting for non-current fixed assets through several objectives. For example, explanation of the impairment tests of tangible and intangible assets under International Financial Reporting Standard (IFRS). The study relied on combining the deductive approach with the quantitative analysis approach, where the deductive approach was used to root the subject through books, periodicals and scientific communications and electronic articles published on the internet. The results of the research: indicated that non-current assets have a strong positive relation with firm's profitability.

Similarly, Athar and Madhu (2013) examine the relation between Non-current assets investment and earnings of the companies which are non-financial. The scope of research is related to the firm's profitability and the relationship with the noncurrent assets as managing working capital and capital expenditure efficiently affect the profitability of the firm. Last ten years data of non – financial firms listed at Kentan Stock Exchange (KSE) 100 indices were taken. Multiple regression analysis was used to find out the effects of non – current on profitability. It is concluded that there is an association between Non-Current Asset and Firms Profitability indicating hypothesis is accepted.

Ruiwen and Honghui (2012) examine the impact of intangible assets on enterprise performance of Chinese Social Services Listed Companies. The data of Shanghai and Shenzhen stock market listed companies in various industries in China during 2003-2008 were selected. The authors compare the situation of intangible assets in different industries, and found that companies in different sectors and amount of intangible assets were significantly different. Excluding the impact of scale of the company, intangible assets to total assets ratio of the relative amount of target were used. On the whole, the indicator of social services is higher than other companies. And then, selected 34 social service listed firms between 2003-2008 tests of intangible assets on the business performance was carried out. The results show that, the intangible assets of current social services listed companies impacted significantly on the business performance.

In another study, Ubesie and Ogbonna (2013) evaluated the effect of investment on non-current assets on return on asset of cement manufacturing industry in Nigeria. The main aim of the study was to ascertain the effects of non-current assets on the return on assets (ROA) of cement manufacturing industry in Nigeria. The period covered 2004- 2013. The independent variables were Land and Buildings, Plant and Machinery, Motor Vehicles, Furniture and Fittings, while the dependent variable was return on assets (ROA). Annual accounts and reports were used for analysis and multiple regressions were used to validate the hypotheses. The findings revealed that there is an effect of non-current assets on return on asset but is not significant in Nigeria. It also showed that the independent variable Plant and Machinery contributed more to Return on Asset but not significant.

Umoren and Udo (2015) examine working capital management and the performance of selected deposit money banks in Nigeria, using descriptive statistics, Pearson's correlation and regression analysis. The finding showed that there is a significant positive relationship between bank performance and bank size.

Kuria and Timothy (2012) evaluated the relationship between Intangible assets and performance of Commercial Banks in Kenya. They maintained that the Banks have undertaken strategic initiatives to improve financial performance. Some of these banks consider that the cumulative gains in efficiency are much greater over time than those, which come from irregular radical changes. However, many of these short- and medium-term gains are quickly eroded and absorbed into the industry standard and therefore cannot be depended upon as a prerequisite for survival and growth. The objectives of this study were to establish the relationship between computers fixed assets and financial performance of commercial banks in Kenya and to investigate the relationship between investment in intangible assets and financial performance of commercial banks in Kenya. Intangible assets are comprised of capitalized computer software costs which are amortized over the estimated useful lives usually three to eight years according to generally accepted accounting principles and reported in line with international financial reporting standards. This research problem was best studied through the use of exploratory research design. The study made use of secondary data when investigating and collecting both quantitative and qualitative data. The data collected were presented through summarized percentages, proportions and tabulations. Mean scores and standard deviations were evaluated.

Gamayuni (2015) studied the relationship between intangible assets, financial policies, and financial performance to the firm value at going-public company in Indonesia. Path analysis was used to ascertain the relationship between intangible assets,

financial policies, financial performance, and firm value at going-public company in Indonesia in the year 2007 to 2009. The study also provided empirical evidence that Intangible assets, financial policies, financial performance have significant influence on the firm's value simultaneously. Intangible assets have no significant influence on financial policies but have positive and significant influence on financial performance (ROA) and firm value. Debt policies and financial performance (ROA) influence a firm's value positively and significantly. Financial statements limitation in measuring and disclosing intangible assets is the cause of significant difference between book value of equity and market value of equity. Measurement and disclosure of intangible assets (intellectual capital) precisely and accurately is very important, because intangible assets have a positive and significant effect on the firm's value.

Adebawojo *et al.*, (2015) conducted a study of Human assets accounting and corporate performance. According to the study, human beings are the most critical assets in organizations as established in the available literature. They drive other organizations' resources to achieve success. Currently, this most important asset is not being accounted for or disclosed in the organizations' statement of financial position like other physical assets and intangible assets. Hence, this study investigated the likely effect of human asset accounting on the performance of business organizations in Nigeria. The empirical study adopted an Ex-post facto research design, conducted on all 18 publicly quoted banks in the Nigerian capital market. The instrument of data collection was questionnaire designed on a six steps Likert Scale and validated through peer review with Cronbach Alpha Coefficient of 0.807 and 0.870 for Human Asset and Organization Performance respectively. The hypothesis was tested using simple regression model. The result of the analyses confirmed that human asset accounting significantly affects the banks' performance at F- ratio = 56.280, $P \leq 0.05$, $R^2 = 0.193$. It concluded that capitalizing on the human assets would positively impact on the performance of organizations and recommended its disclosure as intangible asset in the statement of financial position.

In the research carried out by Alves and Martins (2014) using two UK cross-sectional samples, the paper examined the impact of the level and the type of the intangible assets on six major financial and governance policies that directly depend on the interactions between managers, shareholders and debt holders – financial structure, dividend pay-outs, external ownership concentration, managerial share ownership, board of directors' structure and auditing demand. The results suggest that the level and type of intangible assets (measured by the amount of all intangible assets, the stock of RD expenditures and the amount of intangible assets other than RD) fail to have a significant impact on the four governance policies investigated in the paper –

managerial equity ownership, external block ownership, board structure and auditing demand. In contrast, it was found out that intangible assets (measured by those three variables) have significant negative impact on debt and dividend pay-out. From a theoretical point of view, these results suggest that the accumulated amount of high agency costs of debt, bankruptcy costs, information asymmetry and non-debt tax shields associated with intangible/RD assets are cancelled out by important equity agency costs and signaling arguments for all four governance policies but not for the two financial policies.

Oliver *et al.*, (2017) evaluated the relationship between assets growth rate and financial performance of manufacturing firms in Nigeria. Six (6) firms were selected from the twenty-two (22) manufacturing firms listed on the Nigeria Stock Exchange Market (NSE) and secondary data collected from the firms for ten years period (2006 – 2015). The data were analysed using Pearson Product Moment Correlation Matrix and Multiple Regression whereby the effects of the independent variables on the dependent variable were tested. Non-current assets growth rate, current assets growth rate and net assets growth rate were used as proxies for a firm's growth (independent variables) while profit after tax was used as proxy for financial performance (dependent variable). The result indicated that non-current assets growth rate and net assets growth rate of manufacturing firms in Nigeria positively and strongly relate with the profit after tax of the firms for the period of 2006 – 2015, while current assets growth rate positively and weakly relate with the profit after tax of the firms for the period. The implication is that profit after tax grows as the non-current asset base of the firms grows.

Again, Claudio *et al.*, (2013) examine the relationship between structure of assets and performance of firms listed in Tehran (Iran) Stock Exchange. The ratio of current assets to non-current assets as a structure of assets and Return on Assets (ROA) as criteria for a firm's performance was used. Findings of investigation of 252 firms listed in Tehran Stock Exchange observation from 2001 to 2012 in the four industries (pharmaceutical, chemical, cement and automobile) suggest in 95% confidence level, signification relation between structure of assets and performance existent. In other words, significant linear relationship between structure of assets and performance of active firms in the industry were examined. Non-linearity test was used. Without intervention the moderating variable (in this study is capital structure). The statistical results show that the relationship between the pharmaceutical industry and cement industry as the relationship logarithmic; that is, with the increasing ratio of current assets to Non-current performance may improve, but its slope is less.

The review showed that the contribution of Non-current assets to the performance of firms was a major interest of various researchers. Depending on the

focus of each study, prior researchers largely selected specific type of assets to study. While some of the previous studies in Nigeria centred on a particular type of tangible non-current assets, others researched on a particular type of intangible non-current asset besides adopting different kinds of statistical tools by both categories of researchers to analyse their data. Most of such previous studies were designed with emphasis on descriptive findings of the behaviour of certain assets on the performance of firms. Little attention was given to the measuring perspectives, especially the relationship between certain group of assets and the performance of firms. None of the researchers in Nigeria assessed both the contribution of Tangible non-current asset and intangible non-current assets on the performance of firms. The current researchers therefore believe that assessing both Tangible non-current assets and intangible non-current assets in a study will yield a more robust result about the contribution of non-current assets to the performance of firms. Hence, the rationale for the current study on investment in non-current assets and the performance of manufacturing firms quoted in the Nigerian stock exchange.

2.3 Research Hypotheses

Considering the gap in the literature and to achieve the objective of the study, The researchers formulated the following hypotheses:

H01: there is no significant relationship between investment in tangible non-current assets and the return on assets (ROA) of manufacturing firms in Nigeria;

H02: there is no significant relationship between investment in intangible non-current assets and the return on assets (ROA) of manufacturing firms in Nigeria;

H03: there is no composite contribution of investment in tangible and intangible non-current assets to the return on assets (ROA) of manufacturing firms in Nigeria.

3. METHODOLOGY

3.1 Research Design

Ex post Facto research design was adopted in the study. It establishes the causal relationship between non-current asset investment and corporate performance. The design appears most germane for this study as the researcher has no control over the behavioral pattern of the variables. Hence, secondary data were deployed for the investigation. 15 out of a total of 20 manufacturing firms in the consumer goods sector of the Nigerian Stock Exchange as at 26th January, 2021 comprised the sample for the study. The sample was purposively selected on the basis of availability of relevant data for the study from the audited report covering 2012-2019.

3.2 Theoretical Specification of Model

The model was anchored on the resource-based-view theory, which holds that improved firms'

performance is a function of efficient utilization of the resources at the possession of the firms. The resource-based view (RBV) argues that firms possess resources, a subset of which enable them to achieve competitive advantage, and a subset of those that lead to superior long-term performance. Resources that are valuable and rare can lead to the creation of competitive advantage. That advantage can be sustained over longer time periods to the extent that the firm is able to protect against resource imitation, transfer, or substitution for improved performance.

The Theoretical Specification of Model is Given As:

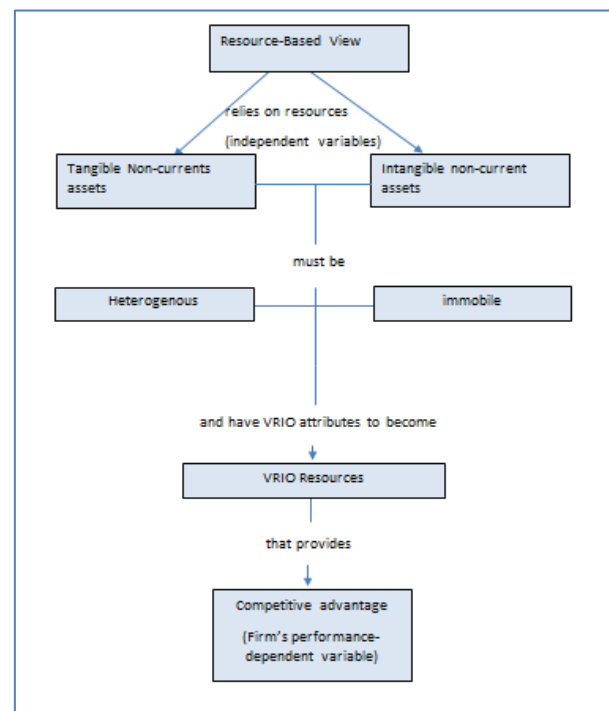


Figure 3.1: The Resource-based-view model
Source: Adapted from, Hanran and Wang (2013)

3.3 Empirical Specification of Model

A multiple regression model was adopted in the study for testing the explanatory power of the independent variables on the dependent variables. The model as used by Kamasak (2013) as well as Hanran and Wang (2014) was adapted in the current investigation. The models are represented in mathematical Equations as:

$$\text{Performance} = f(\text{Non-current Assets}) \quad \text{Equation 3.1}$$

$$\text{Performance} = f(\text{Tangible Non-current assets and Intangible Non-current assets}) \quad \text{Equation 3.2}$$

$$\text{Prof}_{MFs}(\text{ROA}) = f(\text{NCA}) \quad \text{Equation 3.3}$$

$$(\text{ROA}) = f(\text{TNCA}) \quad \text{Equation 3.4}$$

$$(\text{ROA}) = f(\text{INCA}) \quad \text{Equation 3.5}$$

$$\text{Therefore: } \text{ROA}_{it} = \alpha_0 + \alpha_1 \text{TNCA}_{it} + \alpha_2 \text{DAR}_{it} + \alpha_3 \text{ATR}_{it} + e \quad \text{Equation 3.6}$$

$$ROA_{it} = \mu_0 + \mu_1 INCA_{it} + \mu_2 DAR_{it} + \mu_3 ATR_{it} + e$$

Equation 3.7

$$ROA_{it} = \beta_0 + \beta_1 TNCA_{it} + \beta_2 INCA_{it} + \beta_3 DAR_{it} + \beta_4 ATR_{it} + e$$

Equation 3.8

Where:

Prof_{MFit} = Performance of Manufacturing firms as measured by Return on Assets

ROA_{it} = Return on Assets (Dependent Variable)

INCA_{it} = Intangible Non-current assets (Independent Variable)

TNCA_{it} = Tangible Non-current assets (Independent Variable)

DAR_{it} = Debts to Assets Ratio (Control Variable)

ATR_{it} = Asset Turnover Ratio (Control Variable)

e = error term

$\alpha_0, \alpha_3; \mu_0$ to μ_3 and β_0, β_4 = denotes unknown parameters to be estimated or coefficient of the independent variables.

4. EMPIRICAL ANALYSIS AND INTERPRETATION OF RESULTS

4.1 Data Presentation

Table 4.1: Descriptive Statistics of the Variables

	N	Minimum	Maximum	Mean	Std. Deviation
ROA	120	.00	.26	.0759	.06474
TNCA	120	236943.00	221465325.00	49261497.2083	62545931.67705
INCA	115	.00	100612728.00	6330544.8609	22792047.71710
PAT	120	3333.00	45683113.00	7413138.8917	11144114.79219
DAR	120	.02	2.00	.6210	.30240
ATR	120	.03	4.34	1.0703	.62438
Valid N (listwise)	115				

Source: Researchers' Computation (2021).

The result of the analysis in Table 4.1, shows that the minimum non-current assets was ₦236,943,000 and the maximum was ₦221,465,325,000. Within the period under review the average tangible non-current assets was ₦49,261,497,208. The standard deviation which measures the dispersion was ₦62,545,931,677.

On the other hand, intangible non-current assets had a minimum value of ₦0. The minimum value of ₦0 was recorded because some of the sampled companies did not report intangible assets in their financial statements. The maximum value of intangible non-current assets was ₦100,612,728.0, while the average value was ₦6,330,544,861. The standard deviation of intangible non-current assets was ₦22,792,047,717 for the period under review. The Return on Assets (ROA) which was used as the proxy for performance had a minimum ratio of 0.00, maximum ratio of 26 and an average ratio of 0.759.

Profit after tax (PAT) had a minimum value of ₦3,333,000 and a maximum value of ₦45,683,113,000. The PAT of the selected companies had an average value of ₦7,413,138,891.70 The standard deviation for Profit after tax was ₦11,144,114,792.19. The Debt to Asset Ratio (DAR) and the Asset Turnover Ratio (ATR), which were used as the control variables for this study had minimum ratio of 0.02 and 0.03 respectively; while the maximum ratio was 2 and 4.34 respectively; and the average ratio was 0.62 and 1.07 respectively. In order to evaluate the suitability of the data set for regression analysis, some test of regression assumptions was carried out.

Test of Regression Assumptions

Test of Normality

The test of normality was carried out using Kolmogorov-Smirnov and Shapiro-Wilk statistics. A significant probability value greater than 0.05 implies that the data set were normally distributed and vice versa. For the data set of this study, the data set was not normally distributed in line with the normal curve as shown in the table of test of normality in Appendix II.

Autocorrelation Analysis

It is assumed in regression analysis that autocorrelation does not exist between the variables. Autocorrelation implies the degree of correlation among the variables and this is usually measured using Durbin Watson statistics. The benchmark is usually set at a minimum of near 0 and a maximum of close to 4. For this study, the Durbin Watson statistics was 1.101 to 1.123 which is not close to zero and within the relevant range, as shown in Table 4.3.

Test of Multicollinearity

Multicollinearity is a statistical phenomenon which takes place if there are strong correlation between the independent variables. It means that there does not exist 'perfect' linear relationship among some or all independent variables of the regression model. The basic problem in regression analysis is that the independent variables seem to be statistically significant, but in fact they are not. Multicollinearity exists when there are linear correlation relationships in the model. In addition, multicollinearity is able to be detected by using the Variance Inflation Factor (VIF) or the Tolerance indicator. (Dimitrios, 2014). When the VIF value is larger than 10, it can be concluded that severe

multicollinearity exists in the data set. In this study, none of the results show VIF of larger than 10, as indicated in regression result.

4.2 Test of Research Hypotheses

Hypothesis One

$$ROA = -221 + 0.95TNCA + 0.25DAR + 0.05ATR$$

The null hypothesis one states that there is no significant relationship between investment in tangible non-current assets and the performance of manufacturing firms in Nigeria. The null hypothesis one was rejected and the alternate accepted because the p-value of 0.000 shown in Table 4.2 is less than 0.05. The null hypothesis is further rejected because the t-cal value of 39.967 is greater than the critical value of t which was 1.980. This implies that there is a significant relationship between investment in tangible non-current assets and the return on assets (ROA) of manufacturing firms in Nigeria.

Hypothesis Two

$$ROA = 6.68 + 0.44TNCA + 0.10DAR - 0.52ATR$$

The null hypothesis two states that there is no significant relationship between investment in intangible non-current assets and performance of manufacturing

firms in Nigeria. The null hypothesis two was rejected and the alternate accepted because the p-value of 0.000 shown in Table 4.2 is less than 0.05. The null hypothesis is further rejected because the t-cal value of 6.092 is greater than the critical value of t which was 1.980. This implies that there is a significant relationship between investment in intangible non-current assets and return on assets (ROA) of manufacturing firms in Nigeria.

Hypothesis Three

$$ROA = 1.028 + 0.83TNCA + 0.077INCA + 0.186DAR - 0.082ATR$$

The null hypothesis three states that there is no composite contribution of investment in tangible and intangible non-current assets to the performance of manufacturing firms in Nigeria. The null hypothesis three was rejected and the alternate accepted because the p-value of 0.000 shown in Table 4.2 is less than 0.05. The null hypothesis is further rejected because the F-cal value of 236.772 is greater than the critical F value which was 3.073. This implies that there is a composite contribution of investment in tangible and intangible non-current assets to the performance of manufacturing firms in Nigeria.

Table 4.2: Regression Result of investment in non-current assets and the performance of quoted manufacturing firms in Nigeria

Variables	Estimated Coefficient (beta)	Standard error of the estimation	t-value	Sig. (p)value	Decision
(Constant)	1.028	0.347	2.957	0.004	
TNCA	0.950	0.025	39.967	0.000	Reject
INCA	0.44	0.39	6.096	0.000	Reject
DAR	0.186	0.114	5.646	0.000	
ATR	-0.082	0.041	-1.971	0.48	
F-statistics	236.772			0.000	Reject

a. Predictors: (constant), TNCA, INCA, DAR, ATR

b. Dependent Variable: Return on assets (ROA)

Source: Researchers' Computation, (2021).

Table 4.3 Summary of the three models

Hypothesis	Adjusted R Square	Durbin Watson	Standard Error of the estimation
H ₁ . ROA=f(TNCA)	0.919	1.118	.21388
H ₂ . ROA=f(INCA)	0.607	1.101	.40784
H ₃ . ROA=f(TNCA+INCA)	0.923	1.123	.18086

Source: Researchers' Computation, (2021).

5. DISCUSSION OF THE FINDINGS

The result of the regression analysis shows that investment in tangible non-current assets have a regression coefficient of 0.95. This can be seen in Table 4.2. The implication of this finding is that 95% of the variation in financial performance of manufacturing companies in Nigeria is accounted for by investment in tangible non-current assets such as property plant and equipment. This indicates that more investment in tangible non-current assets will lead to an increase in the financial performance of manufacturing companies in Nigeria. Specifically, the result indicates that if investment in Tangible Non-current assets of the firms

increases by ₦1, ROA of the manufacturing firms in Nigeria will rise by 95%. The correlation analysis with the adjusted R square of 0.919 as indicated in Table 4.3, showed that there is a significant relationship between tangible non-current assets and the financial performance of manufacturing firms in Nigeria. This is true because without the machines and equipment there will be no productivity. More so, in Nigeria, the operations of the manufacturing firms depend largely on electricity, which means heavy reliance on independent power supply.

This finding is in agreement with the findings of Athar and Madhu (2012) who studied the relationship between Non-current assets investment and earnings of

the companies, using multiple regression analysis, secondary data from 24 sample firms in manufacturing, engineering, textile, among others. It was observed that there is an association between investment in non-current assets and firms' profitability. The result is also in agreement with the findings of Kamasak (2013) on contribution of tangible, intangible resources and capabilities to firms' profitability and market performance in Turkey. Using a mixed method research with both quantitative and qualitative components of primary data from 951 firms, Kamasak (2013) discovered that though capabilities can contribute to firm performance more than tangible and intangible resources, intangible resources can contribute to firm performance more than tangible resources, but may not be so in all circumstances.

The result of the regression analysis shows that investment in intangible non-current assets has a regression coefficient of 0.44. This can be seen in Table 4.2. The implication of this finding is that 44% of the variation in financial performance of manufacturing companies in Nigeria is accounted for by investment in intangible non-current assets such as Software, brand name, goodwill, patent rights, e-commerce platforms, among others. This indicates that more investment in intangible non-current assets will lead to an increase in the financial performance of manufacturing companies in Nigeria. In addition, the result indicates that if investment in Intangible Non-current assets of the firms increases by ₦1, ROA of the manufacturing firms in Nigeria will rise by 44%. The correlation analysis of adjusted R square of 0.60 as indicated in table 4.3, showed that there is a significant relationship between intangible non-current assets and the financial performance of manufacturing firms in Nigeria. This finding is in agreement with the findings of Ruiwen and Honghui (2012), who examine the impact of intangible assets on enterprise performance of Chinese Social Services Listed Companies and found that, the intangible assets of current social services listed companies impacted significantly on the business performance. The result also agreed with the findings of Kuria and Timothy (2012), that increase in investment on intangible assets (computer software) and computers assets have led to increase in ROA and profitability, based on the study of the relationship between intangible assets and performance of commercial banks in Kenya.

The result of the regression analysis revealed an adjusted R-square value of 0.923. This can be seen in Table 4.3. The implication of this finding is that 92.3% of the variation in financial performance of manufacturing companies in Nigeria is accounted for by the composite investment in intangible and tangible non-current assets. This indicates that investments in tangible and intangible non-current assets jointly affect financial performance of manufacturing companies only by 92.3%. This finding is in agreement with the findings of Olatunji and Adegbite (2014) who examined the effect

of investment in non-current assets on profitability of selected Nigerian banks. Their results showed that investment in non-current assets have strong and positive statistical impact on the profitability of the banking sector in Nigeria.

The analysis also indicates that there is a significant difference in the level of contribution of tangible non-current assets and intangible non-current assets to the ROA of manufacturing companies in Nigeria. The analysis showed that tangible non-current assets contribute more than the intangible non-current assets in Nigeria.

Furthermore, in regards to the control variables, the findings indicate that the control variables; DAR of 0.186 has a relationship with the ROA of the Manufacturing firms. That is, the manufacturing firms can continue to perform positively when the firms leverage on debts to fund its assets. However, the debt ratio will have to be maintained at an optimal level provided the debt to asset ratio is within an industry benchmark. Specifically, the finding indicates that 1% rise in the debt to asset ratio will lead to 18.6% rise in the ROA of the manufacturing firms. This is in disagreement with the finding of Athar and Madhu (2012), which showed a negative and significant relationship with the ROA of the studied firms.

In addition, the Asset Turnover Ratio, which measures the efficiency at which assets are utilized to generate sale revenue of -0.82 in Table 4.2, indicates that the efficiency at which assets are utilized do not influence the ROA of the manufacturing firms, though not significant with the p-value of 0.052 which is above the standard value of 0.05. Specifically, 1% rise in the asset turnover rate will lead to 8% fall in the ROA of the manufacturing firms. This finding is in disagreement with that of Ubesie and Ogbonna (2013), which revealed a positive and significant relationship with the ROA of the studied firms.

6. CONCLUSION AND RECOMMENDATIONS

6.1 Conclusion

Based on the findings of this study, there is a significant relationship between investment in non-current asset and the performance of the quoted manufacturing firms. However, there is a positive and significant statistical difference between the level of contributions of tangible non-current asset and the performance of the quoted manufacturing firms and intangible non-current asset, when tested independently. This implies that, an increase in investment in tangible non-current assets of the firms would lead to an improved performance of the manufacturing firms. This further proves that, in a developing economy such as Nigeria, there is more reliance on tangible asset in increasing the performance of firms than it is in intangible asset. In addition, manufacturing firms rely

heavy on independent power supply (such as the use plants and generators) for their operations.

Therefore, it can be concluded that investment in tangible and intangible assets significantly affects the financial performance of manufacturing firms in Nigeria. It can also be concluded that the influence of tangible non-current assets on the financial performance of the manufacturing companies is more than that of the intangible non-current assets.

6.2 RECOMMENDATIONS

The following recommendations are put forward based on the findings of the study:

- i. Manufacturing firms in Nigeria should make policies that will improve their existing investment in tangible non-current asset base such as, plant, machinery and equipment;
- ii. the manufacturing firms in Nigeria are also advised to make policies that support investment in intangible non-current assets;
- iii. To improve investment in non-current assets, manufacturing firms in Nigeria are advised to leverage on debts to fund the non-current assets. However, the manufacturing firms must be cautious to maintain the ratio within an acceptable industry benchmark;
- iv. Also, the management of the manufacturing firms should keep ensuring that its non-current assets are optimally utilized in order to generate more sales to the business, as inefficiency in asset utilization may impact negatively on the assets turnover level of the firms. Hence, manufacturing firms in Nigeria are advised to purposely pay attention to asset utilization;
- v. The study further recommended that financial ratios should be regularly computed and made use by Nigerian companies in assessing their financial performance. This is because effective use of such ratios provides timely information on the financial health of the companies;

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