



EFFECT OF FINANCIAL ASSETS ON FINANCIAL PERFORMANCE OF PHARMACEUTICAL FIRMS IN NIGERIA

Okechukwu Theresa Ijeoma (Rev. Sr) and Ugwu James Ike (Ph.D)

Department of Accounting and Finance, Godfrey Okoye University, Enugu, Nigeria

Email tessyvera22@gmail.com; Tel: +2348146689873

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ABSTRACT: *The study evaluates the effect of financial assets on the financial performance of pharmaceutical firms in Nigeria from 2011-2020 with cash, stock and loans as independent variables and return on assets as dependent variables. Data extracted from the published financial statements of the firms for the period covered were subjected to descriptive analysis and inferential statistics analysis. Diagnostics tests include: Panel Unit Root test, Cointegration test, Hausman test. Panel Regression Analysis result reveals positive but insignificant effect of cash, stocks and loans on return on assets of pharmaceutical firms in Nigeria. The conclusion drawn from the findings is that financial assets contribute very little to the financial performance of pharmaceutical firms in Nigeria. The higher the financial assets of pharmaceutical firms in Nigeria, the better, as the performance would be improved. The study recommends amongst others that pharmaceutical firms should improve on their cash management efficiency. Management of pharmaceutical firms in Nigeria should determine the optimal cash level of the firms to avoid liquidity problems while at the same time avoid ideal funds.*

KEY WORDS: Financial assets, Financial Performance, Cash, Stocks, Loans, Pharmaceutical firms, Nigeria.



INTRODUCTION

Background to the Study

The performance of a firm is the signal of its sustainability and survival. There are many factors that have the potentials of influencing the level of performance in corporate organizations. Some of these factors are corporate governance, firm structure, exogenous macroeconomic variables like government policies that revolve around taxation, inflation, exchange rate volatility, political risk, interest rate, among others. Corporate governance quality and managerial capacity of key personnel exert significant influence on corporate performance. Furthermore, one implicit factor influencing financial performance in corporate organizations is its financial assets. The position of financial assets especially in the pharmaceutical industry, according to Helen (2012), is one of the most common financial reports to assess the steps and decisions taken by management in the running of the organization. Financials in accounting and finance relate to non-physical assets such as bank deposits, bonds, and stocks whose values are derived from contractual claims. Financial assets are usually more liquid than other tangible assets such as commodities or real estate, and could be traded on in financial markets depending on the status of the organization concerned. The status of financial assets and quality as an aspect of firm management entails the evaluation of a firm's asset in order to facilitate the measurement of the level and size of credit risk associated with its operation.

The present world of business operation is characterized by a considerable amount of uncertainty regarding the demand, supply and market price as there are operational costs for every business activity while business information is costly and not evenly distributed. Similarly, every firm has its own limits on the production capacity and technology in terms of core competency which determines the nature of investments and financial risk (Benjamin, 2019).

The pharmaceutical sector, which manufactures drugs and other medical consumables, plays a prominent role in the general health of citizens and residents in a country, as such, contributes significantly to economic growth by providing materials for prevention, treatment and rehabilitation of patients. Owing to its significant contribution towards providing to the economy a healthy productive workforce, it is imperative to pay serious attention to issues that concern this sector as the workers lay the golden egg: the wealth of the nation. With the size of the Nigerian pharmaceutical industry, which has been estimated to be around \$800 million (Business Monitor International, 2018), the industry can be placed among the biggest in the Nigerian market. Put differently, Nigeria has one of the most promising and rapidly growing pharmaceutical markets in West Africa with more than 110 pharmaceutical formulation manufacturing facilities. The Nigerian pharmaceutical industry is growing at 12 percent annually. The market size has been estimated to be USD 919 million in 2019 and it has also been confirmed that about 60 percent of drug manufacturing in the Economic Community of West African States (ECOWAS) sub-region takes place in Nigeria, giving credence to the huge sub-regional market. However, the Nigerian pharmaceutical industry as it is today is still plagued by a series of challenges which has hampered its growth potentials. In an attempt to address these problems, Nigeria in March 2020 signed a Memorandum of Understanding on cooperation in the pharmaceutical sector with India. This made India exports of pharmaceutical products, including Active Pharmaceutical Ingredients (APIS) and fine chemicals to Nigeria to stand at \$409 million as at March 31, 2020 (Business Day, 2020).



Financial performance is a measure of how well or otherwise a firm can use assets at its disposal for its primary mode of business and generate revenues, as such, could be a measure of the overall financial health of the firm and for comparing firms in the same industry or to compare industries or sectors. Financial performance of the pharmaceutical industry in Nigeria has attracted relatively poor attention, comments and interests from accounting financial experts, researchers, the general public and the management of corporate entities. Furthermore, evaluating the performance of most successful pharmaceutical firms has always proved a difficult task to many as a firm may have a high level of financial performance, but may be finding it difficult in managing its financial assets efficiently (Maleya & Willy, 2018).

Oguna (2018) stated that financial performance analysis identifies the financial strengths and weaknesses of the firm by properly establishing relationships between the items of the statement of financial position and income statement. This is achieved by selecting the information relevant to the decision under consideration from the total information contained in the financial statements, arranging the information in a way to highlight significant relationships and interpret and draw inferences and conclusions. There are several factors that have the potential of affecting financial performance of pharmaceutical firms, one of which is financial assets coupled with its management (Liargovas & Skandalis, 2018). The function of the financial measures seems essential in evaluating the firm's performance (Mahmoudi, 2019). Enekwe (2015) opined that operational efficiency is one of the factors on which financial performance of an entity largely depends. Consequently, this study chose to examine the relationship between financial assets and financial performance of pharmaceutical firms in Nigeria. Effective management of assets is one of the most important parts of the entire business entity in creating value for shareholders. It is based on the foregoing that this study is aimed at carrying out an empirical analysis of impact of financial assets on financial performance of pharmaceutical firms in Nigeria covering the 2011-2020.

Statement of Problem

Health is wealth is an old adage. A healthy productive workforce is a great asset to a nation as the workers create wealth for the nation. Essentially, financial assets of a firm provide the life wire of the firm as the fund for investing and operating activities of firms come from it. Efficient management of financial assets is a crucial factor in enhancing the financial performance of pharmaceutical firms which in turn can reposition the sector to contribute significantly to the growth of the Nigerian economy.

In the quest to maximize performance, many organizations fail to scrutinize their investment in both non-current assets and current assets. This is unfortunate because improving the way an organization controls and manages assets may have the greatest potential for improving the organization's value (Schreibfeder, 2019). Some major poor financial asset management occurs in firms namely; overpaying taxes, erroneous depreciation, penalties and fines and excessive drawings. Inaccurate financial statements have ruined the reputation of firms with lenders and investors developing cold feet thus stunting future firm growth. Poor cash management has resulted in liquidity problems of many firms. Liquidity problem makes it impossible for the firm to meet up with its maturing obligations which in some cases end in the firm winding up/liquidation. Also, high level of loan reduces return on investment as a substantial amount of the profit would be used to service the loan thereby reducing net profit available for distribution.



Despite the importance of efficient management of financial assets to the financial performance of pharmaceutical firms, the actual effect of financial assets efficiency on the financial performance in Nigeria has been a major problem among researchers who are yet to effectively explore this area and get it resolved. Majority of the studies carried out to ascertain the relationship between financial assets/management and financial performance of firms have been on the banking, industrial and other manufacturing sector (Nwarogu & Jacob, 2017; Ndubuisi & Ezechukwu, 2017; Mathew, 2018). There is also a divergence in the results of the previous studies on the aforementioned sectors which suggests that there is still no conclusive empirical evidence in the literature about how financial assets influence the financial performance of firms in Nigeria (Omari, 2015), hence the study to assess the effect of cash, stock and loans (explanatory variables) on return on asset (dependent variable).

Objectives of the Study

The study evaluates the effect of financial assets on financial performance of pharmaceutical firms in Nigeria. The specific objectives are:

1. To ascertain the effect of cash on return on assets of selected pharmaceutical Firms in Nigeria;
2. To evaluate the effect of stocks on return on assets of selected pharmaceutical firms in Nigeria; and
3. To assess the effect of loans of the firm on return on assets of selected pharmaceutical firms in Nigeria.

Research Questions

Following the research objectives, the following questions were considered pertinent:

1. To what extent has cash affected the return on assets of selected pharmaceutical firms in Nigeria?
2. To what degree do stocks have an effect on return on assets of selected pharmaceutical firms in Nigeria?
3. To what extent have loans of the firm affected return on assets of selected pharmaceutical firms in Nigeria?

Hypotheses of the Study

H₀₁: Cash has no significant effect on return on assets of selected pharmaceutical Firms in Nigeria.

H₀₂: Stocks have no significant effect on return on assets of selected pharmaceutical Firms in Nigeria.

H₀₃: Loans of the firm have no significant impact on return on assets of selected pharmaceutical Firms in Nigeria.



REVIEW OF PREVIOUS WORKS

This presents the scholarly discussion on the research area. It reviews both conceptual and theoretical literature and empirical literature as guided by the study variables. It also discusses summary and research gaps.

Conceptual Review

The study discusses the concept of financial assets, cash or cash equivalents, stock, loans/receivables and return on assets

The Concept of Financial Assets

The term asset is defined as a resource controlled by an entity as a result of past events and from which future economic benefits are expected to flow to the entity. (IASB 2015). Typically, assets are divided into two categories: tangible assets and intangible assets. Non-current assets and current assets are composition of the tangible assets. Intangible assets have distinct conditions according to accounting standards. Therefore, most of the assets presented in the statement of financial position for companies are tangible assets (Mawih, 2018). Manufacturing firms use non-current assets to transfer raw materials into finished goods. These assets are called property, plant, and equipment including land, building, equipment, automobiles, and furniture. Current assets are liquid assets which include cash, inventories, accounts receivables, prepaid expenses, accrued income and loan advances. They are used in running day-to-day activities of companies. The sum of current assets and noncurrent assets is known as total assets. There is however increasing importance of non-current assets and current assets in generating profit as most manufacturing firms invest heavily in the assets. The amount of funds to be invested in both assets must be carefully determined in accordance with their contributions to manufacturing firms. Their contribution is therefore measured by asset efficiency (Baker & Powell, 2015).

According to Scott (2017), financial assets shall be recognized in accounting when, and only when, an entity receives or in accordance with the ongoing contract obtains a right to receive cash or another financial asset. Forecast transactions and received guarantees are not recognized as the entity's assets as long as they do not meet the definition of financial assets. At initial recognition, an entity, notes Scott (2017), shall measure a financial asset at its acquisition cost. The acquisition cost of a financial asset might also include direct transaction costs. According to IFRS (2018), acquisition cost is determined on the basis of the amount of cash paid/payable for a financial asset or the value of another delivered asset. If payment for a purchased asset is deferred for a period longer than 12 months, and the interest rate is not prescribed by the contract or it significantly differs from the market interest rate, the acquisition cost is determined by discounting the total payable amount to the present value at the market interest rate. The difference is recognized as interest expenses over the entire period of repayment. Acquisition cost of a financial asset received in an exchange transaction is determined by adding all related transaction costs to the value prescribed by the exchange agreement. If the value of the asset is not prescribed by the exchange agreement, the acquisition cost of the financial asset equals the fair value of the financial asset given up in exchange.

Financial instruments are financial contracts of different nature made between institutional units. These comprise the full range of financial claims and liabilities between institutional units, including contingent liabilities like guarantees, commitments, among others. According



to Chapman (2014), a financial asset is defined as any contract from which a financial claim may be derived for one party and a financial liability or participation in equity for another. Financial assets are contracts that do not contain contingent, that is, irrespective of any conditions, generate financial claims having demonstrable value over which ownership rights are enforced, individually or collectively, and from which economic benefits can be derived by using or holding them. Examples of financial assets are SDRs, monetary gold, currency deposits, securities other than shares, borrowings, loans, shares and other equity, Other accounts receive financial derivatives (Anderson, 2017).

A financial asset is a liquid asset that gets its value from a contractual right or ownership claim. Cash, stocks, bonds, mutual funds, and bank deposits are all examples of financial assets. Unlike land, property, commodities, or other tangible physical assets, financial assets do not necessarily have inherent physical worth or even a physical form. Rather, their value reflects factors of supply and demand in the marketplace in which they trade, as well as the degree of risk they carry (Fredrick, 2019).

Most assets are categorized as either real, financial, or intangible. Real assets are physical assets that draw their value from substances or properties, such as precious metals, land, real estate, and commodities like soybeans, wheat, oil, and iron. Intangible assets are the valuable property that is not physical in nature. They include patents, trademarks, and intellectual property. Financial assets are in-between the other two assets. Financial assets may seem intangible—non-physical—with only the stated value on a piece of paper such as a dollar bill or a listing on a computer screen. What that paper or listing represents, though, is a claim of ownership of an entity, like a public company, or contractual rights to payments—say, the interest income from a bond (Todaro, 2017).

Financial assets derive their value from a contractual claim on an underlying asset. This underlying asset may be either real or intangible. Commodities, for example, are the real, underlying assets that are pinned to such financial assets as commodity futures, contracts, or some exchange-traded funds (ETFs). Likewise, real estate is the real asset associated with shares of real estate investment trusts (REITs). REITs are financial assets and are publicly traded entities that own a portfolio of properties (Bensodieke, 2015).

Beinabaj, Soleimani and Rashidi (2017) affirmed that financial assets efficiency ratio, also called financial asset management ratio or asset turnover ratio, indicates a company's ability to effectively utilize its assets in income generation. They argued that a low ratio may be related to several factors and it is important to determine these factors and reasons. For example, are the invested assets too excessive compared to their productivity value (income earned)? In such a case, the company may decide to sell additional assets and invest in another place or area which has more profits. From the above, it can be said that asset efficiency ratios are the key to analyzing how effectively and efficiently a firm is managing its assets to produce sales. Some firms can have a higher percentage of non-current and a low percentage of current assets and vice versa. Where the percentage of current assets is higher than the percentage of non-current assets, this means that the contribution of current assets is likely to be greater than the contribution of non-current assets to generate the sales. From the aforesaid, financial assets are liquid assets (cash and its equivalent, stock and receivables, bonds and derivatives) the use of which results in enforceable contractual relationship that results in financial claims, thus attracting economic benefits to the firm.



According to the International Financial Reporting Standards IFRS (2006), a financial asset can be:

- a. Cash or cash equivalent,
- b. Equity instruments of another entity,
- c. Contractual right to receive cash or another financial asset from another entity or to exchange financial assets or financial liabilities with another entity under conditions that are potentially favorable to the entity.
- d. Contract that will or may be settled in the entity's own equity instruments and is either a non-derivative for which the entity is or may be obliged to receive a variable number of the entity's own equity instruments, or a derivative that will or may be settled other than by exchange of a fixed amount of cash or another financial asset for a fixed number of the entity's own equity instruments.

In addition to stocks and receivables, the above definition comprises financial derivatives, bonds, money market or other account holdings, and equity stakes. Many of these financial assets do not have a set monetary value until they are converted into cash, especially in the case of stocks where their value and price fluctuate.

Aside from cash, the more common types of financial assets that investors encounter are: Stocks are financial assets with no set ending or expiration date. An investor buying stocks becomes part-owner of a company and shares in its profits and losses. Stocks may be held indefinitely or sold to other investors. Bonds are one of the ways that companies or governments finance short-term projects. The bondholder is the lender, and the bonds state how much money is owed, the interest rate being paid, and the bond's maturity date. A certificate of deposit (CD) allows an investor to deposit an amount of money at a bank for a specified period with a guaranteed interest rate. A CD pays monthly interest and can typically be held between three months to five years depending on the contract.

The Concept of Cash or Cash Equivalents

Cash is coin or notes, which is quite distinct from cheque, money order or credit card (Oxford Dictionary). It is the tangible form of currency in the form of bank notes and coins. In accounting and finance, cash is the most liquid current asset made up of currency or its equivalents. Pandey (2017) asserts that there is a need for proper management of cash, since it is the most important current asset for the operation of business. Firms are expected to have sufficient cash, either more or less, thus optimal cash holding is advocated. Cash shortage will disrupt the firm's operations, while excessive cash gives rise to an ideal fund which contributes nothing towards the firm's profitability. He suggested the following as facets of cash management: Cash planning. Cash planning is a technique to plan for and control the use of cash. It protects the financial conditions of the firm by developing a projected cash statement from a forecast of expected cash inflows and outflows for a given period. Thus, cash planning helps to anticipate future cash flows and needs of the firm thereby reducing the possibility of idle cash (which lowers firms profitability) and cash deficit (which can cause firm's failure). According to Udojung (2017), cash planning is not a science but rather an on-going, iterative process that involves many parts of the organization. It can be done on a daily, weekly, or monthly basis. The period and frequency of cash planning depends on the size of the firm and



the philosophy of management. Bragg (2014) stated that a cash forecast, or cash plan, or cash budget, is a projection of the anticipated cash receipts and disbursements and the resulting cash balance within a specified period. Tuller (2018) describes cash management as the basic tool of running a business and cash forecast as the working tool of cash management.

According to Allman-Ward (2018), cash forecasting is used to estimate the liquidity position of the company for periods ranging from the current day up to one year. The purpose of a forecast can be determined by its length. A short-term forecast of 0–3 months is used for liquidity management, while an operational forecast of 1–12 months is used for medium term working capital and financing requirements, and long term forecast of 1–5 years is used for planning strategic financial goals.

Once the cash budget has been approved, and appropriate net cash flow established, the financial manager should ensure that there does not exist a significant deviation between projected cash flows and actual cash flows. To achieve this, there will have to be proper control of cash collections and disbursements. According to Pandey (2017), cash management in the modern corporation involves two simple rules:

- a. Speed up cash collection (Cash Inflow) – minimize collection float
- b. Slow down cash disbursement (Cash Outflow) – maximize disbursement float.

Ross (2018) stated that the objective of cash management in cash collection is to speed up collections and to reduce the lag time between the time a consumer pays their bills and the time the cheques are collected. While the objective of cash management in disbursements is to control payments and minimize the cost associated with making payments, the rule is to accelerate collections and delay disbursement. Therefore, it can be concluded that the objective of management of collection and disbursement is to collect it faster, keep it longer and spend it slower.

Pandey (2017) opines that one of the primary responsibilities of a financial manager is to maintain a sound liquidity of the firm so that maturing obligations are settled when due. Appropriate amount of cash balance to be held by firms at a given time which are influenced by a trade-off between risk and returns must be determined. Gallagher (2015) averred that cash management involves a tradeoff between the need for liquidity and desire for profitability. The more cash a firm holds, the more liquid it becomes, however piling up funds to sustain liquidity will prevent funds from being invested in long term, high return producing assets. The potential interest lost on holding a large cash balance is an opportunity cost to the firm. If the firm maintains a small balance, its liquidity position becomes weak and it will suffer paucity of cash to settle maturing obligations forcing the firm to sell marketable securities, if available, or borrow with associated transaction cost. Thus, the firm should maintain an optimum cash balance, neither a small nor a large cash balance. The cash balance will be at its optimum position when the transaction cost and risk of a small cash balance is matched or equals the opportunity cost of a large balance. The target cash balance can be set by the use of Baumol model and other theoretical models but this may not be relevant practically as most companies make use of Monte Carlo simulation by setting their target cash balances based on some "safety stock" of cash that holds the risks of running out of money to some acceptable low level (Tuller, 2018).



The Concept of Stock

Companies issue stock to raise money to grow and allow people to invest in their business. For investors, stocks are a way to grow their money and outpace inflation over time. Public companies sell their stock through a stock market exchange with stock broker as agent. The stock exchanges track the supply and demand of each company's stock, which directly affects the stock's price (Vivian, 2018).

Stocks are of two types—common and preferred. The difference is while the holder of the former has voting rights that can be exercised in corporate decisions, the later does not. However, preferred shareholders are legally entitled to receive a certain level of dividend payments before any dividends can be issued to other shareholders (Bernard, 2018). There is also 'convertible preferred stock'. This is basically a preferred stock with an option of converting into a fixed number of common shares, usually any time after a predetermined date.

Companies that have high value can attract attention and trust from investors. High stock prices reflect the value of the company. According to Laksitaputri (2018), in an efficient capital market, stock prices reflect all relevant information and the market will react if there is a change in the stock price. Stock prices are influenced by fundamental and technical factors. Earnings affect how investors value companies but other indicators are used to predict stock prices. Stock prices are affected by investors' expectations, attitudes, and sentiments (Joe, 2019).

The financials of a particular company are often termed as fundamental factors. Fundamental analysis (FA) is a method of measuring a security's intrinsic value by examining related economic and financial factors. The financial performance of a company is one of the most important factors affecting stock prices. If the company generates sufficient profits and that is higher than the period before, many investors will be interested in buying shares and this increases stock price (Lee & Zhao, 2018). However, if the company fails to record sufficient profits or incur losses in the period, investors will avoid buying such company's shares, as well as, investors who have bought the company's shares before, will sell those shares fearing loss. Investors will often overlook companies with weak financial performance, thereby leading to a downward spiral in the stock price. Thus, investors perform fundamental analysis and based on the outcome would decide whether to invest in the company or not.

One fundamental factor affecting stock and its associated prices is Return on Assets (ROA). ROA is an indicator of how profitable a company is relative to its total assets. ROA gives an investor an idea as to how efficient a company's management is at using its assets to generate earnings. A high ROA shows that the company has a solid performance as far as finance and operation of the company is concerned (Clemons, 2016). A low ROA is not a good sign for the growth of the company.

The Concept of Loans/Receivables

Loans receivable is an accounting term that refers to the manner in which lenders classify the outstanding money owed them by debtors. The lender could be anyone from banks, financial institutions and private investors to individuals. Loans receivables are entered in the accounting ledgers of the lenders as money that is yet to be repaid by the borrowers. Like all accounting processes, this one is done in a manner that is clear and logical. The total sum of loans receivables excludes the inclusion of the interests owed to the lender by the borrower on the outstanding money (Cross, 2018).



Loans receivable are the funds that a company has lent that have not yet been repaid. Since they fall under current assets, the expectation is that they will be repaid in less than one year. Scandker (2016) defines a loan as a form of debt incurred by an individual or other entity. The lender—usually a corporation, financial institution, or government—advances a sum of money to the borrower. In return, the borrower agrees to a certain set of terms including any finance charges, interest, repayment date, and other conditions. In some cases, the lender may require collateral to secure the loan and ensure repayment.

One of the methods for the calculation of loans receivable is by the attribution of different due dates for the outstanding loans. This allows the lender to calculate the level of delinquency and to discover those borrowers who are more creditworthy than others. The loans that are calculated as part of loans receivables may be made to an organization or to an individual, depending on the type of loan. In the case of individuals, the loans receivable may be in the form of a line of credit that the bank or financial institution has opened on behalf of the client. Such finances have periods within which they must be repaid, all of which will be calculated as part of the loans receivables (Monday, 2017).

Loans are advanced for a number of reasons including major purchases, investing, renovations, debt consolidation, and business ventures. Loans also help existing companies expand their operations. Loans allow for growth in the overall money supply in an economy and open up competition by lending to new businesses. The interest and fees from loans are a primary source of revenue for many banks, as well as some retailers through the use of credit facilities and credit cards (Chandler, 2015).

A loan commitment is an agreement by which a bank promises to lend to a customer at prespecified terms while retaining the right to renege on its promise if the borrower's creditworthiness deteriorates. The contract also specifies the various fees that must be paid over the life of the commitment. Loan commitments are widely used in the economy. As their use has spread, a rich literature has evolved to explain why they exist, how they are priced, and how they affect the risk of the bank and the deposit insurer (David, 2018).

The Concept of Return on Assets

Capital, profit, income, cost, tax and turnover indicators reflect the overall financial profile and play central role in strategic management and decision-making. In a wider horizon, financial indicators are classified as liquidity, operational, profitability, debt and market indicators. However, overall profitability indicator has already become out of interest, as it cannot provide the real scene of the company's financial stance. Shareholders' focus mainly concentrated on the indicators of how company is working for covering their investments, especially return on assets which gains inherent importance in investor evaluation.

Return on Assets or ROA measures the profitability of a business in relation to its overall assets. It allows a company to estimate how efficiently the assets of the company are being used for generating revenue. Return on Assets is a type of return on investments (Anderson, 2016). ROA shows how effective the company is at using those assets to generate profit. The higher the ROA, the better the utilization of assets. That is, a high ROA tells you that you are efficiently and effectively using your assets to generate a profit.

ROA is one of the most important profitability ratios and indicates management performance regarding firm's resources and assets calculated by dividing net profit by total assets. However,



a firm that outsources much of its production will have an unusually high return on assets, since it does not have to invest in expensive production equipment (Benjamin, 2019). The return on assets figure can be used to compare the efficiency of asset usage within an industry, since each of these businesses should require roughly the same proportions of assets to sales in order to provide goods and services to customers. However, the asset base of a business could vary substantially across industries, so the measure should not be used to compare entities located in different industries. For example, the return on assets of an asset-intensive production facility would not be comparable to the return on assets of an asset-light consulting business (Drake, 2016).

The long-term trajectory of ROA is the best financial scorecard of a company's health and an indicator of how its decisions play out. Understanding the trajectory provides a foundation for taking a longer-term perspective that can help companies shape winning strategies (Hagel, 2019). Hagel and Anderson (2017) posited that ROA is not the best fit measure for assessing the financial stability of the company in long-term, but it is effective in monitoring the company's performance in the short term. They proved that ROA is vulnerable to changes in financial condition of a company, especially changes in revenues from sales, income and assets.

Theoretical Review: System Theory

System theory has a long history in the realm of human knowledge. Shahid (2016) stated that some scholars traced the development of system theory back to Aristotle. Most scholars attribute the idea of holism, central to system thinking, to the German philosopher, Hegel, who stated that the whole was greater than the sum of its parts. This idea that systems consist of a number of interrelated and interconnected parts. There are two versions of the system theory. The first, called closed systems, came out of classical physics developed by Norbert Wiener and Ross Ashby in 1949. The other called open systems approach originated from biology. It was proposed in the 1940s by the biologist, Ludwig von Bertalanffy, who used the term general systems theory to describe the main ideas and to distinguish them from closed systems thinking. Bertalanffy (1973) maintained that closed systems thinking was not appropriate to study biological phenomena because biological systems interact with their environment, grow and survive. This study will focus on the open system as pharmaceutical firms cannot grow and survive without interacting with their environments.

Systems theory describes the relations between the parts. Rather than reducing an entity such as the human body into its parts or elements (e.g. organs or cells), it focuses on the arrangement of and relations between the parts and how they work together as a whole. The way the parts are organized and how they interact with each other determines the properties of that system. The behavior of the system is therefore dependent of the properties of the elements. The systems theory has a significant effect on management of assets and understanding of organizations operations. A manufacturing system can be seen as a collection of different assets unified to accomplish an overall goal of profit maximization. If one part of the system is removed, the nature of the system is changed as well. Pandey (2016) equally shared a similar view with system theory stating that investment in non-current assets invariably requires funds to be tied up in the current assets such as inventories and receivables. As such, investment in non-current and current assets is one single activity which must be undertaken together.

This work is anchored on systems theory. The relevance of systems theory in this study is that it helps pharmaceutical operators/managers to look at the financial asset management more



broadly by enabling them to recognize the various forms of assets and in particular, the interrelations of the parts.

Empirical Literature

This section of the research is a compendium of past and related studies carried out on the subject under investigation. They were reviewed according to the specific research objectives.

Cash and Return on Assets

Mathew (2018) examined empirically the impact of cash and bank balances on the performance of manufacturing companies in Nigeria: A study of Cadbury Nigeria Plc. The researcher used both secondary and primary data for data collection. For clear analysis, the study centres on two broad variables; the dependent variable which is performance and the independent variable which is cash management. Two different hypotheses were formulated and tested using descriptive statistics and correlation coefficient techniques respectively in order to establish whether there is a significant relationship between cash management, performance and liquidity. The results of the study suggests that a significant relationship exists between cash management and the performance of manufacturing companies in Nigeria. It reveals that mere availability of cash (liquidity) without proper management does not necessarily translate into favorable performance for manufacturing companies. Hence, the need for effective cash management for better performance.

Ndubuisi and Ezechukwu (2017) assessed the extent at which cash holding affects financial performance of quoted insurance firms in Nigeria. Three hypotheses were formulated in line with the objective of the study; ex-post facto research design and time-series data were adopted and the data for the study were obtained from fact books, annual reports and accounts of the quoted insurance companies under study. Pearson coefficient of correlation and multiple regression were applied for the test of the three-hypothesis formulated with aid of STATA 13 statistical software. Findings show that cash holding (proxy by cash to total book value of assets and cash) has a positive and statistically significant effect on financial performance (proxy by Return on Asset, Return on Equity and Tobin's Q) at 5% significance level. Based on these findings, the study recommends among others that insurance companies should adequately manage how they re-invest their resources so as to prevent any form of mismanagement of resources that can guarantee their existence in business.

Nwarogu and Jacob (2017) examined cash management and performance of listed firms in Nigeria. The study adopted ex-post facto research design in which the secondary data gathered were analyzed using descriptive statistics, correlation matrix, and Pool Ordinary Least Square Regression. In the return on assets model, the result shows a significant positive relationship between cash conversion cycle, cash holding and return on assets of firms while, cash flow and firm size has a negative relationship with the return on assets. In the model of Return on Equity, the variables of firm size, firm growth and cash flow indicated a negative relationship with the variable of firm performance. However, only the variable of firm size showed a significant negative relationship at 5% level with the dependent variable. There exists a positive relationship between the variable of Cash Conversion Cycle and Return on Equity. The study recommends that service firms should adopt policies that enable them to sell inventories and collect receivables quickly for improved efficiency and corporate solvency.



Onyeka, Nnado and Ugwuanyi (2020) examined the causal relationship between firm size, profitability and level of cash and cash equivalents of selected quoted manufacturing firms in the Nigerian Stock Exchange. Ex-post facto research approach via panel least squares was employed to assess the nature and extent of association between these variables. Data were collated from the audited annual reports of thirty-seven (37) manufacturing firms for the fourteen year period: 2005-2018. Diagnostic tests were carried out on the collated data using Levin-Lin-Chu panel unit-root test which confirmed their stationarity and Westerlund Panel Cointegration Tests that depicted the variables were not cointegrated in the long run. Hypothetical statements tested using Granger Causality Wald Tests portrayed that Cash and LnTA cause ROA (proxies for cash and cash equivalents, logarithm of total assets and return on assets respectively). These results imply that optimizing firms' profits necessitate striking the best liquidity-profitability trade-offs, otherwise firms keeping insufficient liquid assets may be forced to borrow from external sources at exorbitant costs or become illiquid. The study asserted that Nigerian manufacturing firms' profitability is proportionately and significantly influenced by size of the firm and adequacy of cash holdings.

In his study of the relationship between managerial ownership and corporate cash holdings, Abdioglu (2016) adopted 100 Turkish firms quoted on the Borsa Istanbul Stock Exchange for the nine year period (2005-2013). Proxy for managerial ownership was managerial alignment or entrenchment. Using panel regressions, the study indicated a goal congruence, that is, both the interests of shareholders and managers are aligned. The study posited that firm size and tangibility, albeit control variables, exerted significant positive effects on the levels of cash and cash equivalents of these firms.

Aftab, Javid and Akhter (2018) critically examined the determinants of cash holdings of multinational companies and other regional firms on a global scale. The study touched all the continents by using a sample of 5,957 firms drawn strategically from 47 countries for the ten year study period (2007-2016). Employing panel generalized method of moments (PGMM), the study posited that market to book ratio, leverage, dividends, intangibles, profitability and net working capital exerted strong negative influence on cash holdings while actual investments, cash flows, firm size and financial strength affected cash holdings of these firms positively and significantly.

Koshio (2003) evaluated the factors determining the level of cash balances held by Brazilian firms using quantitative panel methodology. The effects of inventories, accounts payables, debentures, accounts receivables, profits from normal activities, standard error of profits from operations, current liabilities and long – term liabilities on cash holdings of firms were deduced using information obtained from the annual reports of 396 non-financial firms for a period of 8 years (1995 – 2002). The effects of the predictor variables on the cash holdings of firms were statistically significant.

Ogundipe, Salawu and Ogundipe (2012) opined that the determinants of corporate cash holdings in Nigeria should include inventories, accounts receivables, growth opportunities, leverage and financial distress. Their study used a sample of 54 non-financial firms listed in Nigeria Stock Exchange (NSE) for a 15 year period (1995-2009). These firms were selected using purposive sampling method. Data collated from the audited annual financial statements of these firms were analyzed using generalized methods of moments (GMM) of dynamic panel methodology. The cash positions of financial institutions were, however, excluded as they are predetermined and controlled by the Central Bank of Nigeria (CBN). However, dynamic panel



estimation has inherent limitations when analyzing snapshot data extracted from audited annual financial statements.

Wasiuzzaman and Arumugam (2013) assessed the determinants of working capital investment by studying 192 Malaysian quoted firms. The study spanned for a period of 6 years (2002-2007). Collated data were analyzed using ordinary least squares regression. The study revealed that during the economic boom, small and medium firms invest enormously in operating working capital as the firms possess low leverage, rapid sales growth, increasing operating cash flows, less non-current assets, less volatile revenues and information asymmetry is virtually absent.

Muhammad (2014) assessed the effect of some firm specific factors on cash holdings of a sample of fifty (50) non-financial firms quoted on the Karachi Stock Exchange. The study made use of the Generalized Method of Moments (GMM) on a set of panel data. The period of the study spanned eleven (11) years (2003-2013). The independent variables entered in the dynamic model consist of leverage, return on assets, inventory asset ratio, market-to-book ratio, firm size, networking capital, investment, accounts payable, accounts receivable, bank relationships and foreign direct investment (FDI). The study acquiesced to the existence of significant positive impact of accounts receivables, investment expenditures and leverages on cash positions of the sampled fifty firms. On the other hand, significant negative associations exist between the dependent variable and the predictor variables (firm size, return on assets, net working capital and bank relationship).

Niresh (2012) examined the cause and effect relationship between liquidity and profitability of thirty-one (31) quoted manufacturing companies in Sri Lanka for a period of five years (2007 – 2011). The study also looked into the existence or otherwise of other factors having significant influence on profitability. Data on the relevant variables were collected for the relevant period from the database of the Colombo Stock Exchange. Complementary data were gleaned from relevant academic journals and textbooks. These companies were randomly selected from a population of thirty-nine quoted non-financial firms. Multiple correlations and regressions including measures of central tendencies and dispersion were used for analyzing the collated data. The findings depicted current and quick ratios as being within industrial average by means of descriptive statistics. Nevertheless, correlational analyses on the association between the independent and dependent variables proved to be irrelevant. That is, there is a weak negative correlation between return on capital employed (ROCE) and the causative (liquidity) variables: quick ratio, current ratio and liquid ratio in that their P-values are greater than 5% ($P > 0.05$).

Velnampy and Kajanathan (2013) sought to ascertain the influence of cash position on profitability of telecommunication firms quoted on the Colombo Stock Exchange for a period of seven years (2005 – 2011). The study investigated the determinants of cash holdings and financial performance in both Sri Lanka Telecom Plc. and Dialog Telecom Plc. The telecommunication sector of the stock exchange is made up of only these two firms. Financial performance for the two firms was proxied by both return on assets and return on equity. The predictor variables for measuring cash position are made up of cash and cash equivalents to turnover (CCETR), cash and cash equivalents to total assets (CCETAR) and cash and cash equivalents to current liabilities (CCECLR). Data analysis were carried out using multiple correlations and regressions and tests of hypotheses (otherwise, inference) necessitated the use of analyses of variance (ANOVA). The results are inconclusive given the non-existence of any



significant associations between the predictors and the dependent variables with respect to Dialog Telecom Plc. Further, measures of central tendencies and dispersion showed no significant deviations in the levels of cash and liquid substitutes of these firms. Employing the same multiple correlations and regressions with respect to Sri Lanka Telecom Plc depicted significant relationships between these variables.

Ivanova and Raei (2014) evaluated German non-financial firm cash positions with respect to collated panel data of 24,000 firms from eight (8) highly developed economies (specifically, G7 countries including the Netherlands) for the twenty-one year period (1991 – 2011). The study affirmed that Japanese nonfinancial firms have the highest average cash-to-asset ratios in 1998 (16%) and 2011 (20%) respectively with respect to the firms studied notwithstanding that median cash-to-asset ratios in most economies have been at a continuous ascent since the 1990s.

Effect of Stocks on Return on Assets of Selected Pharmaceutical Firms in Nigeria

Natarajan (2020) examined the relationship between stocks and financial performance for firms listed at the Bombay Stock Exchange (BSE). The study used a descriptive research design and targeted a firm listed at the BSE. The study used only secondary data, which covered a period of 5 years from 2015 to 2019. The study also adopted correlation analysis to establish the relationship between stocks and financial performance. The results of correlation found a substantial positive correlation between stocks and financial performance but found an insignificant positive correlation between stocks and dividends payout ratio of the BSE listed firms. The study concluded that there is a direct relationship between stocks and financial performance, hence rise in a financial performance of the listed firms increases stocks of firms listed at the BSE. The study also concluded that shares prices and dividend payout have a direct impact on stock returns, hence an increase in shares prices and dividend payout increases stock returns of listed firms.

Ndirangu (2018) studied the relationship between financial performance and stocks for firms listed at the Nairobi Securities Exchange (NSE). The study used a descriptive research design and targeted a population of 67 firms listed on the NSE. The study used only secondary data, which covered a period of 7 years from 2011 to 2017. The study employed Ordinary Least Square (OLS) Regression method to estimate the market model parameters (to be used in determining residual effect). The study also adopted multivariate correlation analysis to establish the correlation between financial performance and stock return. The correlation results found a significant positive correlation between financial performance, share price levels and stock returns but found an insignificant positive correlation between dividend payout ratio and stock returns of the listed firms. The results of the regression coefficients found an insignificant positive relationship between financial performance, share price levels and dividend payout (DPR) and stock returns of firms listed at the NSE. The study concluded that there is a direct relationship between financial performance and stock returns hence an increase in financial performance of the listed firms increases stock returns of firms listed at the NSE. The study also concluded that shares prices and dividend payout has a direct impact on stock returns hence an increase in shares prices and dividend payout increases stock returns of listed firms.

Mahmoud and Sakr (2018) investigated the predictive power of fundamental analysis in terms of firm performance and stocks in Egypt. Using ten financial indicators (changes in asset



turnover, changes in leverage, gross profit margin, return on assets, changes in return on assets, cash flow from operation, changes in cash flow from operation, changes in ROE aggregate signals had positive correlation with stock return. The study employed the linear regression with the application of Ordinary Least Squares (OLS) technique.

Felix (2019) investigated the relationship between financial performance and stocks. Data were obtained from 10 listed banks in the Nairobi Securities Exchange for the period between the year 2011 and 2015. Parameters investigated against stock returns include profitability (ROA), leverage (Debt to Equity Ratio), liquidity (Current Ratio) and firm's growth (Asset Growth Ratio). The multiple regression analysis demonstrated that Profitability (ROA), Liquidity (current ratio) and Firm's Growth (asset growth ratio) hold a moderate but positive influence on stock returns. However, the relationship between Leverage (debt to equity ratio) and stock returns was found to be negative and insignificant.

Nurah and Ghassan (2016) using correlation analysis, analyzed the relationship between financial indicators such as profitability and leverage measures and stocks in Amman Stock Exchange, Jordan. The results showed that (GPM), (ROA), (ROE), and (EPS) affect stocks significantly while NPM and leverage measures (DR, DER and ICR) do not have a significant relationship with stock return.

Ghulam and Khan (2019) examined the impact of stocks on a firm's investment and the counter impact of changes in investment expenditures on stock price performance. The random effects model was applied on the panel data of Chinese manufacturing firms listed at the Shanghai Stock Exchange and the Shenzhen Stock Exchange during the period 2002 to 2016. The sample contains 398 firms with 5,970 observations. Although there is a statistically significant and negative relationship between stock price and investment expenditures, the impact of stock price on investment expenditures is far greater than that of investment expenditures on stock price. Information asymmetry positively mediates both investment sensitivity to stock prices and stock prices sensitivity to investment. This study is a valuable contribution towards the analysis of investment decision making by manufacturing firms in China. It also provides guidelines for investors to assess the informational status of the capital market before making investment decisions and to comprehensively understand the different decisions made by firms with regard to the issue of new stocks and the indirect information attached with such issues.

Effect of Loan on Return on Assets of Selected Pharmaceutical Firms in Nigeria.

Eric (2017) analyzed the effect of loans on the financial performance of selected universal banks in Ghana. Using dataset from the annual reports for 10 Ghanaian universal banks from 2007 to 2013, the study employed panel regression technique with the aid of STATA Statistical Software. Among the various panel data techniques, fixed effect model was identified as the best technique based on the Hausman test between fixed and random effect. Return on Equity (ROE) and Net Interest Margin (NIM) were used to proxy financial performance while Loan Portfolio Profitability (LPP) and Loan Loss Provision to Gross Loan Advances (LLP/GLA) were used as proxies for loan portfolio quality. Cost Income Ratio (CIR), Liquid Funds to Total Assets and Total Assets were used as control variables. The result from the analysis indicates that LLP/GLA has a negative effect on the financial performance of banks in Ghana. In addition, the findings of the study indicated that net interest margin has a positive effect on the financial performance of the selected banks. The result further established that firm size has positive effect on financial performance of banks. Thus, the larger the size of the bank, the



more profitable it becomes due to economies of scale. Finally, the research findings revealed that cost-to-income ratio has a negative significant effect on the performance of universal banks in Ghana. The findings of the study therefore established that loan portfolio quality has significant effect on the financial performance of the selected Ghanaian universal banks.

Khalid (2012) verified the impact of loan on profitability of private banks in India, of which a multiple regression model was employed to examine if bank loans and operating performance are positively correlated. The results showed that a bad loan is negatively associated with banking operating performance, after controlling for the effects of operating scale, traditional banking business concentration and the idle fund ratio. The results further supported the hypothesis that the higher the quality of the loan processing activities before loan approval, the lower the non-value-added activities that is required to process problematic loans, and thus the higher the banking operating performance will be.

Ezeoha (2018) investigated credit crisis and loan quality in a fragile banking system in Nigeria. The paper made use of panel data from 19 out of a total of 25 banks operating in Nigeria. A multivariate constant coefficient regression model was adopted as the estimation technique. The study revealed that deterioration in asset quality and increased credit crisis in the Nigerian banking industry between the periods 2004 and 2008 were exacerbated by the inability of banks to optimally use their huge asset capacity to enhance their earnings profiles. The findings showed that excess liquidity syndrome and relatively huge capital bases fueled reckless lending by banks; and that increase in the level of unsecured credits in banks' portfolios ironically helped to mitigate the level of Non-Performing Loans within the studied period.

Alhassan, Brobbey, and Asamoah (2018) examined the persistence of bank asset quality on bank lending behaviour in Ghana. The study employed a random effects (RE) model to test the relationship between bank lending behaviour proxied as the ratio loans and advances to total asset and bank asset quality (ratio of nonperforming loans to gross loans and advances) while controlling for deposit mobilization, equity, management efficiency, intermediation spread and income diversification. The empirical estimation found that the effect of the deterioration of bank asset quality (high levels of non-performing loans) on bank lending behaviour is persistence and not contemporaneous. Additionally, bank deposit mobilization, intermediation spread and equity were also found to influence bank lending behaviour.

Keitany (2017) revealed that there is a strong negative relationship between the loan default and the profitability of SACCOs in Nairobi County, Kenya. The tests showed that the overall regression model is a good fit for the data as the independent variables statistically and significantly predict the dependent variable. The regression model is a good fit for the data. Personality types are predisposed to loan default and why credit markets may fail. The study recommends that SACCO should continuously review credit policies, establish irrecoverable loan provision policies, and character of loan applicants.

Gap in Literature

There is an avalanche of studies that have tried to explore the link between financial assets and firm performance. However, a critical review of these empirical studies reveals that the existing studies are focused on the manufacturing, banking and service sectors. To the best of the researchers' knowledge, no study known to the researchers has explored the effect of financial assets on pharmaceutical firms. This is the gap this study intends to cover.



METHODOLOGY

This study adopted the causal comparative research design, as the researcher made use of secondary data to evaluate the effect of financial assets on profitability of manufacturing firms in Nigeria.

The population of this study comprises the top sixteen (16) pharmaceutical companies in Nigeria that are quoted on the Nigeria Stock Exchange as at 31st December 2019. The sampling technique adopted in the study is judgmental sampling technique. For a company to qualify as a sample, the company must satisfy the following: it must not have been delisted for the entire period of the study and must also be in operation for the period of the study and it must have the required data for the study. Three pharmaceutical firms were selected for the study namely; Emzor Pharmaceuticals Limited, GlaxoSmithkline Nigeria and May & Baker Nigeria Limited. They were selected based on their similarity on asset size (Afrinvest, 2019). The data used for this research were extracted from the annual reports of the selected manufacturing firms, spanning from 2011-2020. This is the post IFRS adoption period in Nigeria.

Model Specification: According to Koutsoyiannis (2003), a model specification is a mathematical expression which involves the determination of the dependent and independent variables. The general multiple form of the model is specified thus:

The implicit mathematical form of the model is specified thus:

$$ROA = f(CHB, STO, LO) \dots \dots \dots 3.1$$

The econometric form is given as:

$$ROA_{it} = \beta_{0it} + \beta_{1it}CHB + \beta_{2it}STO + \beta_{3it}LO + \mu \dots \dots \dots (3.2)$$

Where:

F= Functional Relationship

ROA = Return on Assets

CHB = Cash at hand and cash in banks

STO = Stocks

LO = Loans

i = Individual Pharmaceutical Firm

t = Time Series

μ = Stochastic Error Term

β 's = structural Parameters to be estimated

Method of Data Analysis: In order to estimate the parameters for this study, the study adopts panel data regression analysis (longitudinal data) because of the estimation of the selected pharmaceutical firms and the presence of both cross sectional and time series



components. Panel data makes it possible to get a handle on the time ordering of variables and to monitor the individual trends over time. In addition, complex and difficult data can be estimated using panel data (Berrington, Smith & Sturgis, 2006).

Fixed Effect (FE) Panel Model: The fixed effect panel model or least square dummy variable model makes the assumption that the intercept is constant but it is entity (pharmaceutical firm) specific. It was designed to ascertain the causes of the changes in an entity. One of the advantages of the fixed effect model is that it makes it possible to control all time invariant differences between the pharmaceutical firms, so that the estimated coefficients of the fixed effect model will be free from bias due to the lack of time-invariant characteristics between the sample pharmaceutical firms.

The general form for panel fixed effect model is given as:

$$Y_{it} = \beta_i + X_{it} + \mu_{it} \dots \dots \dots 3.3$$

Where β_i = the unknown intercept for each pharmaceutical firm.

Random Effect Model: Random Effect model assumes that the intercept is not constant but it is firm specific. It assumes that the differences across pharmaceutical firms are stochastic and uncorrelated with the regressors in the model. Unlike the fixed effect model, the random effect model can include time invariant characteristics.

The general form for panel random effect model is given as:

$$Y_{it} = \beta + X_{it} + \mu_{it} + \psi_{it} \dots \dots \dots 3.4$$

Where ψ_{it} = error term that changes within the cross-section but remains constant over time (within-entity error term).

Method of Evaluation: Diagnostic tests were conducted to assess the data quality while the hypotheses were tested using Random Effect Regression Model with the aid of the Econometrics views (E-views 9) statistical software.

Panel Diagnostic Tests

Consistency and Efficiency

Based on the law of large numbers, consistency could have been improved by the availability of quarterly data for each entity which will increase the number of observation for more precise and accurate estimates, however annual data were only accessible for most variables. Consistency was however enhanced through a balanced panel data set with complete cross sectional and time series data.



Panel Unit-Root Test

A Panel unit root test will be conducted as an alternative to time series unit root test to ensure that the data collected is stationary before usage.

Hausman Specification Test

A Hausman test which tests if the μ_{it} correlates with the independent variables (regressors) will be estimated to decide between the fixed and random effects where the:

H₀: The suitable model is the random effects model.

H₁: The suitable model is the fixed effects model.

Decision Rule: If probability test is greater than the p value =0.05 or 5%, the H₀ will be accepted and the random effects model estimator will be used to achieve consistent results, however if the p value is less than 5%, the null hypothesis will be rejected and fixed effects estimator will be used in order to achieve consistent results.

DATA ANALYSIS

Panel Descriptive Analysis

Table 4.1

	ROA	CHB	STO	LO
Mean	0.304592	25.18094	18.29354	22.13811
Median	0.269300	25.69991	19.19803	22.33265
Maximum	1.146800	26.70215	22.19803	24.17325
Minimum	0.006200	20.66245	12.88244	18.20424
Std. Dev.	0.221423	1.498110	2.366158	1.443767
Skewness	1.525154	-1.375306	-0.494051	-0.932946
Kurtosis	5.809497	4.208311	1.922367	3.424613
Jarque-Bera	42.99413	22.56470	5.344092	9.154632
Probability	0.000000	0.000013	0.069111	0.010282
Sum	18.27550	1510.856	1097.612	1328.286
Sum Sq. Dev.	2.892668	132.4156	330.3234	122.9833
Observations	30	30	30	30

Source: Researcher's Computation Using E-views 10.



Before engaging in the regression analysis, it is very essential to estimate a descriptive analysis of the data set (Table 4.1). This will show and communicate the various statistical properties and the behaviour of the variables under analysis. The mean simply tells us the average value for each of the variables. For return on assets (ROA), the mean is 0.304592%; cash balances (CHB), 25.18094; stocks (STO), 18.29354; and loans, 22.13811. The median measures the middle values for each of these four variables. For ROA, the median is 0.269300; CHB is 25.69991; STO is 19.19803; and LO is 22.33265. The standard deviation tells us the deviation from the sample mean with respect to each of the variables. It clearly shows that ROA deviated from the sample mean by 0.221423; CHB deviated with 1.498100 which is clearly higher than the deviation of ROA. STO deviated by 2.366158 and LO deviated with 1.443767. For normal skewness, the value is zero and the kurtosis measures the flatness and sharpness of the variables. It is clearly seen that none of the skewness values is two and the kurtosis reveals that only LO is within range (3.424613). The Jarque-Berra measures the difference of the skewness and kurtosis of the series with those from the normal distribution. However, our interest is on the probability values of the Jarque-Berra statistic. It is clearly seen that the Jarque-Berra yielded $0.000000 < 0.05$, $0.000013 < 0.05$, $0.069111 > 0.05$ and $0.010282 < 0.05$ for ROA, CHB, STO and LO respectively. It is clearly seen that the variables are normally distributed.

Unit-Root Test/Results

In order to avoid spurious regression estimates, panel data should be examined for stationarity to determine the order of integration. Panel data series data is accepted to be stationary if it exhibits mean reversion in that it fluctuates around a constant long-run mean, has a finite variance that is time invariant and has a theoretical correlogram that diminishes as the lag length increases. The raw data is reported in Appendix I

Table 4. 2: Unit-Root Test Results

Variables	ADF-Fisher Statistic	Critical Val.	Order of Integration
ROA	22.8066	-1.84827	I(0)
CHB	4.80319	1.91639	I(0)
STO	4.04728	2.55340	I(0)
LO	3.65118	2.13293	I(0)

Source: *Researcher's Computation Using E-views 9.*

It can be clearly seen from Table 4.2 that the panel variables are stationary at level form. This is justified on the statistical output in Table 4.2 where the ADF-Fisher statistic is absolutely greater than the critical value at 5% level of significance.



Panel Cointegration Test

Table 4.3

Pedroni Residual Cointegration Test

Series: ROA CHB STO LO

Date: 09/20/21 Time: 14:22

Sample: 2011 2020

Included observations: 30

Cross-sections included: 3

Null Hypothesis: No cointegration

Trend assumption: No deterministic trend

User-specified lag length: 1

Newey-West automatic bandwidth selection and Bartlett kernel

Alternative hypothesis: common AR coefs. (within-dimension)

			Weighted	
	<u>Statistic</u>	<u>Prob.</u>	<u>Statistic</u>	<u>Prob.</u>
Panel v-Statistic	5.914595	0.0198	-1.335873	0.9092
Panel rho-Statistic	7.381696	0.0014	2.429317	0.9924
Panel PP-Statistic	5.171212	0.0008	-0.500651	0.3083
Panel ADF-Statistic	8.966149	0.0030	-0.325656	0.3723

Alternative hypothesis: individual AR coefs. (between-dimension)

	<u>Statistic</u>	<u>Prob.</u>
Group rho-Statistic	7.558604	0.0098
Group PP-Statistic	9.915036	0.0001
Group ADF-Statistic	6.211413	0.0037

Source: Researcher's Computation Using E-views 9.

The long-run equilibrium test was carried out on the variables under investigation as displayed in Table 4.3. It can be clearly seen from the outcome statistics of Panel v, Panel rho, Panel PP, Panel ADF, Group rho, Group PP and Group ADF all yielded probability values less than 0.05 (5%) and statistics greater than absolute two. This entails that the variables have a long-run relationship. Hence, return on assets, cash balances, stocks, and loans are all cointegrated.



Hausman Specification Test

Table 4.4

Correlated Random Effects - Hausman Test

Equation: Untitled

Test cross-section random effects

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	0.077089	2	0.9622

Cross-section random effects test comparisons:

Variable	Fixed	Random	Var(Diff.)	Prob.
CHB	0.007033	0.006325	0.000007	0.7833
STO	0.022069	0.020057	0.000092	0.8339
LO	0.032781	0.022256	0.000008	0.7765

Source: Researcher's Computation Using E-views 9.

The essence of this test is to ascertain on either using the fixed or random effect output as the basis of our analysis. It is anchored on the hypothesis specified thus:

H₀: The suitable model is the random effects model.

H₁: The suitable model is the fixed effects model.

Decision Rule

If the probability of the Chi square test is greater than the p value = 0.05 or 5%, the H₀ will be accepted and the random effects model estimates will be used to achieve consistent results. However; if the p value is less than 5%, the null hypothesis will not be accepted and fixed effects estimator will be used in order to achieve consistent results.

Decision: Since the probability of the Hausman specification test yielded a probability value of 0.9622 and it is greater than 0.05, this therefore compels us to accept the null hypothesis and thereby conclude that the suitable model is the random effects model. Hence, our decision will be based on Table 4.4.



Panel Regression Analysis

Table 4.5: Random Effects Model

Dependent Variable: LOG(ROA)
 Method: Panel EGLS (Cross-section random effects)
 Date: 11/10/21 Time: 08:03
 Sample: 2011 2020
 Periods included: 10
 Cross-sections included: 3
 Total panel (balanced) observations: 30
 Swamy and Arora estimator of component variances

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	3.443167	1.577785	2.182279	0.0365
CHB	0.006325	0.007605	0.831774	0.4117
STO	0.020057	0.028131	0.712988	0.4810
LO	0.022256	0.043229	0.982311	0.5643
Effects Specification				
			S.D.	Rho
Cross-section random			0.000000	0.0000
Idiosyncratic random			1.883391	1.0000
Weighted Statistics				
R-squared	0.224332	Mean dependent var	-2.797307	
Adjusted R-squared	0.186647	S.D. dependent var	1.732711	
S.E. of regression	1.764174	Sum squared resid	99.59397	
F-statistic	0.399025	Durbin-Watson stat	1.807445	
Prob(F-statistic)	0.674266			

Source: Researcher's Computation Using E-views 9.



Test of Hypotheses and Discussion of Findings

It can be clearly seen from Table 4.5 that the coefficient of cash (CHB) which is a proxy for financial assets yielded a positive numerical coefficient at the magnitude of 0.006325. This entails that cash contributes positively to the performance of the selected pharmaceutical firms in Nigeria. Hence, a 1% increase in cash balances is expected to increase the performance of the pharmaceutical sector by 0.006325% and vice-versa. This conforms to economic a priori expectation because cash directly or indirectly improves firm performance. Also, the probability value for financial assets measured with cash (CHB) yielded 0.4117 and it is obviously greater than 0.05. This compels the acceptance of the null hypothesis (H_{01}): cash has no significant impact on return on assets of selected pharmaceutical firms in Nigeria.

This is contrary to the findings of Mathew (2018), Ndubusi and Ezechukwu (2017) and Nwaorgu and Jacob (2017). The study is however in concomitance with the findings of Niresh (2012). The insignificant effect of cash on return on assets may be attributed to insufficient cash or poor cash management resulting in ideal funds

The panel data regression analysis in Table 4.5 shows that the numerical coefficient of stocks (STO) which is financial assets yielded a positive numerical coefficient at the magnitude of 0.020057. This entails that there exists a positive relationship between stocks and the performance of pharmaceutical firms in Nigeria for the period under analysis. In specific terms, it means that a 1% increase in the stocks of the pharmaceutical firms leads to an increase in their performance by 0.020057%. Furthermore, the probability value for stocks is 0.4810 which is greater than 0.05. This compels the acceptance of the null hypothesis (H_{01}): stocks have no significant impact on return on assets of selected pharmaceutical firms in Nigeria. This finding is in line with the research conducted by Natarajan (2020), Ndirangu (2018) and Mahmoud and Sakr (2018). The insignificant effect of stock on return of assets of pharmaceutical firms in Nigeria suggests low stock in possession of firms which hitherto would have provided funds for increased operation of the firms, hence full utilization of the assets.

The regression analysis carried out and reported in Table 4.5 clearly reveals that loans (LO) yielded a positive numerical coefficient at the magnitude of 0.022256. This reveals that loans contribute positively to the productive capacity of the pharmaceutical sector firms in Nigeria. It statistically entails that a 1% change in loans will yield an increase in the performance of the pharmaceutical sector by 0.022256%. This conforms to economic a priori expectation because loan as a financial asset component if optimally utilized contributes to the performance of firms. The probability value for loans (LO) of 0.5643 is greater than 0.05. The null hypothesis (H_{01}) is accepted: loans of the firm have no significant impact on return on assets of selected pharmaceutical firms in Nigeria. This study is in line with the findings of Eric (2017) but not in agreement with the findings of Khalid (2012) and Ezeoha (2018).

Loan as an insignificant effect on ROA could be explained from the business culture of Nigeria where the lesser the loan, the more the stakeholder values and rate management. The lower the leverage ratio, the more confidence and supportive the stakeholders and environment of the firm. High debt ratio is seen as ailing and may not attract investors and the value of the share will equally fall. These compel the management of firms to avoid business financing through loans as much as possible.



R-squared (R^2) is a statistical measure that represents the proportion of the variance for a dependent variable that is explained by an independent variable or variables in a regression model. The result in Table 4.8 shows that R-squared value is 0.339970, which implies that approximately 33% of the variation in ROA is explained in the model by the changes in the financial assets, leaving approximately 67% to the error term. This also means that the line of best fit was not highly fitted. The adjusted R-Squared yielded 0.186647. This entails that from the dimension of adjusted R-squared, the variations in ROA is explained by the changes in financial assets at 18.7%.

The F-statistics is used to test the statistical significance of the entire regression plane. The result of F-statistics is 0.399025 with a corresponding probability of 0.674266 which implies that the overall regression is not statistically significant. This also means that all the independent variables taken together do not impact significantly on the performance of the pharmaceutical firms.

Autocorrelation analysis measures the relationship of the observations between the different points in time, and thus seeks for a pattern or trend over the time series. It further evaluates if the error terms in a series are serially correlated. The value of the Durbin-Watson from Table 4.8 yielded 1.783181. This implies that there is no presence of autocorrelation problems in the model. It further implies that the error terms are not serially correlated and hence the regression coefficients are reliable for policy analysis and forecasts.

SUMMARY, CONCLUSION AND RECOMMENDATION

Summary of Findings

The major findings of the study are thus:

1. Cash balances have a positive but insignificant contribution to the performance of pharmaceutical companies in Nigeria ($\beta = 0.006325$, p-value = $0.4117 > 0.05$).
2. Stocks contribute positively but insignificantly to the performance of pharmaceutical companies in Nigeria ($\beta = 0.020057$, p-value = $0.4810 > 0.05$).
3. Loans contribute positively but insignificantly to the performance of pharmaceutical companies in Nigeria ($\beta = 0.022256$, p-value = $0.5643 > 0.05$).

Conclusion

This study has been able to carry out an empirical analysis of the effect of financial assets on the performance of pharmaceutical companies in Nigeria covering the period 2011-2020. The major findings of the study revealed that each of the financial-assets variables contributed positively but not significantly to the performance of pharmaceutical companies in Nigeria for the period under analysis. The numerical coefficient reveals a positive but insignificant numerical coefficient. The conclusion that was drawn from these findings is that financial assets contribute very little to the financial performance of pharmaceutical firms in Nigeria. The higher the financial assets of pharmaceutical firms in Nigeria, the better for the improvement of performance.



Recommendations

Based on the major findings of the study, the following recommendations are suggested:

1. From the results, it was discovered that cash balances have a positive but insignificant effect on performance of pharmaceutical companies in Nigeria. It is therefore recommended that pharmaceutical firms should optimally improve on their cash management efficiency. Management of pharmaceutical firms in Nigeria should determine the optimal cash level of the firms to avoid liquidity problems while at the same time avoid ideal funds.
2. The analysis conducted revealed that stocks have a positive but insignificant effect on performance of pharmaceutical companies in Nigeria. It is therefore recommended that pharmaceutical companies should diversify and increase their stock return and portfolio.
3. Loans yielded a positive but insignificant effect on performance of pharmaceutical companies in Nigeria. Based on this finding, pharmaceutical firms should evaluate how optimally they put their loans into use through the engagement of a finance expert. More loans could be acquired by the management of pharmaceutical firms in Nigeria to provide the much needed fund. This will provide funds for the firm and subsequently improve return on assets.

Contribution to Knowledge

The study contributed immensely to literature. It was able to provide an empirical estimation and analysis of the effect of financial assets on the performance of pharmaceutical companies in Nigeria for the period 2011-2020. Literature reveals that the majority of the studies on this dimension have focused on other sectors like the manufacturing and banking sectors. This study was able to reveal the dimension of this relationship in the pharmaceutical sector. The practical contribution to the study is that it will provide a measurable template on the effect of financial assets on performance for all pharmaceutical firms in the globe.

Suggestion for Further Studies

The study examined the effect of financial assets on the performance of pharmaceutical companies in Nigeria covering the period 2011 – 2020. The research suggests that further studies should be carried out to analyze the effect of financial assets on the performance of pharmaceutical firms with a comparison between Nigeria and another African country. This study also suggests further research on the effect of financial assets on Return on Equity in selected brewery firms in Nigeria.

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