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Capital Structure and Performance of Listed Manufacturing Firms in Nigeria

Rita Nkeiru Ekokotu

Department of Accounting and Finance,
Faculty of Management Sciences,
University of Delta, Agbor, Nigeria

ABSTRACT
This study empirically investigated the effect of capital structure on financial performance of listed manufacturing firms in Nigeria. The study is vital as it portrays the extent to which firm capital structure influence firms' performance. In order to determine the relationship between capital structure (CS) and firms' performance, CSs key proxy variables were used in the study, namely; Equity Financing (EF), Long Term Debt Financing (LTDF), Debt Equity Financing (DEF) and Short Term Debt Financing (STDF) while firms' performance on the other hand was represented by Net Assets Per Share (NAPS). Four hypotheses were formulated to guide the investigation and the statistical test of parameter estimates was conducted using panel regression model operated with Eview 12. Ex Post Facto design was adopted and data for the study were obtained from the Nigerian Stock Exchange Factbook of the entire quoted firms under consumer goods sector, industrial goods sector, oil & gas sector, ICT sector, health care sector and conglomerate sector of Nigerian Exchange Group (NGX) with data spanning from 2015-2023. The findings generally indicate that Equity Financing (EF), Long Term Debt Financing (LTDF), Debt Equity Financing (DEF) and Short-Term Debt Financing (STDF) exerted significant influence on firms' performance (NAPS) at 1% significant level. Based on this, the study concludes that capital structure have positively improved firms performance over the years. The study suggests that firms should use optimal level of debt (long and short term), equity and debt-equity financing in their financing decisions
Keywords*:* Capital Structure; Equity Financing; Long Term Debt Financing; Debt Equity Financing; Short Term Debt Financing*;* Firm Performance

1.0 INTRODUCTION

Capital structure has always been a topic of controversy in the field of corporate and modern finance; different researchers have different views and theories as they strive to determine an optimum financing mix to minimize a company's cost of capital and maximize its value (Ogunsola & Ogheneoparabo, 2022). This may be similar with manufacturing firms though somewhat different regarding focus. Manufacturing firms are very crucial institutions for the success of any economy. In the view of Ogunsola and Ogheneoparabo (2022), their primary task is to drive productivity gains, creation of employment opportunities, fostering innovation, generating exports and stimulation of linkages with other sectors within the economy, essentially acting as a catalyst for overall development and structural transformation within the nation.

Prior studies have demonstrated a significant relationship between capital structure and firm performance (Gharaibeh, 2022; Ayomitunde, Zannu & Adedayo, 2023; Ogunsola & Ogheneoparabo, 2024). However,

there are mixed results illustrating the nature of the relationship between capital structure and performance. In Nigeria, manufacturing firms are apparently not too effective and efficient in their functions. Maimako and Oladele (2023) stated that poor management, lack of transparency and accountability as well as the tendency for manufacturing firms to engage in window dressing financial statements hinders the attainment of corporate objectives and economic growth. Empirical research has relied on generalised statements from performance of listed firms and other highly regulated financial institutions (such as deposit banks) which do not represent a true picture of manufacturing firms (Anyam, Jato, Kwahar, Ayatse & Anyam, 2024).

Also, most studies on effects of capital structure on corporate financial performance focused on accounting-based measurement for performance which could not provide a well-rounded perspective to corporate performance. No emphasis to the best of our knowledge has been given to market-based measurements which is a more intricate version of corporate performance.

Hence, the need for further study on effect of capital structure on firm financial performance in Nigeria using a market-based measurement for performance assessment and also using the entire listed manufacturing firms in Nigeria as a reference point which no study had covered based on the available literature. To fill the gap in literature, this study is motivated to examine the effect of capital structure on the performance of manufacturing firms in Nigeria. To achieve this purpose, the following hypotheses were formulated:

Nigeria.

H_{01}: Equity Financing has no significant effect on Financial Performance of Firms in Nigeria.

H_{02}: Long Term Debt Financing has no significant effect on Financial Performance of Firms in Nigeria.

H_{03}: Debt Equity Financing has no significant effect on Financial Performance of Firms in Nigeria.

H_{04}: Short Term Debt Financing has no significant effect on Financial Performance of Firms in Nigeria.

This study includes several sections. Therefore, the remainder of this study is structured as follows: Section 2 addresses the business rationale (an overview of the current state of the relevant literature). This is followed by Section 3, which deals with the methodology. Section 4 presents and discusses the results, while Section 5 deals with conclusion and recommendations.

2.0 Review of Related Literature

2.1.1. Capital Structure

Capital structure is referred to as the combination of equity and debt which the firms use to finance their operations (Modigliani & Miller, 1958 cited in Osazee & Aigbedo, 2019). It is a subset of the financial structure of a firm which is a combination of short and long-term sources of financing. According to Myers and Majluf (1984), capital structure is the choice of equity, debt or hybrid securities which the firms use to finance and promote their operational activities. According to Clement and Adesina (2022) and Ezeala et al. (2024), capital structure is part of the solution to the challenge of underinvestment and overinvestment.

Sunday and Samson (2022) opined that capital structure is a mix of equity and debt securities used to finance real and nominal investment. Oluwale (2022) posits that capital structure is the financing strategy of a long-term nature used by corporate organizations while Yinusa, Ismail, Yulia and Olawale (2023) define capital structure as the process whereby corporate entities finance a mix of capital and liabilities on a long and short term basis.

From the a priori expectations, it was found that no study had examined the effect of capital structure on firm performance in Nigeria using all the listed manufacturing firms in Nigeria as a reference point based on the available literature. Thus, the study seeks to examine the effect of capital structure on performance of all the listed manufacturing firms in Nigeria. For the purpose of this study, capital structure covered in this study includes, equity financing (EF), long term debt financing (LTDF), debt equity financing (DEF) and short-term debt financing (STDF). This is discussed below as thus:

2.1.1.1 Equity Financing

Equity financing is the process of raising capital through the sale of shares in a company. Equity financing involves not just the sale of common equity, but also the sale of other equity or quasi-equity instruments such as preferred stock, convertible preferred stock and equity units that include common shares and warrants. With equity financing, companies have less burden of repaying loans, issues associated with credit worthiness are gone however owners of the company losses control, share profits and potential conflict may arise (Sanusi & Stephen, 2020). In this manner, financing mix of firms' is the capital mix of equity and capital utilized as a part of financing its operations and assets acquisition. Be that as it may, most essential and complex issues in corporate fund is that whether there exist ideal capital structure or not.

Equity financing is to be measured using equity ratio as used by Ahmed, Shehu and Abubakar (2022). This is expressed as equity/assets

2.1.1.2 Long Term Debt Financing

According to Dinh and Pham (2020), long term debt financing is a debt financing that matures in more than one year. It arises when an organization raises money for working capital or capital disbursements by selling corporate bonds, trade bills or notes to individuals and/or institutional investors. In return for lending the money, the individuals or institutions become creditors and receive a promise the principal and interest on the debt will be repaid.

Debt financing can be challenging to obtain, but for many firms, it offers funding at lower rates than equity financing, specifically in periods of historically low interest rates. Another advantage to debt financing is the interest on debt is tax deductible (Abubakar, Mazadu & Yusuf, 2020).

Long term debt financing is to be measured as long-term debt to total assets used by Ajayi and Obisesan (2020), which is expressed as long term debt/assets

2.1.1.3 Debt Equity Financing

According to Olayemi and Fakayode (2021), debt equity financing is an important metric in corporate finance. It is a degree to which a firm finances its operations through debt versus wholly owned funds. A firm’s debt equity financing refers to the mix of financial liabilities. It has been an important issue from the strategic management standpoint since it is linked with a firm’s ability to meet the demands of various stakeholders as stated elsewhere already in this work. According to the study, financing mix is the most significant discipline of company’s operations. It’s a decision is a vital decision with great implication for the firm’s sustainability.

Financing and investment are two major decision areas in a firm. In the financing decision the manager is concerned with determining the best financing mix or capital structure for his/her firm. Capital structure decision is the mix of debt and equity that a company uses to finance its business (Dinh & Pham, 2020).

Debt equity financing is to be measured using debt equity ratio as used by Adesunloro**,** (2021) which is expressed as debt/equity

2.1.1.4 Short Term Debt Financing

Short term debt, also called current liabilities is a firm's financial obligations that are expected to be paid off within a year. It is listed under the current liabilities portion of the total liabilities section of a company's balance sheet (Anyam, Jato, Kwahar, Ayatse & Anyam, 2024).

Under IFRS, an item is a current liability if it will be paid within the next 12 months. Liability is only recognized if it is a present obligation. According to Ogunsola and Ogheneoparabo (2022) operating debt arises from the primary activities that are required to run a business, such as accounts payable, and is expected to be resolved within 12 months, or within the current operating cycle, of its accrual. This is known as short term debt and is usually made up of short-term bank loans taken out, or commercial paper issued, by a company.

The value of the short-term debt account is very important when determining a company's performance. The higher the debt to equity ratio, the greater the concern about company liquidity. If the account is larger than the company's cash and cash equivalents, this suggests that the company may be in poor

financial health and does not have enough cash to pay off its impending obligations (Nguyen & Nguyen, 2020).

Short term debt financing is to be measured as short term debt to total assets as used by Marbuah, Velde, Attridge, Lemma and Keae, (2023) which is expressed as short term debts divided by total assets

2.1.2 Financial Performance

This refers to the measurement of the results of a firm's strategies, policies and operations in monetary terms. These results are reflected in the firm's return on assets and return on investments. Financial performance provides a subjective measure of how well a company uses its assets from its primary mode of business and generate revenues (Omaliko et al., 2023).

Financial performance is measured by revenues from operations, operating income or cash flow from operations or total unit sales. The analyst or investor may wish to look deeper into financial statements and seek out margin growth rates or any declining debt (Leah, 2021). Financial performance indicators in the form of ratios include profitability, liquidity, utilization financial structure and investment (Philip, 2022). Measure of profitability is by gross profit margin; the amount of money made after direct costs of sales have been taken into account, operating margin; lies between the gross and net measures of profitability and net profit margin; takes all costs into account.

According to Erikie and Osagie (2019), corporate performance is the measuring of results of a firm's policies and operations in monetary terms. These results are reflected in the firm's return on investment, return on assets, value added, return on equity, return on networth, return on total assets and return on capital employed. There are many different ways to measure financial performance, but all measures should be taken in aggregation. Line items such as revenue from operations, operating income or cash flow from operations can be used, as well as total unit sales. Furthermore, the analyst or investor may wish to look deeper into the financial statements and seek out margin growth rates or any declining debt.

Profit is a measure of managerial efficiency in controlling resources at their disposal. It is mostly viewed as return on investment made by the shareholders / owners. It is the main reason for establishing a business enterprise. For profit to exist, cash inflows into the firm must exceed the cash outflows (Brealey et al., 2023; Omaliko et al., 2025).

A firm's performance is a measure of how well it generates revenues from its primary mode of business. There are a multitude of measures used to assess a firm's performance, with each group of stakeholders having its own focus of interest (Dev and Rao, 2016). According to Ali (2022), the financial performance of firms can be measured in terms of growth of its size (total assets), profitability (return on assets, return on equity, earnings per share) and market-based proxies (market price per share, net assets per share etc).

According to Nwude and Anyalechi (2022), accountants see profit as the excess of total revenue over total expenses. Conversely, it denotes the capacity to earn profits by the firm or a given investment. That is, firm performance refers to the relationship between the profits generated by the firm and the investments that gave rise to these profits. Firm performance therefore could be measured using profitability and efficiency ratios. In the first instance, it is computed as the quotient of operating income (profit for the year) and operating assets (capital employed).

According to Chandrasekharan (2022), financial performance is an extent to which a company's financial health over a period of time is measured. In other words, it is a financial action used in order to generate higher sales, profitability and worth of a business entity for its shareholders through managing its current and non-current assets, financing, equity, revenues and expenses. Its main purpose is to provide completion to the point information to shareholders and stakeholders and encourage them in making decisions. It can be used to evaluate similar

Net Assets Per Share was proposed as a performance measurement in-line with the prior expectations of Nahiba (2021), Raheman, Salleh, Afza and Chek (2021) and Abd.Hamid, Abdul Aziz, Dora and Said (2022) etc

This was captured as Net Assets divided by Paid up Capital i.e (NAPS)

$$NAPS = \frac{\text{Net Assets}}{\text{Paid up Capital}}$$

2.2 Theoretical Framework

The issue of capital structure has been a contentious matter in the literature. The issue of whether to use more debt or less of equity in company's capital structure is not settled. There are certain theories that form the backbone of the capital structure theory. These includes; The Irrelevance Theory of Capital Structure, The Perking Order Theory and The Agency Theory

2.2.1 The Irrelevance Theory of Capital Structure

The irrelevance theory of capital structure was first stressed by Modigliani and Miller (1958). The theory states that the decision about company's capital structure is irrelevant to the value of the firm in the absence of bankruptcy costs, asymmetric information, transactions cost, absence of taxes and in an efficient market with homogeneous expectations.

According to the MM theorem, capital structure theories function under perfect market and that the finances of a firm are not related to its value in perfect market. The real world however does not operate on the assumptions pointed out by the MM theorem. This brought about a new research named the static trade-off theory which focused on the relationship between capital structure theories and firm performance. According to the static tradeoff theory, the choice of a firm concerning the usage of debt finance or equity finance is based on the cost benefits related with each source of funds. The utilisation of debt can have the advantage tax saving and bankruptcy cost. Therefore in deciding the optimal capital structure, the company must strike a balance between the cost and benefits linked with each source.

Assumptions of MM Irrelevance Theory of Capital Structure

1. Perfect capital markets exist where individuals and companies can borrow unlimited amounts at the same rate of interest.
2. There are no taxes or transaction cost
3. Personal borrowing is a perfect substitute for corporate borrowing
4. Firms exist with the same business or systematic risk , but different levels of gearing
5. All projects and cash flows relating thereto are perpetuities and any debt borrowed is also perpetual.

2.2.2 The Perking Order Theory

Another group of financing mix theories is the pecking order theory propounded by Meyers and Majluf in the year 1984. This theory stated that companies prefer internal financing (income, amortization) and only in a situation when internal cash flow is insufficient for activity financing, they reach for foreign capital (loans, credits). To serve as a last resort, companies launch own external financing, for instance conducting shares issuance. The theory is in support of the relevance of the capital structure. The theory advocates that the capital structures of firms are optimal and they move in the direction of the target. The theory also opines that when debt is utilised in capital structure, firms have the challenges of tax benefit and bankruptcy cost. Therefore, this calls for a trade-off amongst the two.

Assumptions of Perking Order Theory includes

1. There is no target capital structure.
2. Firms choose capitals according to the preference order
3. Equity is less preferred means to raise capital

2.2.3 The Agency Theory

The agency theory is also one of the capital structure theories it was propounded in the year 1976 by Jensen and Meckling (1976). It explains the relationship between the principal and the agent in the decision making process concerning the combination of capital structure of the firm. According to Jensen and Meckling (1976), the agency problem between principal and agent is multifaceted and it plays a crucial role in making decision about the optimal capital structure in a firm.

Assumptions of Agency Theory

1. Individuals will almost act in their own selfish interest and this behavior may directly conflict with the firms beat interest.
2. Both agent and principal are motivated by self-interest.

In this study, perking theory is considered a solid foundation in explaining the effect of capital structure on performance of firms in Nigeria. Hence, the underlying assumption of this theory is the basis for the present study, that capital structure can influence corporate performance.

2.3. Empirical Review

Ayam, Jato, Kwahar, Ayatse and Anyam (2024) investigated the effect of capital structure on the performance of selected non-deposit financial institutions (also known as Development Finance Institutions, DFIs) in Nigeria. The study specifically examined the effect of Short-Term Debt to Total Assets (STDTA) on performance of selected of non-deposit financial institutions in Nigeria; and ascertained the effect of Total Debt to Total Equity (TDTE) on performance of selected non-deposit financial institutions in Nigeria. The study adopted an ex-post facto research design and data were collected from published annual financial records of the selected DFIs on both STDTA and TDTE, the independent variables; and Earnings per Share (EPS) and Return on Assets (ROA), the dependent variables, for a period of ten (10) years (2013-2022). The population of the study composed of seven (7) national DFIs: Central Bank of Nigeria (CBN), Bank of Agriculture (BOA), Bank of Industry (BOI), and Development Bank of Nigeria (DBN), Federal Mortgage Bank of Nigeria (FMBN), Nigeria-Export-Import Bank (NEXIM) and the Infrastructure Bank Plc (IBN). The study sampled four (4) national DFIs using a purposive sampling technique, including CBN, BOI, FMBN and NEXIM. Computation of the relevant ratios were done for the independent variables (STDTA and TDTE); and the dependent variables (EPS and ROA). Data analysis was done using multiple regression and the econometric technique of Dynamic Ordinary Least Squares (DOLS) with the aid of E-Views Version 13. The study found that STDTA has a positive and significant effect on EPS and ROA, indicating that a percentage change in STDTA leads to an increase in EPS and ROA respectively; while TDTE has a negative but significant effect on EPS and a positive and significant effect on ROA, showing that a percentage change in TDTE will significantly increase ROA. The study concluded that the investigated DFIs have low equity capital which seems to hinder their ability to attract large loans for operations.

Prenaj, Miftari and Pula (2024) analyzed the impact of the capital structure on the performance of non-listed companies. The study is based on data from 50 non-listed companies in Kosovo for the period 2015–2020. The financial statements of companies were used to generate data for this research. Regression methods 'pooled OLS', 'fixed effects (FE)', and 'random effects (RE)' were used in estimating the model, and the Hausman test was performed to test the fixed effects against the random effects model. Through dependent, independent, and control variables, the performance of companies is studied. The Kosovar non-listed companies use two accounting-based measures of financial performance: return on assets (ROA) and return on equity (ROE). The results of empirical tests indicate that a capital structure composed of short-term debt, long-term debt, and total debt is negatively influencing the performance of the companies measured by ROA. On the other hand, capital structure affects the company's performance positively, except for long-term debt, which has no significant impact on the company's performance as measured by ROE. Based on the results, we can conclude that the choice of capital structure, in general, has a weak impact on the financial performance of non-listed companies in Kosovo, especially long-term debt, which has no significant impact on return on equity.

Anozie, Taiwo, Victor and Salako (2023) examined the impact of capital structure on the financial performance of Nigerian oil and gas companies. Using an ex-post facto research methodology, the short-term debt to total asset, long-term debt to total asset, total debt to total equity, and return on asset variables were investigated as proxies for capital structure and financial performance, respectively. Based on the data's availability at the time of the inquiry, the study used an easy sampling strategy to gather secondary data. These data covers the years 2011 through 2020 and were compiled from the annual financial reports of five Nigerian oil and gas companies. Descriptive statistics and panel regression analysis were used to analyze the data. The analysis' findings shows that while long-term debt to total assets has a negative significant influence on return on assets, short-term debt to total assets and total debt

to total equity had positive insignificant impacts. According to the findings, managers of oil and gas companies should reduce the amount of long-term debt they have because doing so has a

Clement and Adesina (2022) effect of capital mix on the financial performance of ten chosen manufacturing firms among companies listed on the Nigerian Exchange (NGX) for twelve years period, 2009 to 2020. Secondary data were extracted from the audited accounts and reports of the chosen firms. This research employed descriptive and inferential statistical analyses for data estimation. The results of this work reveal that debt in relation to equity (DER) has insignificant adverse effect on return on asset (ROA) of the selected firms. Contrarily, DER has a direct significant effect on return on equity (ROE) and a direct insignificant effect on the net profit margin (NPM) of the sampled manufacturing companies. Total debt to total assets (TDTA) has positive but insignificant effect on all the financial performance indicators. The study also found that short-term debt to total assets (SDTA) and long-term debt to total assets (LDTA) have negative negligible effect on all the dependent variables.

Asante, Winful, Sharifzadeh and Neubert (2022) investigated using a sectorial analysis, the relationship between capital structure and financial performance and consider the effect of debt maturity on the relationship. The relationship between capital structure and financial performance, considering the debt maturity, using 425 cross-sectional firm-year samples from firms in Ghana and Nigeria from 2014 to 2019. The empirical findings suggested a significant negative relationship between capital structure and financial performance. Debt maturity did not affect the relationship between capital structure and financial performance. However, the Industry influences the direction of the relationship between capital structure and financial performance. Also, debt maturity influences the capital structure performance relationship in specific sectors but not the market.

Sunday and Adesina (2022) investigated the impact of capital structure on firm's performance in the food and beverages manufacturing industries in Nigeria. An ex-post factor research design was adopted which involves the use of cross sectional time series data extracted from the audited annual accounts of ten food and beverages industries quoted in the Nigeria stock exchange covering the period of six years (2012 – 2017*).* To measure the strength of association between the variables, Pearson moment correlation analysis was used and the result revealed that size of firm and equity are positively correlated with financial performance. However, from the panel regression results, the study found out that Debt finance significantly impacted the performance of the industries (ROCE, ROA, and EPS) negatively. While the impact Firms size have on the selected food and beverages industries was relatively low, Equity finance contributed hugely and positively to the performance of the firm.

Asen, Nwude, Idamoyibo, Ufodiama and Udo (2021) examined capital structure measures on manufacturing firm's performance in Nigeria. Using annualized panel data for a sample of 15 quoted firms from diverse sectoral classifications from 1999-2018. Excluding the financial firms due to the uniqueness of their capital structure and the strict legal requirements for their financing choices. This study focus on non-financial firms. Capital structure measures book value and market value of the firm. Results indicate that performance proxy by ROE, and Tobin's Q, significantly influence SDTA, SIZE, LDTA, and TDTA while ROA negatively influences LDTA, D_E, and TDTA. Findings revealed a robust relationship between Tobin's Q and financial performance compared to other book value. Tobin's Q is a better measure of performance within the period under review. The study reveals that Nigerian firms are keenly financed by short-term debt supporting the Pecking Order Theory.

Yinusa, Ismail, Yulia and Olawale (2019) examined the impact of capital structure on firm performance in Nigeria as well as test the possibility of non-monotonic relationship between capital structure and firm performance based on the prediction of the agency cost theory of capital structure when firm use debt financing excessively. The study used dynamic panel model on panel data of 115 listed non-financial firms in Nigeria. Specifically, the paper employed the two step generalized method of moments (GMM) estimation method that recognizes the persistence of the dependent variable by including its lag value as an explanatory variable in the regression model. The major findings indicate statistical significant relationship exist between capital structure and firm performance particularly when debt financing is moderately employed. However, the paper found evidence of non-monotonic relationship between capital

structure and firm performance when firms in Nigeria employed excessive debt financing which impinged on the performance of firms.

Aderemi, Sejoro and Alaka (2019) examined the relationship between capital structure and financial performance of firms listed in the Nigerian stock exchange between 2012 and 2017. Data were extracted from 40 companies out of 169 companies which are listed on the Nigerian Stock Exchange as at 2018. Consequently, ordinary pooled least square was adopted to analyze the objective of study. The principal findings that originate from this study is that capital structure has a negative impact on return on equity and return on asset of the firm listed on the Nigerian stock exchange. In view of the above important findings that originated in this work, it is paramount that the following recommendations are made for the investors and the policy makers in Nigeria that debt capital is not a profitable means of financing investment projects in firms listed in the Nigerian stock exchange. However, all hands must be on deck by the Nigerian policy makers to embark on policy measure to reduce double digit interest rate in the financial sector in order to ensure self-liquidating debt capital in the listed firms in the Nigerian stock exchange.

Osazee and Aigbedo (2019) examined the impact of capital structure on the performance of multinational firms in Nigeria. Panel data of 2008 to 2017 were sourced from the official publication of the Nigeria Stock Exchange (NSE). Data was analyzed, using descriptive statistic, ADF statistic, Levin, Lin and Chut statistics, correlation analysis and panel regression techniques. The findings revealed that capital structure is significant and negatively affects multinational firms' performance in Nigeria thereby confirming that pecking order theory is valid in Nigerian multinational firms. Other firm specific factors of board size, firm age, firm size, and board independence considered were positively related to the performance of multinational firms in Nigeria though not significant (except for firm size). It is, therefore, recommended that managers of multinational companies should continue to prioritize such that they make use of the internally generated funds (retained earnings) first and if this source of finance has been exhausted, then resort to the use of debt capital and eventually equity source of financing.

Oyedokun,Olatuji and Sanyaolu (2018) examined the effect of capital structure on the financial performance of firms in Nigerian manufacturing sector. The population of the study was all the listed manufacturing companies listed on the Nigerian Stock Exchange, a sample of 10 listed companies was selected. The research design adopted was ex-post facto using four models to analyse the impact of capital structure on firms' performance. The study used balanced panel data of 100 observations from the 10 listed companies for the periods ranging from 2007 - 2016. Descriptive statistics and regression were used as tools of analysis. The study reveals that there are statistically significant and non- significant effects of capital structure on performance variables. Finally, the study recommends that manufacturing companies should adopt balanced capital structure strategy that will optimise company's performance and corporate value.

Ajobola and Qudud (2018) examined the impact of capital structure on financial performance of quoted manufacturing firms in Nigeria over the period 2005-2014. Panel methodology was applied to analyse the impact of capital structure on financial performance of quoted manufacturing firms in Nigeria. The findings of the panel ordinary least square show that a positive statistically significant relationship exist between long term debt ratio(LTD) (0.0001), total debt ratio (TD) (0.0065) and return on equity (ROE) while a positive statistically insignificant relationship between ROE (return on equity) and STD (Short term debt ratio). There was also a negative insignificant relationship between all the proxies of capital structure (LTD, STD and TD) and ROA which makes ROE a better measure of performance. The study concluded that capital structure has a positive impact on financial performance and companies should employ more of long term debts.

Ogbe and Ogbe (2018) investigated the impact of capital structure on firm performance in Nigeria from 2000 to 2010. The study considered the impact of some key macroeconomic variables (gross domestic product and inflation) on firm performance. The traditional theory of capital structure was employed to determine the significance of leverage and macroeconomic variables on firm's performance. The study makes a comparative analysis of the selected firms which are classified into highly and lowly geared

firms setting a leverage threshold of above 10% as being highly geared. A static panel analysis was used to achieve the objectives of the study. Using fixed effect regression estimation model, a relationship was established between performance (proxied by return on investment) and leverage of the firms over a period of ten years. The results provide strong evidence in support of the traditional theory of capital structure which asserts that leverage is a significant determinant of firms' performance. A significant negative relationship is established between leverage and performance.

Mohammed, Ahmed and Mohammed (2016) assessed the effect of capital structure on the financial performance of listed Consumer goods companies in Nigerian. All consumer goods companies quoted on the Nigerian Stock Exchange are considered the population for this study while seven (7) out of these firms whose accounting year-ends 31 December are considered as the sample. Secondary data was utilized from the annual financial reports of the sampled firms from the year 2008 – 2013, which was obtained from African Financial website and official website of Nigerian Stock Exchange. The study used ex-post facto research design to examine the relationship between independent and dependent variables while controlling for other variables. Descriptive statistics, correlation, and hierarchical multiple regression analyzes were carried out to test the hypotheses developed in the study. The study found that there is a positive and significant relationship between firm's capital structure and corporate financial performance. The study specifically found that short-term debt (STD) has no significance positive effect on return on equity (ROE) while Long-term debt (LTD) has positive relation and significant effect on ROE.

Ajayi and Ghazali (2016) examined the capital structure and firm performance evidence from Nigeria. The study employed a sample size of 100 non-financial firms of listed Nigerian companies in the Nigerian Stock Exchange (NSE) for a period of 2010 to 2014. The annual financial statements have been examined using a panel data approach to analyse the empirical study. However, Tobin's Q and ROA are used as a proxy for the firm performance. It was found out that assets turnover and, tangible have a positive and significant relationship with Tobin's Q. Also, risk maintains negative and significant relations with Tobin's. Moreover, the age of a firm has negative and significant with ROA and Sales growth maintains positive and significant with ROA. Nonetheless, the finding of this study would go a long way to enhance the literature on capital structure and also the imperative for the non-financial companies in Nigeria in taking capital structure decisions as it is based on the most recent data cover the period of recession of 2008-2009 as being an adverse effect of recession on the Nigerian nonfinancial companies.

Table 1: Summary of Empirical Literature (Webo-Metric Analysis).

Year of study	Author	Country	Title	Models, Dependent & Independent Variables	Method of Data Analysis	Findings
2024	Ayam, Jato, Kwahar, Ayatse and Anyam (2024)	Nigeria	Effect of capital structure on the performance of selected non-deposit financial institutions	ROAit , EPSit = B0 + B1STDTAit + B2TDTE + μ, Return on assets, Earning per share, short term debt to total assets, total debt to total assets	Regression Model	The study found that STDTA has a positive and significant effect on EPS and ROA, while TDTE has a negative but significant effect on EPS and a positive and significant effect on ROA
2024	Prenaj, Miftari and Pula (2024)	Europe	Impact of the capital structure on the performance of non-listed companies	ROAit , ROEit = B0 + B1STDit + B2LTD + B3TD + μ, Return on assets, Return on equity, Short term debt, Long term debt, Total debt	Panel Regression Model	The results of empirical tests indicate that short-term debt, long-term debt, and total debt is negatively influencing the ROA. On the other hand, long-term debt, has no significant impact on the company's ROE.
2023	Anozie, Taiwo, Victor and Salako	Nigeria	Impact of capital structure on financial performance of oil and gas firms in Nigeria	ROAit = B0 + B1SDTAit + B2LDTAit + B3TDTEit + μ, Return on assets, short term debt to total assets, long term debt to total assets, total debt to total equity	Panel Regression Model	The analysis' findings shows that while long-term debt to total assets has a negative significant influence on return on assets, short-term debt to total assets and total debt to total equity had positive insignificant impacts
2022	Clement and Adesina	Nigeria	Capital structure and financial performance of manufacturing companies in Nigeria	*ROA, ROE, NPMit=* $\beta 0it+\beta 1\ DERit+\ \beta 2\ TDTAit+\ \beta 3\ SDTAit+\ \beta 4\ LDTAit+\ \beta 5\ FSIZEit+\ \varepsilon t$ Return on assets,	Panel Regression	The results revealed that debt to equity has insignificant adverse effect on return on asset (ROA) and direct significant effect on total debt to total assets (TDTA). Also short-term debt to total

				return on equity, net profit margin, debt equity ratio, total debt to total assets, short term debt to total assets, long term debt to total assets, firm size		assets (SDTA) and long-term debt to total assets (LDTA) have negative negligible effect on all the firm performance.
2022	Clemet and Samson	Nigeria	Impact of Capital Structure on Financial Performance of Selected Quoted Food and Beverages Manufacturing Industries in Nigeria	*ROA, EPS, ROCE, NPMit=β0 +β1DRit it+β2EQRit+β3LDT TA it+ β4FSit+μit* Return on equity, earnings per share, return on capital employed, net profit margin, debt ratio, equity ratio, long debt to total assets, firm size	Panel Regression	Positive and significant effect was found between the variables
2022	Asante, Winful, Sharifzadeh and Neubert	Nigeria	The relationship between capital structure and financial performance of firms in Ghana and Nigeria	*Rit = β0 + β1LEVit + εit*, Financial performance, leverage	Regression Model	The empirical findings suggested a significant negative relationship between capital structure and financial performance. Debt maturity did not affect the relationship between capital structure and financial
2021	Asen, Nwude, Idamoyibo, Ufodiama and Udo	Nigeria	Effect of capital structure on firm performance in Nigeria	*ROAit=β0+βi(LDTA it)+β2(TDTAit)+β3(SDTAit)+β4(DEit)+ β5(SIZEit);* Return on assets, long term debt to total assets, total debt to total assets, short term debt to total assets, debt equity, firm size	Panel Regression Model	Positive and significant relationship was found between the variables

2019	Yinusa, Ismail, Yulia and Olawale	Nigeria	Capital structure and firm performance in Nigeria.	*ROEit= β0it+β1 TLRit+ β2 LTLRit+ β3 STLRit+ β4 TANGit+ β5 FSIZEit+ εt* *Return on equity, total leverage ratio, short tern leverage, assets tangibility firm size*	Generalized Method of Moments	The paper found evidence of non-monotonic relationship between capital structure and firm performance
2019	Aderemi, Sejoro and Alaka	Nigeria	Capital structure and financial performance of the quoted firms in the Nigerian Stock Exchange: An econometric approach	*ROE, ROAit = Bo + B1TDEit +B2LDEit +B3SDEit +Ut;* Return on equity, return on assets, total debt to equity, long tern debt to equity, short term debt to equity	Ordinary Pooled Least Squares	The study found that capital structure has a negative impact on return on equity and return on asset of the firm
2019	Osazee and Aigbedo	Nigeria	Capital structure and firm performance in Nigeria; Is perking order theory valid?	*FRMPit= β0it+β1 CAPSTit+ β2 BSIZEit+ β3 BINDPit+ β4 FAGEit+ β5 FSIZEit+ εt* Firm performance, capital structure, board size, board independence, firm age, firm size	Regression	The findings revealed that capital structure is significant and negatively affects multinational firms performance in Nigeria.
2018	Oyedokun,Olatuji and Sanyaolu	Nigeria	Capital structure and firm financial performance	*ROA, EPS, DPS, MPSit = β0 + β1lEQit +β2LTDit + εit,* return on assets, earnings per share, dividend per share, market price per share, log of equity	Regression	The study reveals that there are statistically significant and non- significant effects of capital structure on performance variables.

				firm, log of total debt		
2018	Ajibola and Qudus	Nigeria	Capital structure and financial performance of listed manufacturing firms in Nigeria	*ROE, ROAit= β0+ β1LTDit+ β2TD+ β3STD+ait* Return on equity, return on assets, long term debt, total debt and short term debt	Panel Least Squares	Positive relation was found between all the independent variables and ROE while negative relationship was found with ROA
2018	Ogbe and Ogbe	Nigeria	Impact of capital structure on firm performance in Nigeria	*ROIit = β0 + β1LEVit + εit;* Return on investment, leverage, inflation , gross domestic product	Panel Regression Model	A relationship was established between performance (proxied by return on investment) and leverage of the firms over a period of ten years.
2016	Mohammed, Ahmed and Mohammed	Nigeria	Effect of capital structure on performance of listed consumer goods firms in Nigeria	*ROEit = β0 + β1STDit + β2LTDit + β3SIZEit + β4SGit + β5ASTANit + β6EFFit + εit;* Return on equity, short term debt, long term debt, firm size, sales growth, assets tangibility, efficiency	Regression Model	The study found that there is a positive and significant relationship between firm's capital structure and corporate financial performance.
2016	Ajayi and Ghazali	Nigeria	Capital structure and firm performance; Evidence from Nigeria.	$TQit = \beta 0 + \beta 1LEVit + \beta 2RISKit + \beta 3SALEit + + \varepsilon it$ Tobin Q, Leverage, Risk, Sales	Regression	Positive and significant effect was found between the variables

Source: Compiled from Empirical Review (2025)

3. METHODOLOGY

An *ex post facto* research design was used in the study based on the fact that the data for the study was secondary which already existed and cannot be controlled. The study examined the effect of firm attributes on environmental disclosures of listed consumer goods firms in Nigeria for the period of 2015-2023. The study population consists of all 66 manufacturing companies listed under consumer goods sector, industrial goods sector, oil & gas sector, ICT sector, health care sector and conglomerate sector of the Nigeria Exchange Group as of December 31, 2023 covering the period 2015-2023. The use of firms quoted under the selected sectors on NGX Group could be justified by the fact that, to the best of our knowledge, there is no study that had focused on these sectors in assessing the effect of capital structure using the entire listed manufacturing firms in Nigeria as a reference point. Out of the 66 companies that made up the study population, 16 had incomplete financial information required during the reporting period and were removed. On this basis, a total of 50 companies formed our sample size with 450 observations. The data was collected from the annual accounts and annual accounts of the sampled companies. Panel least squares model was used to study the relationship between capital structure and firm performance.

3.1 Measurement and Operationalization of Variables

The independent variable for the study is firm attributes and was proxied using audit type, firm age, firm profitability and board composition while the dependent variable (environmental disclosure) was measured using Kinder Lydenberg Domini (KLD) environmental performance rating system.
This is shown on table 2 as thus:

Table 2: Measurements of Variable

Variable	Measurement	Source	A Priori Expectations
Independent			
Equity Financing (EF)	Equity/Total Assets	Ahmed, Shehu and Abubakar (2022), Ayam, Jato, Kwahar, Ayatse and Anyam (2024)	It is expected to have a positive effect.
Long Term Debt Financing (LTDF)	Total Debts/Total Assets	Ajayi and Obisesan (2020), Prenaj, Miftari and Pula (2024)	It is expected to have a positive effect.
Debt Equity Financing (DEF)	Debt/Equity	Adesunloro (2021), Prenaj, Miftari and Pula (2024)	It is expected to have a positive effect.
Short Term Debt Financing	Short Term Debt/Total Assets	Ogunsola and Ogheneoparabo (2022), Marbuah, Velde, Attridge, Lemma and Keae (2023)	It is expected to have a positive effect.
Dependent			
Firm Performance (NAPS)	Net Assts Per Share/Paid Up capital	Nahiba (2021), Raheman, Salleh, Afza and Chek (2021) and Abd.Hamid, Abdul Aziz, Dora and Said (2022)	.

Source: Empirical Survey (2025).

3.2 Model Specification and Justification

To examine the effect of capital structure on performance of listed manufacturing firms in Nigeria, the study adapted and modified the model of Ayam, Jato, Kwahar, Ayatse and Anyam (2024).
This is exposited below as thus;

Ayam, Jato, Kwahar, Ayatse and Anyam (2024): $\mathbf{EPS = B_0 + B_1 + STDTA + B_2\ TDTE + \mu}$

$\mathbf{ROA = B_0 + B_1 + STDTA + B_2\ TDTE + \mu}$

Thus, the functional model for the study is shown below as thus:

NAPS = F (EF, LTDF, DEF, STDF)

The econometric form of the regression modified for the study is expressed as thus:

$NAPS = B_0 + B_1 EF + B_2 LTDF + B_3 DEF + B_4 STDF + \mu$

Where:
NAPS = Net Assets Per Share
EF = Equity Financing
LTDF = Long Term Debt Financing
DEF = Debt Equity Financing
STDF = Short Term Debt Financing
μ = Stochastic Term
$\beta_1 - \beta_4$ = Coefficient of Regression Equation
β_0 = Constant coefficient (intercept) of the model
'*A Priori*' is given as: $\beta_0, \beta_1 > 0$
Decision Rule: accept Ho if P-value > 1-5% significant level otherwise reject Ho

4. DATA ANALYSIS AND RESULTS

Table 3: Descriptive Statistics

	NAPS	EF	LTDF	DEF	STDF
Mean	4.520000	4.120000	4.340000	0.584125	0.562500
Median	4.500000	4.300000	4.400000	0.280000	1.000000
Maximum	4.700000	4.200000	4.600000	5.680000	1.000000
Minimum	4.400000	4.100000	3.900000	-1.430000	0.000000
Std. Dev.	0.109545	0.130384	0.296648	39.68312	0.496806
Skewness	0.867528	0.363173	-0.562764	-11.81009	-0.277637
Kurtosis	2.729167	1.628028	1.897340	2.360076	1.077082
Jarque-Bera	0.642452	0.502060	0.517224	138160.4	26.70628
Probability	0.725259	0.777999	0.772123	0.679874	0.123262
Sum	22.60000	22060000	21.70000	93.46000	94.00000
Sum Sq. Dev.	0.048000	0.068000	0.352000	3071.509	38.77500
Observations	450	450	450	450	450

Source: E-View 12 Computational Results (2025)

From Table 3 above, the mean (average), maximum values, minimum values, standard deviation and Jarque-Bera Statistics (Normality Test) were shown. First, it can be observed that net assets per share (NAPS) was characterized by a positive value of 4.52. This implies that firms with mean value higher or equal to 4.52 are higher profit making firms while firms with the value below 4.52 are low profit making firms.

The mean value of equity financing (EF) for the sampled firms was 4.12. This means that firms with EF values of 4.12 and above are equity intensive firms while firms with the value below 4.12 are not equity intensive firms. The maximum value for the study was 4.2 while the minimum value was 4.1. This wide variation in maximum and minimum EF values among the sampled firms justifies the need for this study as we assume that firms with higher EF values are higher profit making firms than those firms with low EF values at a high degree risk of 13%.

The average long term debt financing (LTDF) for the sampled firms was 4.34. This means that firms with LTDF values of 4.34 and above are debt intensive firms while firms with the values below 4.34 are not debt intensive firms. There is also a high variation in maximum and minimum values of LTDF which

stood at 4.6 and 3.9 respectively. This wide variation in LTDF values among the sampled firms justifies the need for this study as we assume that firms with higher LTDF values are higher profit making firms than those firms with low LTDF values.

The average debt equity financing (DEF) for the sampled firms was 0.584. This means that firms with 0.584 DEF values and above are firms that are both debt and equity intensive while firms with the values below 0.584 are not both equity and debt intensive. There is also a high variation in maximum and minimum values of DEF which stood at 5.68 and -1.43 respectively. This wide variation in DEF values among the sampled firms justifies the need for this study as we assume that firms with higher DEF values are higher profit making firms than those firms with low DEF values.

On the other hand, firms with 0.56 STDF values and above are considered as short term debt intensive firms while firms with STDF values below 0.56 are not short term debt intensive firms. However, there is a high variation in maximum and minimum values of STDF which stood at 1 and 0 respectively. These wide variations in STDF values among the sampled firms justify the need for this study as we assume that firms with higher STDF values are higher profit making firms than those firms with low STDF values.

4.1: Test of Hypothesis

Table 4: Result on Effect of Capital Structure on Performance of Listed manufacturing Firms in Nigeria.

Dependent Variable: NAPS
Method: Panel Least Squares
Date: 02/21/25 Time: 11:20
Sample: 2015 2023
Periods included: 9
Cross-sections included: 50
Total panel (balanced) observations: 450

Variable	Coefficient	Std. Error	t-Statistic	Prob.
EF	0.603326	0.194068	3.108838	0.0040
LTDF	0.493006	0.149426	3.299323	0.0012
DEF	2.268605	0.312301	7.264162	0.0000
STDF	0.551248	0.138276	3.986581	0.0001
C	9.160665	0.640258	14.30778	0.0000

R-squared	0.750070	Mean dependent var	7.155500
Adjusted R-squared	0.725722	S.D. dependent var	0.939349
S.E. of regression	0.826562	Akaike info criterion	7.493696
Sum squared resid	105.2136	Schwarz criterion	8.609015
Log likelihood	-193.4957	Hannan-Quinn criter.	8.540523
F-statistic	10.27052	Durbin-Watson stat	2.012582
Prob(F-statistic)	0.000000		

Source: E-View 12 Computational Results (2025).

4.2: DISCUSSION OF FINDINGS

The coefficient of determination R^2 shows 0.75 indicating that the overall model explained 75percent of the total variations in the dependent variable. Thus shows that these variables (EF, LTDF, DEF & STDF) can only explain 75 percent of variation in firm performance (NAPS) leaving 25 percent unexplained. This is to say that there are other factors that could lead to corporate performance other than capital structure. The sig. (or p-value) is .0000 which is below the .01 level; hence, we conclude that the overall model is statistically significant, or that the variables have a significant combined or joint effect on the dependent variable. With this, the researcher affirms the validity of the regression model adopted in this study.

The results of the regression are therefore slated below as follows:

H_{01}: Equity Financing has no significant effect on financial performance of firms in Nigeria.

This hypothesis was tested and the result of the fixed effect regression model as exposited on table 4 indicates that the relationship between Equity Financing (EF) and Net Assets Per Share (NAPS) is positive and significant with a P-value (significance) of 0.0040 for the model which is less than the 1% level of significance adopted.

Likewise the result of positive coefficient of 0.603 for the model is proving that, an increase in firms' equity financing increases NAPS by 60.3%. Thus implies that equity intensive firms make higher profit.

We therefore rejected null hypothesis and accepted alternate hypothesis which contends that Equity Financing has significant impact on Firms' Performance. Therefore, firms should consider Equity Financing in their financing decision making process.

H_{02}: Long Term Debt Financing has no significant effect on Financial Performance of Firms in Nigeria.

This hypothesis was tested and the result of the fixed effect regression model as exposited on table 4 indicates that the relationship between Long Term Debt Financing (LTDF) and Net Assets Per Share (NAPS) is positive and significant with a P-value (significance) of 0.012 for the model which is less than the 1% level of significance adopted.

Likewise the result of positive coefficient of 0.493 for the model is proving that an increase in firms' Long Term Debt Financing (LTDF) increases NAPS by 49.3%. Thus implies that debt intensive firms make higher profit.

We consequently rejected null hypothesis and accepted alternate hypothesis which contends that Long Term Debt Financing (LTDF) has significant effect on Firms' Performance. In other words, investors should consider LTDF in their investment decision making process as it drives performance.

H_{03}: Debt Equity Financing has no significant effect on Financial Performance of Firms in Nigeria.

This hypothesis was tested and the result of the fixed effect regression model as exposited on table 4 indicates that the relationship between Debt Equity Financing (DEF) and Net Assets Per Share (NAPS) is positive and significant with a P-value (significance) of 0.0000 which is less than the 1% level of significance adopted.

Likewise the result of positive coefficient of 2.27 for the model is proving that an increase in firms' Debt Equity Financing improves NAPS by 2.27%. Thus implies that debt and equity intensive firms make higher profit.

We consequently rejected null hypothesis and accepted alternate hypothesis which contends that Debt Equity Financing has significant effect on Firms' Performance. The implication of this is that, firms should consider debt equity financing in their financing decision making process.

H_{04}: Short Term Debt Financing has no significant effect on Financial Performance of Firms in Nigeria.

This hypothesis was tested and the result of the fixed effect regression model as exposited on table 4 indicates that the relationship between Short Term Debt Financing (STDF) and Net Assets Per Share (NAPS) is positive and significant with a P-value (significance) of 0.0001 which is less than the 1% level of significance adopted.

Likewise the result of positive coefficient of 0.551 for the model is proving that increase in firms short term debt financing as other variables are held constant increases firms NAPS by 55.1%. Thus implies that short term debt intensive firms make higher profit.

We therefore rejected null hypothesis and accepted alternate hypothesis which contends that Short Term Debt Financing has significant effect on firms' performance. In other words, firms should consider Short Term Debt Financing as option for financing decisions.

5. CONCLUSION

This study notes that among the four (4) categories of firms' capital structure that were examined, Debt Equity Financing (DEF) was found to have the highest influence on firms' performance followed by Equity Financing (EF), Short Term Debt Financing (STDF) and Long Term Debt Financing (LTDF).

The study having developed a model fit on capital structure using (EF, LTDF, DEF & STDF) captured that EF, LTDF, DEF and STDF have joint effect on firms' performance. Based on this, the study concludes that firms capital structure have significant influence on firms' performance.

5.1 RECOMMENDATION

In lieu of the findings of the study, the following recommendations were made:

1. Since the study found significant and positive association between the equity financing and firms performance, firms should rely more on equity financing especially their internal source of finance because it is the cheap and reliable source of finance
2. The study established significant and positive association between long term debt financing and firms performance, thus, it was recommended that firms should also pay little attention to long term debt financing in their financing decision making process as it influences corporate performance.
3. The companies should also use optimal level of debt-equity financing in their financing decisions since significant and positive relationship was found between debt equity financing and firms performance.
4. Companies should also pay little attention to short term debt financing in their financing decision making process as it influences corporate performance.

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