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The Influence of Capital Structure on the Financial Performance of Listed Industrial Goods Companies in Nigeria

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Abstract

The study examined capital structure and its influence on the financial performance of selected listed goods in Nigeria between 2014 and 2023. Capital structure is used to determine how firms mix their equity and debt in financing its business operations to boost financial performance. The ex-post facto research design was employed for the study and the data used were extracted from the annual reports and accounts of three (3) purposively selected industrial goods firms in Nigeria in the NGX; Dangote Cement PLC, Lafarge Africa PLC and BUA Cement PLC. The panel data was utilized to analyze the data to determine the relationship between capital structure variables and financial performance. The findings from the study showed that a higher equity ratio significantly improved financial performance; and a higher debt ratio equally impacted on the financial performance positively. Conversely, the debt-to-equity ratio did not significantly affect the financial performance and was negative in the fixed effect model. However, it was recommended that firms should optimize equity finance, manage debt level efficiently and re-evaluate debt-to-equity ratio policies to prevent its adverse effect on financial performance.

Keywords: Capital structure, Financial performance, Debt ratio, Equity Ratio, Panel data

Introduction

Financial structure of a firm is the mixture of common stock, preferred stock and long term debt used by a firm to raise capital (Usman, 2019). Financing decisions of a firm involves selecting the best financing mix or capital structure of a firm. And financial decisions are amongst the most critical and complex task taken by managers and shareholders on how a firm is financed due to the fact that the decisions affect the capital structure and the financial performance of the organization (Olusola, Mengze, Chimezie and Chinedum, 2022). Capital structure shows how a business finances its operations using a combination of both equity and debt (Evbayiro-Osagir and Enadeghe, 2022). Capital structure is a combination of a firm's equity and debt which could guaranty financial stability, generate more profit and probably lead to growth and expansion. Mustapha and Agbi (2018) defined capital structure as how a firm finances its assets by employing a mix of equity, debt or by hybrid security.

The aim of capital structure is to maximize stakeholders return while minimizing the firms risk, but the major problem is finding the best mix of finance to produce the optimal result with minimal risk. Equity investment can become an issue to the firm but it reduces the risk elements for investors. Excessive utilization of debt in the capital structure may expose a firm to financial distress, bankruptcy and insolvency which could be experienced as a result of the inability of the firm to service the debts as and when due (Onwe, Mustapha and Yahaya, 2020); and eventually destroying the firm's value. A company with a high debt profile in its capital structure particularly debt will result into the firm paying for both the principal and fixed interest of the debt.

Capital structure decision is vital for organizations because of the need to optimize the wealth of the stakeholders and the fact that the decision that will be taken will have a significant effect on the organizations capacity to compete favorably in a competitive environment. In order to efficiently maximize the financial performance of firms, managers must analyze carefully capital structure decisions to ensure optimality. So financial managers will strive to achieve and utilize the best capital structure that will secure better returns for investments. Financial performance is the process of measuring a firms polices and operations

in financial terms. Financial performance measures the profitability, liquidity etc. of a company and is used as a vital instrument by stakeholders to measure the financial performance of a firm. Its aim is to determine how a firm is able to use its resources to generate profit. It also measures the financial health of a company over a given period of time and used by investors and financial analyst to compare similar companies in the same sector and compare sectors and industries in aggregate (Usman, 2019).

Considerable insight has been provided by extant literatures on the relationship between capital structure and financial performance in different industries, sectors and regions. Studies like that of Abdulkadiri, Kwaru and Karim (2023), Nwude and Anyalechi (2020), Chukwuma (2020), Miko and Para (2021), Chikwend and Nyeche (2022), Madumere and Ukaegbu (2023), Omokore, Njogo, Omankhulen, Isaka and Akinjare (2024), Bawa (2022), Hossain, Azam, Uddin and Shoyon (2022), Idolor and Omehe (2022), Obumneme, Taiwo, Victor and Nurudeen (2023), Olusola, Mengze, Chimezie and Chinedum (2022) and several other studies have mostly focused on different geographical locations, sectors and industries emphasizing the significance and nuance influence of capital structure metrics on financial performance standard like return on asset. The finding from these past studies have given mixed and indecisive conclusions dues to the kind of data collected, industry, the methodology employed and the problems of optimization still remains an unresolved issue.

Regardless of these extant studies, there exist a gap in understanding how capital structure specific components like equity ratio, debt to equity ratio and debt ratio influence the financial performance of industrial goods firm in Nigeria particularly in recent period between 2014 – 2023. Many of the past studies mention above predates the current period or the selected variables are not explicitly covered.

It is against this backdrop the researches embarked on studying how variations in equity ratio, debt to equity ratio and debt ratio affects return on asset in selected listed industrial goods firm from 2014-2023 on the Nigerian Exchange Group.

Statement of the problems

Every organization needs financial resources but these sources of financing are few. Financing can either be through debt or equity. The selection of an optimal financing mix therefore becomes a critical decision for the growth and survival of a company because of the effect such kind of decision will have on the firm's financial performance in a competitive industry.

Listed industrial goods companies on the Nigerian Exchange Group (NGX) often experience financial challenges in capital structure policies as a result of some of the following factors; the need for significant working capital, high expenditure for construction plant and fluctuations in economic conditions, could lead to problems of excessive debt burdening, challenges in accessing finance and potential uncertainties in the financial performance if not managed effectively. These financing challenges has to do more with whether to utilize more debt or more of equity (Ubeisie, 2016).

Bawa (2022) assert that companies that fail to plan their capital structure might experience challenges in raising finance to fund their future operations and other activities and may not optimize their use of fund. Therefore, firms must determine how to fund their operations and activities, maximize shareholders' wealth and prosper financially.

Consequently, it has become relevant to investigate how significant the financing choices of companies affect their financial performance.

Objectives of the study

The major purpose of this study is to evaluate the influence of capital structure on financial performance of selected listed industrial goods companies in Nigeria. Other specific objectives of the study include the following:

i. Examine the effect of equity ratio on the financial performance of selected listed industrial goods companies in Nigeria.
ii. Assess the impact of debt to equity ratio on the financial performance of selected listed industrial goods companies in Nigeria.
iii. Evaluate the influence of debt ratio on the financial performance of selected industrial goods companies in Nigeria.

Research Questions

a. To what extent does equity ratio affect the financial performance of selected listed industrial goods companies in Nigeria?
b. Does debt to equity ratio have any impact on the financial performance of selected listed industrial goods companies in Nigeria?
c. To what extent does debt ratio influence the financial performance of selected listed industrial goods companies in Nigeria?

Statement of Hypothesis

The following Null hypothesis will be tested:

Ho1: Equity ratio has no significant effect on the financial performance of selected industrial goods companies in Nigeria.

Ho2: The debt-to-equity ratio has no significant impact on the financial performance of selected listed industrial goods companies in Nigeria.

Ho3: Debt ratio has no significant influence on the financial performance of selected industrial goods companies in Nigeria.

Conceptual Framework

Concept of Capital Structure

A company's investment activities can be financed by internal and external sources of finance and they are made up of equity and debt. Capital structure is amongst the major decisions taken in the field of corporate finance and it is seen as the way a firm finances its assets by combining equity and debt (Abdullahi, et al. 2023). Capital structure refers to the ways a firm finance all its operational activities through equity, debt and hybrid security (Dinh and Pham, 2020). Olusola, et al (2022) and Nguyen & Nguyen (2020) assert that capital structure is the capital source of a company in the form of preference shares, long term debt and retained earnings. As a result, it deals with the arrangement of capital and minus short-term borrowing and in proprietary business venture, capital employed is essentially provided by the owners. As organizations raises finance through the issuance of equity, the entitlement of the shareholders increases while the claims of the creditors increase as the issuance of debt securities increases (Olusaola, et al, 2022). The arrangement of capital in a company is a mix of various securities issued by the company to fund its operations. It refers to the proportion of debt and equity that make up the liability and owners' equity side of the statement of financial position of the company and frequently refers to the usage of debt in a firm's capital structure as leverage (Awunyo and Bandu, 2019). For the purpose of this study, capital structure will be measured using;

i. **Equity Ratio**

Equity capital is the amount of money invested in a business by the shareholders either from the purchase of shares or through the retention of earnings (Madumere and Ukaegbu, 2023). It represents shareholders voting rights and ownership interest and is a major component of a company's capital structure. It also allows companies to generate long term funds without employing debts (Akinleye and Akomolade, 2019). Its major drawback is in the dilution of ownership, loss of control and higher expectation on returns on investment. The equity ratio also referred to as the equity to asset ratio is a financial matric that evaluates the proportion of a firm's asset that are funded by shareholder's equity instead of debt. It is derived by dividing Total Shareholders' Equity by Total Assets. A

higher equity ratio usually suggests that a company has lesser financial risk and is financially stable because it relies more on equity than on debt (Ezeani and Enyi, 2021).

ii. Debt–To-Equity ratio

Debt-to-Equity ratio is a financial metric that evaluates a company's level of indebtedness and financial leverage. It is derived by dividing Total Debt by Total shareholders' equity. The debt-to-equity ratio evaluates the proportion of a firm's debt employed to finance its shareholders' equity (Bawa, 2023). A higher ratio reveals higher financial risk as a result of increased reliance on debt that could possibly amount to higher interest expenses and financial obligation (Igben, 2018).

iii. Debt Ratio

Debt capital refers to monies borrowed from external sources like financial institutions, bondholders or other creditors to finance its activities, investment and growth. Debt according to Akinleye and Akomolafe (2019) is an agreement between a borrowing company and a lender, which could be in the form of bonds, commercial papers, loans, leases and debentures but the company still maintains its ownership.

The debt ratio also referred to as Debt to Asset ratio is a financial matric that evaluates a firm's level of indebtedness and financial risk. Debt ratio measures the proportion of a firm's asset that are funded by debt. It is derived by dividing Total debt by Total Asset. A higher debt ratio indicates that a firm is more leveraged and could be at risk of financial distress (Bawa, 2022). Consequently, it can affect the firm's creditworthiness and its ability to assess future finance (Oguntade and Adefabi, 2020). Debt can increase a company's financial risk and attracts fixed or floating interest payment and principal payment. If a company suffers a loss and is unable to make scheduled remittance, it will still owe debt obligations to the lender (Madumere and Ukaegbu, 2023).

Concept of Financial Performance

Olusola et al. (2022) refers to financial performance of a company's ability to optimize its earnings using available resources and assets. It is a measure employed to determine the overall financial strength of a company in a given period. Financial performance evaluates how effectively and efficiently a firm can achieve its profit maximization goal and manage its assets, liabilities and the financial interest of equity providers. Accordingly, accounting indicators for evaluating profitability such as

Return on Asset (ROA) as well as Return on Equity (ROE) are the most frequently used metrics cited by researchers for financial performance (Olusola et al, 2022 & Olaoye and Adesina, 2022).

Return of Equity (ROE)

ROE is a profitability ratio that evaluates the ability of a firm to create profit from shareholder's investments. Its calculated by dividing Net Income by Shareholder's Equity, and it represents the efficiency of capital employed in generating returns (Olaniyan and Olowe, 2018).

Return on Asset (ROA)

ROA is a profitability ratio that evaluates the ability of a company to generate profits comparatively with its assets. ROA is derived by dividing Net Income by Average Total Assets, depicting a snapshot of a firm's profitability relative to its asset base (Iyoha and Ayanwale, 2020)

Theoretical Review

This study is anchored on two theories and they are as follows:

Pecking Order Theory of Capital Structure

The Theory of Pecking Order for capital structure was first propounded by Donaldson (1961) and later improved upon by Myers and Majluf (1984) is one out of the several prominent theories in corporate leverage. It suggests that firms have an order for sourcing for finances it uses in its operations. It starts from the utilization of retained earnings to debt and finally to external equity as the last resort for financing (Myers, 2001). Donaldson (1961) assets that the more firms make profit, the lesser they will borrow due to sufficient internal finance to execute investment proposals. He further suggests that when a firm's internal source of finance becomes inadequate, that firm can source for fund externally like issuing corporate bonds or borrowings from banks. It is after exhausting the internal finance and debts that they resort to issuing fresh equity capital.

This approach is important because it highlights the relevance of the pecking order theory in determining capital structure decision and ultimately enhancing financial performance by optimizing the choices of funding amongst market imperfection.

Irrelevant and Relevant Theory

The Irrelevant theory was introduced by Modigliani and Miller (1958) and it explains that under certain assumptions the capital structure of a firm does not affect firm's

value. In their own view the capital market is seen to be perfect and all the stakeholders have access to free information, has no transfer cost, no bankruptcy cost and no taxation exist, therefore debts and equity decisions become irrelevant and both internal and external finance can be substituted perfectly. The M-M theory (1958) opines that a firm's capital structure does not have any relationship with the value of the firm and its financial performance. Therefore, in nigeria where markets are not perfectly efficient, understanding the concept of irrelevant capital structure will direct industrial firms in considering the broader consequences of financing decisions beyond the immediate financial metric.

On the other hand, the Relevant Theory of Capital Market Structure recognizes market imperfections i.e. taxes, bankruptcy cost and other imperfections that affect the firms value.' This theory emphasizes the relevance optimal capital structure decisions can have in improving the financial performance of a firm by reducing the overall cost of capital and boosting shareholder's wealth. So in nigeria where our capital market experience regulatory problems and information asymmetry issues, firms should consider the importance of their capital structure decisions with regards to tax shields from debts, interest and the capacity to attract investors with variations of risk preference.

Empirical Review

Nwude and Anyalechi (2020) carried out a survey on capital structure and its influence on the performance of commercial banks in Nigeria. The survey examined the effect of financial mix on the performance of commercial banks and the fundamental relationship between debt-to-equity ratio. The data collected for the study were analyzed with correlation analysis, random effect analysis, granger causality analysis test and post estimation test like restricted f-test of heterogeneity and Hausman test. The survey revealed that even though debt financing showed a negative and significant effect on return on asset, debt-to-equity ratio has positive and significant effect on return on equity.

Chukwuma (2020) evaluated debt financing and the effect it has on the performance of listed manufacturing companies in Nigeria. The investigation employed five (5) sampled manufacturing companies listed on the Nigerian Stock Exchange between 2011-2021 and utilized the secondary source of gathering data. Panel regression was used to analyze the data derived. The outcome of the investigation revealed that debt finance impacted positively and significantly influence on the performance of listed manufacturing companied in Nigeria.

Miko and Para (2021) studied the result of capital structure and profitability of listed manufacturing organizations in Nigeria. The multiple regression method was used for measuring of the data and the data were gathered utilizing the secondary source for data collection from 2008-2017. The outcome from the study revealed that equity finance had a positive significant influence on profitability of manufacturing companies listed on the Nigerian Stock Exchange Market.

Chikwendu and Nyeche (2022) examined the influence of equity finance on the net book value of listed manufacturing companies of Nigeria. Fifteen (15) listed manufacturing companies were used to test the secondary data collected from the annual reports of the companies from 2010-2019. The analysis was done with the use of panel data regression and the outcome showed that equity finance has a positive significant influence on the Net present value of listed manufacturing companies in Nigeria.

Abdullahi, Kwaru and Karim (2023) explored the influence of capital structure and financial performance of quoted consumer goods companies in Nigeria. The analysis was done with the secondary data extracted from the annual reports of selected firms from 2017-2021 in the Nigeria Exchange Group (NGX). The results indicated that LTDTA along with STDTA has a positive and significant influence on the financial performance of quoted consumer goods companies in Nigeria correspondingly. The survey suggest that quoted consumer goods companies should increase the utilization of LTDTA, as this can bring about increase financial performance,

Bawa (2022) investigated the effect of capital structure on the financial performance of registered industrial goods companies in Nigeria for sixteen years (2003-2018). The ex-post facto research technique was employed and the panel data was made use of for analysis. The survey consisted of fourteen (14) listed industrial goods companies in Nigeria on the Nigerian stock Exchange (NSE) as at 31st December 2018 and eight (8) companies were active between 2003-2018 on the floor of the NSE. The data for the study was gathered and analyzed using multiple regression analysis. The results showed that long term debt to total asset (LTTA) and short-term debt to total asset (STTA) had a negative and significant effect on financial performance. While total debt to total asset (TDTA) and total debt to total equity (TDTE) had positive and significant effect on financial performance of listed industrial goods companies in Nigeria. The study amongst others recommends that management should collaborate with shareholders in determining the best mix of capital.

Methodology

Research Design

The ex-post factor research design was employed for this study because of its suitability in investigating relationships between variables which are the researcher

cannot manipulate. The study employed panel data that combines time series and cross sectional data, which allows the examination of within unit and between unit variation over time.

Sources and Instrument of Data Collection

The secondary source of data collection was employed and instrument for data collection was the annual reports and accounts of the selected listed industrial firms in Nigeria.

Research Population and Sample Size

As at 31st December 2023, the Nigerian Exchange Group (NXG) has thirteen firms listed under the industrial firms in Nigeria and they make up the population of the study. The sample size was purposively selected based on the availability of relevant from the report and account of 2014-2023. Consequently, the study selected Dangote Cement PLC, Lafarge Africa Plc and BUA Cement PLC.

Techniques of Data Analysis and Justification

The data collected will be analyzed using panel analysis (Longitudinal data analysis). It is a unique and robust statistical method employed to analyze data collected from multiple entities over time.

Variable Measurements are as shown on the table below:

Variable	Measurement
Dependent Variable	
Return on Assets	PAT_x100_ Total Asset
Independent Variable	
Equity Ratio	Total Equity Total Assets
Debt to Equity Ratio	Total Debts Total Equity
Total Debt Ratio	Total Debts Total Assets
Control Variable	
Firm Size	Natural Logarithm of total assets of the firm.

Source: Author's Compilation (2025)

The following specific model will be utilized

$ROAit = \beta_0+\beta_1(ERit) + \beta_2(DERit) + \beta_3(DRit) + \beta_4(FSit) + \alpha i + \epsilon it$

Source: Adapted from Nguyen and Nguyen (2020).

Where:

ROAit represents the return on assets for firm i at time t.

ER, DET, DR and FS denote the equity ratio, debt to equity ratio, debt ratio and total debt of firm i at time t, respectively.

Firm Sizeit signifies the size of the firm i at time t.

β_0 is the intercept.

β_1, β_2, β_3, and β_4 are the coefficients for the respective variables.

αi represents the individual-specific effect.

ϵit stands for the error term.

DATA PRESENTATION AND ANALYSIS

Data Presentation

Data were extracted/sourced from the annual reports and accounts of three industrial goods firms in Nigeria from 2014 – 2023.

Data Analysis

Table 1

	ROA	ER	DER	DR	FS
Mean	4.821200	0.864974	0.235705	0.168028	18.05300
Median	0.142783	0.750336	0.105013	0.062952	19.66284
Maximum	16.66347	2.579982	1.793545	1.327725	20.91857
Minimum	0.021776	0.316878	0.002316	0.001511	13.75598
Std. Dev.	6.819796	0.465146	0.401600	0.288377	2.703874
Skewness	0.749654	2.306155	2.616069	2.810825	-0.646751
Kurtosis	1.623881	8.353738	9.571501	10.74554	1.556162
Jarque-Bera	5.177039	62.41989	88.19986	114.4955	4.697271
Probability	0.075131	0.000000	0.000000	0.000000	0.095499
Sum	144.6360	25.94922	7.071138	5.040834	541.5899
Sum Sq. Dev.	1348.779	6.274458	4.677199	2.411682	212.0172
Observations	**30**	**30**	**30**	**30**	**30**

Source: E-view Output (2025)

The descriptive statistics depicts that the central tendencies and dispersion of the variables from 2014-2023. The mean ROA is 4.8212, showing a moderate return on asset among the firms that were selected and a high standard deviation of 6.8198, suggesting variability in financial management. The Equity Ratio (ER) is with a mean of 0.86497, signifying that equity constitute a major part of the firms' capital structure. Debt to Equity ratio (DER) and Debt Ratio (DR) has a mean of 0.2357 and 0.1680 respectively, indicating that debt constitute a relatively insignificant portion of the capital structure compared with equity.

The firm size is with a mean of 18.0530 when measured with the natural logarithm of total asset, depicting a large scale of operations of the firms being studied. The

skewness and kurtosis values measured depicts some level of asymmetry and peakedness on the data distribution especially for ER, DER and DR as shown by their positive skewness and high kurtosis

Correlation Result

Table 2

	ROA	ER	DER	DR	FS
ROA	1.000000	0.199676	0.309368	0.326376	0.968915
ER	0.199676	1.000000	0.198535	0.084175	0.022752
DER	0.309368	0.198535	1.000000	0.974134	0.358064
DR	0.326376	0.084175	0.974134	1.000000	0.346365
FS	0.968915	0.022752	0.358064	0.346365	1.000000

Source: E-view Output (2025)

The correlation matrix indicates various degrees of relationship on the variables. Return on Asset (ROA), the dependent variable, depicts a positive correlation with Equity Ratio (ER), Debt to Equity Ratio (DER) and Debt Ratio (DR). The ROA particularly has a moderate positive correlation with DER (0.309) and DR (0.326), indicting a significant positive but not extremely positive relationship. The strong positive correlation between ROA and Firm Size (FS) (0.969) specifying that larger firms tend to have higher ROA that might indicate advantages of economies of scale or efficiency in operations.

The Equity Ratio (ER) from the chart has a low correlation with (0,200) ROA, which indicates that changes in equity ratio has a moderate small influence on ROA. The Debt to Equity Ratio (DER) and Debt Ratio (DR) of 0'309 and 0.326 respectively has a relatively positive correlation with ROA, implying that a higher portion of debt relative to equity or asset may be related with higher returns on assets however the relations are not extremely strong.

Panel Regression Result of the Equation

Table 3

$ROAit = \beta_0+\beta_1(ERit) + \beta_2(DERit) + \beta_3(DRit) + \beta_4(FSit) + \alpha i + \epsilon it$

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	50.85178	1.635181	31.09857	0.0000
ER	2.252398	0.579796	3.884812	0.0007
DER	3.547506	2.970821	1.194116	0.2436
DR	4.904574	4.035091	1.215481	0.0355
FS	2.442496	0.091086	26.81520	0.0000
R-squared	0.972020	Mean dependent var		4.821200
Adjusted R-squared	0.967543	S.D. dependent var		6.819796
S.E. of regression	1.228647	Akaike info criterion		3.400715
Sum squared resid	37.73931	Schwarz criterion		3.634248
Log likelihood	-46.01073	Hannan-Quinn criter.		3.475424
F-statistic	217.1210	Durbin-Watson stat		2.17930
Prob(F-statistic)	0.000000			

Source: E-view Output (2025)

The overall fit of the model is robust as depicted by the R-square value of 0.972, indicating that about 97.2% of the variation in ROA can be explained by the independent variable alone with the equity ratio (ER), debt to equity ratio (DER), debt ratio (DR) and firm size (FS).

Equity Ratio (ER): The co-efficient for ER is 2.252 and is measure with a significant p-value of 0.0007. the significant and positive relationship indicates that a higher equity ratio is connected to the increase in ROA. This outcome supports the notion that firms with higher amount of equity financing tend to have better performance in terms of asset returns. Equity financing may provide more stability and reduce the financial risk of a firm thus improving operational performance and increasing profitability.

Debt to Equity (DER): the co-efficient for DER is 3.548 but not statistically substantial because it has a p-value of 0.2436. Even though the co-efficient is positive, portending a potential positive relationship between DER and ROA, the absence of statistical significance signifies that the effect of debt-to-equity ratio on financial performance is not as strong or as conclusive if other variables are controlled.

Debt Ratio (DR): The co-efficient of DR is 4.905 with a statistically significant p-value of 0.0355. The significate positive relationship signifies that an increase in the debt ratio is linked to a higher ROA. This outcome suggests that leveraging could positively impact performance possibly through benefits like tax shield or improved investment capabilities. Nevertheless, the positive effect of debt can come with increased financial risk that firms should be cautious of and be ready to manage.

Firm Size (FS): This has a co-efficient of 2.442 and with a highly significant p-value of 0.0000. the strong positive relationship signifies that larger firms will generally attain a higher ROA. Larger firms might take advantages of the economics of scale, better market positioning and more efficient operation, all of this can contribute towards increasing financial performance.

F-Statistics: This has a co-efficient of 217.121 and a p-value of 0.000. It tests the importance of all the independent value in the model. The high F-statistics with its corresponding p-value of 0.000 indicates that the model is statistically significant and that some of the independent variable substantially contributed to the variability in the ROA. That has re-enforced the model's validity and submits that the independent variables collectively have a meaningful effect on financial performance.

Durbin Watson Statistics: this shows a figure of 2.179 and it test for the presence of auto-correlation in the residuals. Any value around "2" indicates no significant auto-correlation signifying that the residuals are likely to be independent of each other. So the value 2.179 is around 2, suggests that auto-correlation is not of significant importance in the model.

Fixed Effect Result
Table 4

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-48.97714	12.89085	-3.799374	0.0009
ER	2.220760	0.708481	3.134538	0.0047
DER	-4.230669	1.922488	-2.200622	0.0381
DR	5.775105	2.683590	2.152007	0.0321
FS	2.875104	0.685320	4.195275	0.0003
	Effects Specification			
Cross-section fixed (dummy variables)				
R-squared	0.992641	Mean dependent var		4.821200
Adjusted R-squared	0.990721	S.D. dependent var		6.819796
S.E. of regression	0.656919	Akaike info criterion		2.198453
Sum squared resid	9.925491	Schwarz criterion		2.525399
Log likelihood	-25.97679	Hannan-Quinn criter.		2.303046
F-statistic	517.0798	Durbin-Watson stat		1.345406
Prob(F-statistic)	0.000000			

Source: E-view Output (2025)

The fixed effect model goes further more to polish the analysis by depicting significance co-efficient for ER (2.221), DER (-4.231) and FS (2.875). The negative co-efficient of DER (-4.231) is in sharp contrast when compared to the panel regression result. This signifies that when firm-specific are controlled, a greater debt–to-equity ratio will negatively affect ROA. This might reveal an increased financial risk or a higher interest expenditure connected with debt.
The Debt Ratio (DR) remains significantly positively with a co-efficient of 5.775, supporting the idea the debt financing can enhance financial performance. The significant and positive co-efficient of FS (2.875) advanced and validates the impact of firm size on performance.

Hausman Test Result
Table 5

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Period random	4.428807	4	0.3511
Period random effects test comparisons:			
Variable	**Fixed**	**Random**	**Var(Diff.)**	**Prob.**
ER	3.479822	2.220760	1.380539	0.2839
DER	-5.975886	-4.230669	2.776612	0.2949
DR	9.035406	5.775105	6.709778	0.2082
FS	4.898222	2.875104	4.056403	0.3151

Source: E-view Output (2025)

The Hausman test results reveals that the fixed effect model is more suitable when compared to the random effect model as depicted by the non-significant p-value of the fixed effect and the random effect model. This infers that firm-specific effects are important in describing variations in ROA and the fixed effect model offers a more precise estimation of the relationship.

Test of Hypothesis

Summarized regression Result

Table 6

Variable	Co-efficient	Prob.
C	50.85178	0.0000
ER	2.252398	0.0007
DER	3.547506	0.2436
DR	4.904574	0.0355
FS	2.442496	0.0000

Source: E-view Output (2025)

H_{o1}: Equity ratio has no significant influence on the financial performance of selected listed industrial firms in Nigeria.

The co-efficient of R is 2.252398 with a p-value of 0.0007. As the p-value is less than the common significance level of 0.05, the Null hypothesis is rejected. This reveals that the equity ratio has a significance influence on the financial performance of the selected listed industrial firms. The positive co-efficient indicated that an increase in the equity ratio is connected with improved financial performance.

H_{o2}: Debt to equity ratio has no influence on the financial performance of selected listed firms in Nigeria.

The co-efficient of DER is 3.547506 with a p-value of 0.2436. As the p-value is greater than 0'05, the Null hypothesis is accepted. This implies that the debt-to-equity ratio does not have a significant influence on the financial performance of the listed industrial firms in Nigeria. Though the co-efficient is positive, its lack of significance indicates that a changes in DER does not significantly influence ROA in the sample.

H_{o3}; Debt ratio has no significant influence on the financial performance of selected listed industrial firms in Nigeria.

The co-efficient of DR is 4.904574 with a p-value of 0.0355. As the p-value is less than 0.05, the Null hypotheses is rejected. This reveals that the debt ratio has a

significant influence on the financial performance of the listed industrial firms. This positive co-efficient indicates that a higher debt ratio is associated with increased financial performance probably due to benefits from leverage

Discussion of Findings

The outcome of the correlation matrix and regression analysis gives insight into the relationship between financial performance as established by ROA and other various components of capital structure, comprising of Equity ratio (ER), Debt-to-Equity Ratio (DER), Debt Ratio (DR) and firm size (FS). The correlations analysis indicates that ROA has positive correlation with DER, DR, and FS whereas the relationship between ER is relatively weak.

The panel regression model consisting all variable reveal that FS and ER have a significant positive influence on ROA, whereas DER and DR indicates a significant positive influence even though the significance varies. The high R-square value of 0.972 depicts that the model is represented by a large portion of ROA variability signifying a strong relationship amongst the dependent and independent variables.

In contrast, the fixed effect model depicts a nuanced view of the variables effects. Whereas ER and DR maintained their significant positive relationship with ROA DER's impact turns negative and significant, signifying that the addition of firms-specific effects shows a more complicated relationship between DER and financial performance. The fixed effect model similarly highlights the continued significance of FS in improving ROA.

On Equity Ratio; the significant positive effect of ER on ROA is in agreement with the finding of Chikweendu and Nyecche (2022) and Miko and para (2021). From their studies, they discovered a positive influence of equity financing on financial performance. This indicates that firms with higher equity ratio normally experience better financial performance which is consistent with the results of this study.

On Debt-to-Equity; the insignificant of DER on the panel regression analysis contrast with the finding from the studies of Abdullahi, Kwaru and Karim (2023) and Nwude and Anyalechi (2020), that discovered mixed effect of DER on financial performance.

On Debt Ratio; the positive and significant influence of DR on ROA is in agreement with the discoveries of Bawa (2022) and Chukwuma (2022), revealing that the outcome of a heightened debt ratio could improve financial performance. This implies that debt financing when managed efficiently could improve financial performance as indicated by the findings.

Summary of Findings

The findings are summarized as follows:

i. That a higher equity ratio significantly increases financial performance.
ii. That a higher debt ratio positively influences financial performance.
iii. That the influence of debt-to-equity is not significant in the panel regression and goes negative in the fixed effect model.

Conclusions and Recommendations

Conclusions

The results from this study are crucial in formulating the conclusion of the study. The analysis has provided a comprehensive view on the ways different capital structure components will influence financial performance, particularly return on asset (ROA). It can be concluded that:

i. More investment in equity and improved retained earnings are statistically significant in increasing the financial performance of the selected industrial firms in Nigeria.
ii. The use of debt if managed efficiently can significantly improve or bring about positive changes in the financial performance of the selected industrial firms thereby enhancing shareholder's wealth.
iii. The changes in debt-to-equity ratio of the selected industrial firms has not significantly influence ROA

Recommendations

The following recommendations are proposed:

a. The firms should concentrate on maximizing their equity finance as this can go a long way in enhancing growth and financial stability.
b. Management of the firms should ensure that all debts obtained should be managed wisely and employed efficiently without incurring too much cost because debt can be beneficial.
c. The firms should re-evaluate their debt–to-equity policies to prevent any adverse impact on it financial performance.

Bibliography

Abdullahi, S.T., Kwaru, S.M., & Karim, D.I. (2023). Capital structure and financial performance of listed consumer goods firms in Nigeria. *Nigerian Journal of Management Sciences*, 24(2), 45-67.

Awunyo, D.V., & Bandu, J. (2019). Capital structure and performance of listed banks in Ghana. *Global Journal of Human Social Science,12(5), 1-7.*

Bawa, S.Y. (2022). Impact of capital structure on financial performance of listed industrial goods companies in Nigeria. *Research Journal of Management Practice*, 2(8), 34-88

Chikwendu, A.F., & Nyeche, E. (2022). Financing policy and net book value of quoted manufacturing firms in Nigeria: A multi- variant study. *African Journal of Business and Economic Development, 2*(2), 7-27.

Chukwuma, E.E. (2022). Influence of debt financing on the financial performance of listed manufacturing firms in Nigeria. *Advances in Economics, Business and ManagementResearch (AEBMR),* 92(1), 182-188.

Dinh, H. T., & Pham, C. D. (2020). The effect of capital structure on financial performance of Vietnamese listed pharmaceutical enterprises. *The Journal of Asian Finance, Economicand Business*, *7*(9), 329–340.
Donaldson, G. (1961). *Corporate debt capacity: A study of corporate debt policy and the determination of corporate debt capacity.* Division of Research, Harvard School ofBusiness Administration: Boston.
Evbayiro-Osagie, E. I., & Enadeghe, I. B. (2022). Capital structure and performance of non-financial firms in Sub-Sahara Africa. *International Journal of Finance Research,*3(1), 49 – 62.
Ezeani, N.S., & Enyi, P.E. (2021). Impact of capital Structure on financial performance of listed insurance firms in Nigeria. *European Journal of Accounting, Finance & Business,* 9(3),48-64.
Hossain, M. I., Azam, M. S., Uddin, M. R., & Shovon, M. K. H. (2022). Capital structure and financial performance of food industry: An agro-based emerging economy perspective. *International Journal of Accounting & Finance Review,* 10(1), 53-60.
Idolor, E. J. & Omehe, R. (2022). Capital structure and the performance of deposit money banks in Nigeria. *African Development Finance Journal*, 4(4), 1-13.
Igben, R.O. (2018). Determinants of capital structure and the Debt-to-Equity Ratio: Evidence from selected firms in Nigeria. *Journal of Economics and Sustainable Development,* 9(17), 25-34.
Iyoha, F.O., & Ayanwale, A.B. (2020). Determinants of return on assets of deposit money banks in Nigeria. *International Journal of Economics and Financial Issues*, 7(1), 89-96.
Madumere, I., & Ukaegbu, G. E. (2023). Capital structure and financial performance of listedindustrial goods manufacturing firms in Nigeria. *Journal of International Accounting andEconomic*, 8(20, 11-17.
Miko, N.U., & Para, I. (2021). Capital structure and profitability of listed manufacturing firms in Nigeria. *Journal of Accounting and Management, 2(*2),134-140.
Modigliani, F. and Miller, M. H. (1958). The cost of capital, corporate finance and the theory of investment. *American Economic Review,* 48(3): 261-97.
Mustapha, L. O., & Agbi, S. E. (2018). Capital structure and financial performance of listed agro- allied firms in Nigeria. *Nigerian Journal of Management Technology & Development*, 9(2), 283–296.
Myers, S. C. & Majluf, N. S. (1984). Corporate financing and investment decision when Firms have Information that Investors do not have. *Journal of Financial Economics,*13, 187–221.
Myers, S. C. (2001). Capital structure. *The Journal of Economic Perspectives*, 15 (2): 81-102.
Nguyen, H. T., & Nguyen, A. H. (2020). The impact of capital structure on firm performance: Evidence from Vietnam. *Journal of Asian Finance, Economics and Business*, *7*(4), 97-105.
Nwude C.E., & Anyalechi C.K. (2020). Impact of capital structure on performance of commercial banks in Nigeria, *International Journal of Economics and Financial Issues,* 8(2), 298-303.
Obumneme, R. A., Taiwo, A. M., Victor, E. I. & Nurudeen, S. Y. (2023). Impact of capital structure on financial performance of oil and gas firms in Nigeria. *Future Business Journal,* 9(1), 1-9.
Oguntade, A., & Adefabi, R.A. (2020). Capital structure and financial performance: Evidence from selected listed firms in Nigeria. *Journal of Accounting and Financial Management,* 6(1), 78-91.
Oguntade, A., & Adefabi, R.A. (2020). Capital structure and financial performance: Evidence from selected listed firms in Nigeria. *Journal of Accounting and Financial Management,* 6(1), 78-91.
Olaniyan, O.J., & Olowe, S.O. (2018). Return on Capital Employed as a Measure of Financial Performance of Deposit Money Banks in Nigeria. *Journal of Accounting and Financial Management*, 4(1), 1-13.
Olaoye, C. O. & Adesina, O. D. (2022). Capital structure and financial performance of manufacturing companies in Nigeria. *Journal of applied and Theoretical Social Sciences*, 4(4), 471-491.
Olusola, B., Mengze, H., Chimezie, M., & Chinedum, A. (2022). The impact of capital structure on firm performance: Evidence from large companies in Hong Kong stock exchange. *Journal of Business and Management*, *10*, 1332-1361
Omokore, D. E., Njogo, B. O., Omankhanlen, A. E., Isalaka, M, & Akinjare, V. A (2024). Impact of Capital Structure on Financial Performance of firms in Nigeria Health Sector. *Journal of Comprehensive Business Administration Research*, 1(2), 105-112.
Onwe, E. D., Mustapha, L. O. & Yahaya, O. A. (2020). Financial Structure and Financial Performance of Listed Firms in Nigeria. *Research Journal of Finance and Accounting*. 11(14), 120-136.
Ubesie, M. C. (2016). Effect of Capital Structure on the Financial Performance of Nigerian quoted conglomerates. *European Journal of Accounting, Auditing and Finance Research,* 4(6), 61-69.
Usman, M. (2019) The Impact of Capital Structure on Financial Performance of Consumer Goods industry in Nigeria. *Open Journal of Accounting*, 8, 47-62.