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Effect of Capital Structure on Performance of Companies: Empirical Evidence from an Emerging Country

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Abstract

This paper investigates whether capital structure affects the performance of quoted firms in Nigeria. The Panel econometric techniques, fixed effects, and random effects were used to examine the impact of capital structure on the performance of firms quoted on the Nigeria Exchange Group during 2010-2022. Empirical results indicate mixed findings of capital structure measures on the performance indicators. Why the negative impact is more on the net profit and earnings per share, the effect on return on assets is moderate. This suggests that the chosen companies are highly leveraged, relying on substantial debt to finance their investments. This may hamper their ability to fulfill their financial commitments to shareholders. Once more, this overleveraging may increase the influence of the lenders, restricting the managers' capacity to operate the business effectively and adversely affecting the company's performance. Based on the findings, it is recommended that financial managers, lenders, and investors should consider the significant policy ramifications of this study and consider the consequences of leverage on performance before modifying debt levels. As a matter of urgency, the financial management should also determine the best capital structure to increase the firm's worth. Debt covenants should only be imposed after carefully considering their effect on business performance. Finally, investors should consider the firm's debt level before investing.

1. Introduction

The company's combination of debt and equity to fund its operations, productive assets, and future expansion is referred to as the capital structure, Baker and Martin (2011). It directly affects the total cost of capital and adds to the overall level of risk for the company. The choice of various debt ratios among different financing options can significantly impact the firm value and, consequently, the shareholders' wealth (Baker and Martin, 2011). Capital choice has drawn much attention from academics and practitioners over the past few decades because it is one of the fundamental components of corporate finance. A company's financial decision is of utmost importance because of its impact on its performance and ability to survive. One of the essential resources in corporate finance is capital, which is obtained internally through non-cash transactions like retained earnings, depreciation, tax shelters, and others or externally through debt and equity (Kenn-Ndubuisi & Nweke, 2019). A business needs money to operate, whether it is established or already in operation. Without money, success is impossible.

A company's financial foundation is represented by its capital structure. It is a fundamental problem since it shows how a company uses a variety of funding sources to pay for its overall operations and expansion (Tsuji, 2017). Its significance comes from the fact that a firm's capacity to meet the needs of diverse stakeholders is closely related to its capital structure. One of the critical issues in finance is the relationship between capital structure and corporate performance. Several theories help to explain this connection. The foundational idea, Modigliani-Miller (MM) hypothesis, asserts that a corporation's capital structure has no bearing on its value. This theory, however, is founded on constrictive notions of an ideal capital market that do not exist in reality. Capital structure was first considered unimportant to corporate performance at the outset of its theory's development (Modigliani and Miller 1958, 1963).

However, the idea of optimal capital structure comes with the introduction of trade-off theory that incorporates the impact of corporation taxes, financial hardship, and agency difficulties, given the existence of an imperfect market's conditions and behaviors. According to the trade-off hypothesis, a company will balance the advantages and disadvantages of debt to increase firm value (Kraus & Litzenberger 1973; Myers 1984). The main advantage of debt is the tax shelter provided by the income reduction resulting from paying interest (Miller & Modigliani 1963). On the other side, the signaling hypothesis and the pecking order theory, which disregard the concept of optimal leverage, also emerge due to the discovery of information asymmetry. According to Kim (1978) and Kraus & Litzenberger (1973), the cost of debt is determined from the direct and indirect costs of bankruptcy through higher financial risk. According to the pecking order theory, financing proceeds in a particular sequence: internal funding is utilised first, followed by debt issuance, and equity is issued when additional debt cannot be obtained (Myers & Majluf 1984; Ross 1977).

Despite the exact relationship between capital structure and firm performance, each theory suggests a divergent collection of outcomes toward the sign of impacts between the two subjects of interest. Numerous empirical investigations have been conducted to determine whether the market is more likely to favor the best theories. Still, none of them have come close to reaching a consensus. This is so because the market's operations are sophisticated and influenced by many pertinent aspects. The requirement for a broad conclusion is one of the essential concerns because the results of each investigation continue to be incomplete and inconsistent. Additionally, traditional research frequently undervalues the value it is anticipated to add by determining whether there is a significant relationship between two factors rather than describing the extent to which they impact one another.

Business financial managers must deal with a fundamental problem when deciding how much debt and equity to use in financing. Researchers have struggled with a significant issue that hasn't been solved: the actual impact of capital structure on company performance in Nigeria. Empirical investigations of how businesses are financed in the US and other industrialized nations have predominated. Modigliani and Miller (1958), Myers (1977), Titman and Wessels (2017), and Rajan and Zingales (2015) are a few examples of such investigations. There is no conclusive empirical data in the literature evidence of how capital structure affects the corporate performance of enterprises in Nigeria. Raising appropriate funds in an organization will aid the firm in its operation; therefore, Nigerian businesses must understand the debt-to-equity ratio that will result in practical and effective performance after thoroughly studying their operations and commitments.

Based on our preliminary analysis of the financial reports of the companies considered for this study, debt financing for quoted companies in Nigeria corresponds primarily to short-term debt. Additionally, as can be seen from their annual reports, most Nigerian listed companies receive significantly more in external financing than they do in investments. However, using excessive outside funding can lead to a firm becoming overleveraged, which implies the company has extensive obligations to institutional and private investors who can interfere with business operations and financial returns. Because businesses typically agree to fixed repayments for a set term, debt financing impacts a company's success. Regardless of how the business does, these repayments must be made. Although these repayments are often avoided through equity financing, businesses still must offer venture capitalists or investors a share in their company. As a result, selecting a capital structure is fundamentally a financing decision problem that is made considerably more challenging when the business environment, like in Nigeria, is volatile. Therefore, making the right capital structure decisions and understanding how they affect an organization's success is critical for Nigerian businesses. As a result, this study investigated the effect of Capital Structure on the performance of quoted companies in Nigeria, starting the hypotheses below to solve the identified gap.

H_1: Total Debt to Asset ratio does not significantly affect the corporate financial performance of firms in Nigeria

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H_2: Cost of debt does not have a positive significant effect on the corporate financial performance of firms in Nigeria

H_3: Debt to equity does not significantly affect the corporate financial performance of firms in Nigeria

2. Review of Related Literature

Management of the capital structure entails choosing debt and equity securities to increase the firm's worth. The capital structure theory has been thoroughly studied since Modigliani and Miller (1958) claimed that capital structure is immaterial in determining business value. As an illustration, Jensen and Meckling (1976) argued against the debt irrelevance theorem by claiming that strict debt covenants linked with debt may limit the manager's capacity to function freely, which in turn affects the performance of the organization. Studies have been conducted to evaluate the relationship between capital structure and performance ever since Jensen and Meckling noticed that capital structure affects business performance. The research on whether debt is desirable or bad is still ambiguous. Both arguments and empirical results have been made. Debt has been suggested to positively impact performance by some academics, while debt has been argued to impact others negatively.

For instance, Jensen and Meckling (1976) asserted that disagreements between shareholders and managers occur when managers do not own the entirety of the residual claim. As a result, they don't fully profit from their activities to increase profits; instead, they pay the total price. Debt use, however, may boost managers' ownership stakes and lessen loss brought on by disputes between managers and shareholders (Harris and Raviv, 1991). Additionally, according to Jensen (1986), debt lowers the agency costs of free cash flow by lowering the amount of cash available for managers to spend at their discretion. According to Grossman and Hart (1982), debt can encourage managers to work more, consume fewer bonuses, make better investment decisions, etc., if bankruptcy is costly for managers, presumably because they lose the advantages of power or reputation. These results suggest that dangerously high debt levels can nonetheless create value by putting the company on a diet deal, notwithstanding the potential of financial catastrophe.

An empirical study on the corporate performance and capital structure of large firms from four Asian emerging market economies was undertaken by Krishnan and Moyer in 2017. The study aimed to examine the factors affecting capital structure in financial and non-financial businesses. The total debt to total equity ratio had a negative and significant effect on the return on equity of Asian enterprises, which included 81 companies, according to the study. Overall, the study's findings offer scant evidence that the existing capital structure theories in these developing market countries are accurate. The effect of capital structure on the performance of a few chosen telecommunications enterprises in Nigeria

from 2016 to 2020 was investigated by Omotola, Ademola, and Nuga in 2021. Earnings per share (EPS), return on equity (ROE), and return on asset (ROA) were employed in the study as proxies for firm performance. In contrast, the capital structure was proxied by the equity and debt ratios. The results show that capital structure positively impacts the corporate performance of a few Nigerian telecommunications companies.

In Nigeria, Ajayi, Zahiruddin, and Ghazali (2016) investigated the impact of capital structure on the firm performance of 100 non-financial companies that were listed on the Nigerian Stock Exchange (NSE) between 2010 and 2014. The result showed a positive and significant effect of capital structure on firm performance. In contrast, Ofogbe, Nnamani, Anisiuba, and Ezuwore-Obodoekwe (2021) examined the relationship between corporate social responsibility and the companies' capital cost listed on the Nigerian Stock Exchange. The results showed a positive/negative non-significant relationship and a positive/negative significant relationship between corporate social responsibility and the cost of capital. The findings corroborate those made in scholars' studies, particularly in developed nations where this topic has received much attention.

Gleason et al. (2000) discovered that capital structure negatively impacted firm performance using retailers' data in 14 European nations. According to Balakrishnan and Fox (1993), high debt amounts make managers more risk-averse and less likely to invest in profitable but risky projects. In their 2007 study, Chathoth and Olsen examined data from 48 US restaurant industry companies. They discovered that factors corresponding to business strategy, environmental risk, and capital structure significantly account for variation in firm performance. The relationship between financial leverage and business financial performance in Nigeria was examined by Kenn-Ndubuisi, Ifechi, and Nweke (2019) using data from 80 non-financial companies listed on the Nigerian Stock Exchange between 2000 and 2015. Measures including the overall debt-to-capital ratio indicated financial leverage, the debt-to-equity ratio, the cost of debt, the debt-to-asset ratio, and the long-term debt-to-capital ratio. The study results showed that the debt-to-equity ratio and the total debt-to-total asset indicators of financial leverage have a significant and negative relationship with earnings per share. However, the association between the return on equity and the financial leverage indicators in Nigeria is insignificant.

Ogiriki, Andabai, and Bina (2018) investigated the effect of financial leverage on the corporate performance of firms in Nigeria from 1999-2016. They used Long-term debt, return on asset, and return on equity as dependent and explanatory variables in studying its impact on the corporate performance of enterprises in Nigeria. The findings showed that ROA and ROE had favorable effects on important enterprises' long-term debt. The study concluded that financial leverage substantially impacted how well businesses performed in Nigeria and suggested that long-term loans be managed effectively. The effect of debt on the performance of listed Nigerian downstream oil and gas firms was studied by Abosede (2021). The study's main goal is to determine whether debt affects the financial performance of the listed Nigerian downstream oil and gas firms by utilizing return on asset (ROA) and return on capital employee (ROCE) as measures of financial performance.

Long-term, short-term, and total debt are used as proxies for debt. The study discovered that the financial performance of listed Nigerian downstream oil and gas firms is negatively and considerably impacted by long-term debt.

Zaidi, Jais & Karim (2019) looked at the impact of debt financing on the performance of Malaysian companies in the consumer products sector between 2001 and 2015. Findings showed a significant association between short-term and long-term debt but no correlation between accounts payable and firm size. Using panel data of listed companies on the Ghana stock exchange from 2009 to 2018, Mac Carthy & Ahulu (2019) investigated whether capital structure influences firms' performance in Ghana. The findings indicated a significant negative association between capital structure and firm performance. Akingunola, Olawale, and Olaniyan (2017) investigated the relationship between the choice of capital structure and an organization's financial success in Nigeria. The study used regression analysis to measure debt equity, short-term debt, long-term debt, asset tangibility, growth, size, ROE, and ROA. For the research period, both short- and long-term debt has a positive, significant impact on ROE and ROA.

According to several empirical studies revealed, there is no conclusive relationship between capital structure and firm performance. For instance, Uremadu and Onyekachi (2019) studied the effect of capital structure on corporate performance in Nigeria. The results from the research found a negative and insignificant impact of capital structure on the corporate performance of Nigeria's consumer goods firm sector. Using the data from 43 UK-quoted firms interested in owning and operating hotels, Phillips and Sipahioglu (2004) examined Modigliani and Miller's debt irrelevance theorem. They found no connection between the firm performance and the amount of debt in the capital structure. In addition, data from 81 Asian firms were examined by Krishnan and Moyer (1997). They discovered that the country of origin influences capital structure and financial performance. They also noted that Hong Kong corporations have much greater returns on equity and invested capital than firms from other nations. The leverage of Korean companies is substantially more significant than that of other companies. Finally, they demonstrated that leverage does not appear to impact business performance.

Empirical results are contradictory and ambiguous, making conclusions challenging. Thus, the lack of a consistent and systematic association between capital structure and business performance in the literature demands additional research in this field, particularly in emerging nations like Nigeria, where the subject matter has not been researched extensively. The cause has made this empirical study necessary.

3. Data, Variables, and Research Methodology

This study investigates whether capital structure affected the performance of firms in an emerging country like Nigeria from 2010-2022. Data were extracted from secondary sources to test the study's hypotheses, specifically the financial reports of the selected companies listed on the Nigerian Exchange Group (NEG) for the sample period. Notably, it is required that public limited firms prepare their financial statements following the

approved accounting standards as applicable in Nigeria. International Financial Reporting Standards published by the International Accounting Standards Board and Statement of Accounting Standards issued by Nigeria's Financial Reporting Council (FRC) make up approved accounting standards. The FRC is a body tasked with establishing accounting standards in Nigeria.

The population of this study comprises all 156 companies listed on NEG during 2010-2022. However, some companies are not in existence as of 2010, while some were found to lack the necessary information and, as a result, were removed from the analysis. The non-probability sampling method was then used to choose a sample of 33 companies, including at least one from each sector. Subsequently, the non-probability sampling technique was adopted to select a sample of 33 companies, with at least one from each sector. Firms included in the sample belong to eleven distinct groups: agriculture, conglomerate, construction/real estate, consumer goods, financial sector, health care, ICT, industrial goods, natural resources, oil and gas, and services. See in Table 1 the classification of sample firms in relation to their affiliation with different industrial groups.

Table 1: Names of industries and the selected number

Industry/sector	Population	No. of firms	The proportion of firms (%)
Agriculture	5	1	2.13
Conglomerate	6	2	4.26
Construction/real estate	8	2	4.26
Consumer Goods	21	8	17.00
Financial Sector	50	18	38.30
Health Care	7	2	4.26
ICT	9	1	2.13
Industrial Goods	13	3	6.38
Natural Resources	4	1	2.13
Oil and Gas	10	2	4.26
Services	23	7	14.89
Total	156	47	100

Variables

Data used in this study were adopted mainly from existing literature reviewed extensively to compare this study's outcome with earlier empirical investigations. Based on data availability, three measures of firms' performance, including earnings per share, return on assets, and market-to-book ratio, were used as dependent variables. The explanatory variables are the total debt-to-asset ratio, cost of debt, and debt-to-equity ratio. We also added other common control variables, including firm size and leverage, that could impact the business's performance and the essential explanatory factors. Table 2 includes a list of these variables' definitions.

Table 2: Variable Construe

Variables	Definition
Dependent variable	
Earnings Per Shares (EPS)	It is a measure of a company's profitability which is determined by dividing net income, excluding net dividends, by the total number of outstanding stock shares.
Return on Assets (ROA)	Ratio of profit before taxes to total assets
Net Profit Margin (NPM)	Profit after Interest and Tax (PAIT) divided by Total Revenue
Key Explanatory Variables	
Total debt-to-asset ratio (TDAR)	The total debt held by a firm in relation to its assets.
Cost of debt (COD)	The actual interest rate a company pays on its debts, such as bonds and loans.
Debt-to-equity ratio (DER)	The measurement of a company's ability to pay its debt. It is obtained by dividing its total debt by the sum of its shareholders' equity.
Control Variables	
Firm Size (FSIZE)	Natural logarithm of sales
Growth (GROTH)	This is the ratio of capital expenditures to total assets. Capital expenditures are estimated as the one-year variation in net fixed assets.

Research Methodology

Because the sample included information from several firms and, over a time period, the panel data technique was used to analyse the hypotheses stated earlier. Key explanatory factors and performance indicators were estimated using two-panel econometric methods, the fixed effects and random effects, to examine the impact of capital structure on the performance of firms quoted on the Nigeria Exchange Group during 2010-2022. The simplest scenario, when there are no firm-specific or time-specific impacts, is where the pooled ordinary least squares method is most beneficial. As an alternative, the fixed effects estimating approach restricts the slope parameters to be constant across all businesses and periods while allowing the intercept for each firm to change. In contrast to the fixed effects model, the random effects model assumes the variation between entities to be spontaneous and unrelated to the explanatory factors present in the model. The Hausman (1978) specification test was employed in the study to determine which estimate model, fixed effects or random effects, best describes our estimation. In light of this, the fundamental regression is represented as:

$y_{it} = \alpha + X_{it}\beta + u_{it;}\ i = 1,\ldots\ldots 33;\ t = 1;\ldots\ldots\ldots, 13$

Where: $_{it}$ stands for the ith cross-sectional unit and t for the t th period. y_{it} is the performance measure for the ith firm at time t, and α is the intercept. X_{it} is a 1 x K vector of observations on K explanatory variables for the ith firm in the t th period, β is a K x 1 vector of parameters, u_{it} is a disturbance term and is defined as:

$$u_{it} = \mu_i + \upsilon_{it}$$

Where μ_i denotes the unobservable individual effects, and υ_{it} indicates the remainder disturbance. The description of three estimation models (i.e., pooled OLS, fixed effects, and random effects) is given below:

$$Performance_{it} = \beta_0 + \beta_1 Leverage_{it} + \beta 2\sum_{i}^{n} Control_{ijt} + \varepsilon_{it}$$

$$Performance_{it} = \beta_0 i + \beta_1 Leverage_{it} + \beta 2\sum_{i}^{n} Control_{ijt} + u_{it}$$

$$Performance_{it} = \beta_0 + \beta_1 Leverage_{it} + \beta 2\sum_{i}^{n} Control_{ijt} + \varepsilon_{it} + u_{it}$$

Where $Performance_{it}$ is one of the three measures of performance for the $_i$th firm at time t, $Leverage_{it}$ is one of the three key debt ratios for the $_i$th firm at time t, $Contro_{it}$ is the i th control variables for the $_i$th firm at time t, β_0 is the intercept, ε_{it} is the random error term for the $_i$th firm at time t, $\beta_0 i$ is the intercept for the i th firm, u_{it} is the random error term for the i th firm at time t, ε_i is the error component for the i th firm.

4. Empirical results

Descriptive statistics and correlation Results

The descriptive statistics for the variables utilized in the study are shown in Table 3. Mean earnings per share, return on assets, and net profit margin are 5.41, 0.51, and 3.08 percent, respectively. This shows that the firms made a return on their investment to cover their debt. This also implies that the company can make money from all of its assets. The average total debt ratio is precisely 0.13, 2.96, and 2.53. This shows what percentage of total liabilities are used to finance assets. On average, 0.13, 2.96, and 2.53 percent of total assets are financed by short-term debt. These statistics show a striking variation in the capital decisions made by Nigerian businesses. This suggests that firms in a developing country, Nigeria, significantly have a lower level of long-term debt, which is supported by the dependency of Nigerian businesses on short-term loans.

Before estimating the coefficients, multicollinearity in the data set was tested. The findings are shown in Table 5. The result demonstrates that there doesn't seem to be any cause for concern regarding issues with multicollinearity when estimating the regression. The findings of the correlation show a modest correlation among the variables.

Table 3: Descriptive Analysis

Variables	Observation	Mean	SD	Minimum	Maximum
EPS	611	5.405663	23.95772	-259.0000	304.4700
ROA	611	0.514095	5.223255	-31.50690	66.45180
NPM	611	3.078372	2.127827	-2.933052	10.78038
TDAR	611	0.133742	1.909977	-23.00848	14.24471
COD	611	2.961452	11564013	-1.450008	20864243
DER	611	2.539975	9.476855	-44.36525	191.2096
FSIZE	611	6.988006	1.009824	3.096910	10.08142
GROTH	611	1.562184	13.07940	7.450005	174.8430

Table 4: Correlation Analysis

Variables	EPS	ROA	NPM	TDAR	COD	DER	FSIZE	GROTH
EPS	1							
ROA	-0.0041*****	1						
NPM	0.3476***	-0.2487***	1					
TDAR	0.0045*	-0.9886***	0.2282***	1				
COD	-0.1647*******	0.0241*	-0.2740***	-0.0117*	1			
DER	0.0439*	0.1875***	0.0555*	-0.1831***	-0.1286***	1		
FSIZE	0.0581*	0.0580*	0.1039**	-0.0578***	-0.2529**	0.1012***	1	
GROTH	-0.0144*	0.0656*	-0.0964*	-0.0341*	0.0211*	-0.0243*	-0.0512*	1

Notes: The symbols ***, **, and * indicate significance level at 1%, 5%, and 10%, respectively.

Regression Result

Eighteen equations were estimated during the data analysis procedure to examine the effects of three vital explanatory variables on the three performance indicators. Tables 5, 6, and 7 display the empirical findings. The findings show that in all equations in hypothesis one, the total debt-to-asset ratio is significant and negatively related to return on asset. It has a non-significant effect and is positively related to earnings per share, while it has a significant effect and is positively related to net profit margin. Alternatively, except in the second equation, where growth is negatively signed, firm size and growth are positively signed.

The Hausman test's findings show that while the null hypothesis cannot be rejected for equation 1, it is rejected for equations 2 and 3. Accordingly, employing the random effect for equations two and three and the fixed effect for equation one is appropriate.

Dependent Variable: Earnings per Share

Variable	Coefficient	Std. Error	t-Statistic	Prob.
TDAR	0.332280	0.529699	0.627300	0.5307
FSIZE	7.536712	2.170599	3.472180	0.0006
GROTH	0.122430	0.093521	1.309120	0.1910
C	-47.40774	15.24840	-3.109030	0.0020
R-square	0.175			
Adjusted R^2	0.102			
F-statistics	2.420			
Prob(F-statistic)	0.001			

HAUSMAN TEST				
	Test Summary	**Chi-Sq. Statistic**	**Chi-Sq. d.f.**	**Prob.**
	Cross-section random	7.918350	3	0.0477

Table 5: Total debt to asset ratio ($TDAR_{it}$) does not significantly affect earnings per share (EPS_{it})

Dependent Variable: Net Profit Margin

Variable	**Coefficient**	**Std. Error**	**t-Statistic**	**Prob.**
TDAR	0.284962	0.034272	8.314829	0.0000
FSIZE	0.284735	0.122172	2.330597	0.0201
GROTH	-0.016164	0.005812	-2.781020	0.0056
C	1.152007	0.885034	1.301652	0.1935
R-square	0.126			
Adjusted R^2	0.122			
F-statistics	1.483			
Prob(F-statistic)	0.000			
HAUSMAN TEST				
	Test Summary	**Chi-Sq. Statistic**	**Chi-Sq. d.f.**	**Prob.**
	Cross-section random	0.628609	3	0.8899

Table 6: Total debt to asset ratio ($TDAR_{it}$) does not significantly affect net profit margin (NPM_{it})

Dependent Variable: Return on Asset

Variable	**Coefficient**	**Std. Error**	**t-Statistic**	**Prob.**
TDAR	-2.696329	0.016438	-164.0277	0.0000
FSIZE	0.017673	0.036023	0.490600	0.6239
GROTH	0.013172	0.002485	5.301761	0.0000
C	0.009406	0.254956	0.036894	0.9706
R-square	0.978			
Adjusted R^2	0.978			
F-statistics	9069.105			
Prob(F-statistic)	0.000			
HAUSMAN TEST				
	Test Summary	**Chi-Sq. Statistic**	**Chi-Sq. d.f.**	**Prob.**
	Cross-section random	3.060638	3	0.3824

Table 7: Total debt to asset ratio ($TDAR_{it}$) does not significantly affect net profit margin (ROA_{it})

According to Hausman's test for hypothesis two, the random effect is more appropriate for equations one and two, which shows that the null hypothesis is rejected for equations one and two. Considering equation three, the fixed effect is preferable because the null hypothesis cannot be rejected. The findings in Table 8 demonstrate that while the cost of debt is significant, it is negatively related to earnings per share. Firm size is positively

related to the cost of debt, whereas growth is negatively associated with the cost of debt. Table 9 shows a significant but negative relationship between the cost of debt and the net profit margin. Growth and firm size have a negative correlation. The cost of debt is positive and highly correlated with return on asset, as seen in Table 10. Firm size and growth are positively signed.

The panel regression's overall findings are significant; the F-stat values of 4.32, 22.58, and 2.78, respectively, along with probability values of 0.005, 0.000, and 0.000, disprove the likelihood of first-order positive autocorrelation entirely. The figures presented show that this outcome is reliable for a valuable investigation.

Dependent Variable: Earnings per Share

Variable	**Coefficient**	**Std. Error**	**t-Statistic**	**Prob.**
COD	-2.76E-07	9.15E-08	-3.021368	0.0026
FSIZE	1.204141	1.261101	0.954833	0.3400
GROTH	-0.009454	0.077534	-0.121935	0.9030
C	-3.812791	8.858879	-0.430392	0.6671
R-square	0.021			
Adjusted R^2	0.016			
F-statistics	4.324			
Prob(F-statistic)	0.005			
HAUSMAN TEST				
	Test Summary	**Chi-Sq. Statistic**	**Chi-Sq. d.f.**	**Prob.**
	Cross-section random	6.725336	3	0.0812

Table 8: Total debt to asset ratio (COD_{it}) does not significantly affect earnings per share (EPS_{it})

Dependent Variable: Net Profit Margin

Variable	**Coefficient**	**Std. Error**	**t-Statistic**	**Prob.**
COD	-4.90E-08	6.91E-09	-7.089264	0.0000
FSIZE	-0.272389	0.132370	-2.057788	0.0400
GROTH	-0.027086	0.005917	-4.577608	0.0000
C	4.878981	0.944861	5.163702	0.0000
R-square	0.100			
Adjusted R^2	0.096			
F-statistics	22.581			
Prob(F-statistic)	0.000			
HAUSMAN TEST				
	Test Summary	**Chi-Sq. Statistic**	**Chi-Sq. d.f.**	**Prob.**
	Cross-section random	6.725336	3	0.0812

Table 9: Total debt to asset ratio (COD_{it}) does not significantly affect net profit margin (NPM_{it})

Dependent Variable: Return on Asset

Variable	Coefficient	Std. Error	t-Statistic	Prob.
COD	6.46E-08	2.37E-08	2.725005	0.0066
FSIZE	2.928701	0.522059	5.609908	0.0000
GROTH	0.081940	0.020572	3.983137	0.0001
C	-19.88852	3.636146	-5.469670	0.0000
R-square	0.195			
Adjusted R^2	0.125			
F-statistics	2.782			
Prob(F-statistic)	0.000			
HAUSMAN TEST				
	Test Summary	**Chi-Sq. Statistic**	**Chi-Sq. d.f.**	**Prob.**
	Cross-section random	23.975887	3	0.0000

Table 10: Total debt to asset ratio (COD_{it}) does not significantly affect net profit margin (ROA_{it})

Hausman's test for hypothesis three indicates that the random effects model is rejected in favor of the fixed effects model in all equations. Results shown in Table 11 indicate that the equity debt is nonsignificant and negatively related to earnings per share. On the other hand, equity debt is significant but negatively related to net profit margin. Firm size and growth are positively signed in all equations except for growth in the 2nd equation, which is negatively signed. The Hausman test's findings show that the null hypothesis is not accepted and that utilizing the fixed effects model may be preferable.

The equity-debt ratio is significant and negatively impacts return on assets in all equations, according to empirical findings presented in Table 12. Firm size is positive, whereas growth is negatively related to net profit margin. Results presented in Table 13 show that the equity-debt ratio is significant and positively impacts return on assets; the effect is highly significant. Return on assets positively impacted firm size and growth. The Hausman test's findings show that the null hypothesis is true, suggesting that utilizing the fixed effects model would be preferable.

Dependent Variable: Earnings per Share

Variable	Coefficient	Std. Error	t-Statistic	Prob.
DER	-0.112977	0.111953	-1.009146	0.3133
FSIZE	7.644628	2.159143	3.540585	0.0004
GROTH	0.122675	0.093117	1.317429	0.1882
C	-47.91973	15.13460	-3.166236	0.0016
R-square	0.175			
Adjusted R^2	0.103			
F-statistics	2.435			
Prob(F-statistic)	0.001			
HAUSMAN TEST				
	Test Summary	**Chi-Sq. Statistic**	**Chi-Sq. d.f.**	**Prob.**
	Cross-section random	13.905456	3	0.0030

Table 11: Total Debt to asset ratio (DER_{it}) does not significantly affect earnings per share (EPS_{it})

Dependent Variable: Net Profit Margin

Variable	Coefficient	Std. Error	t-Statistic	Prob.
DER	-0.021840	0.007716	-2.830632	0.0048
FSIZE	0.141924	0.148805	0.953759	0.3406
GROTH	-0.020580	0.006417	-3.206830	0.0014
C	2.174227	1.043055	2.084479	0.0376
R-square	0.504			
Adjusted R^2	0.460			
F-statistics	11.610			
Prob(F-statistic)	0.000			
HAUSMAN TEST				
	Test Summary	**Chi-Sq. Statistic**	**Chi-Sq. d.f.**	**Prob.**
	Cross-section random	9.873985	3	0.0197

Table 12: Total Debt to asset ratio (DER_{it}) does not significantly affect net profit margin (NPM_{it})

Dependent Variable: Return on Asset

Variable	Coefficient	Std. Error	t-Statistic	Prob.
DER	0.091108	0.023962	3.802216	0.0002
FSIZE	1.941525	0.462131	4.201241	0.0000
GROTH	0.063239	0.019930	3.173039	0.0016
C	-13.38349	3.239329	-4.131564	0.0000
R-square	0.205			
Adjusted R^2	0.136			
F-statistics	2.958			
Prob(F-statistic)	0.000			
HAUSMAN TEST				
	Test Summary	**Chi-Sq. Statistic**	**Chi-Sq. d.f.**	**Prob.**
	Cross-section random	13.905456	3	0.0030

Table 13: Total Debt to asset ratio (DER_{it}) does not significantly affect net profit margin (ROA_{it})

Discussion of Findings

In conclusion, the effect of all capital structure indicators, total debt-to-asset ratio, cost of debt, and debt-to-equity on performance is inconsistent. According to the first hypothesis, the overall debt-to-asset ratio affects earnings per share positively but insignificantly. This suggests that EPS is negatively impacted by the capital structure for the period. However, if appropriately managed, things might get better in the future. TDAR is positive and significantly impacted the net profit margin. Inferentially, the capital structure used by the enterprises during the study period increased their net profit. The period profit has increased as a result of the capital structure mix. Once more, TDAR negatively but significantly affects the sampled companies' return on assets. The results support both the

research of Gleason et al. (2000) and the findings of Ajayi, Zahiruddin, and Ghazali (2016).

According to the second hypothesis, the selected companies' earnings per share and net profit margin are negative yet significantly impacted by the cost of debt. This means that, for the time being, the companies could not pay their financial obligations to shareholders. On the other hand, the return on assets is significant and positively impacted by the sampled enterprises' debt costs. This result is consistent with Mac Carthy & Ahulu's (2019) findings and Akingunola, Olawale, and Olaniyan's (2017) findings. According to the third hypothesis's results, equity debt has a negative and insignificant relationship with earnings per share, a negative and significant relationship with net profit margin, and a positive and significant relationship with return on asset. These findings concur with Ogiriki, Andabai, and Bina (2018) and Mac Carthy & Ahulu's (2019) findings. These results also agree with Modigliani and Miller's (1958) theory to a greater extent. The empirical findings show a mixed relationship between capital structure and company performance, which, to an extent, did not support the immaterial influences of Modigliani and Miller. The "debt irrelevance theorem" of Modigliani and Miller (1958) postulates that the choice between debt and equity has no meaningful effects on business performance. This is consistent with the negative impact of capital structure on performance, a phase finding in this study.

Conclusion/Practical Implication of the Finding

This study examines whether the performance of selected firms listed on the Nigeria Exchange Group between 2010 and 2022 is impacted by capital structure. Two-panel econometric techniques, namely fixed effects and random effects, were used to estimate the impact of capital structure on the performance of the selected firms. According to empirical findings, the performance of the selected firms is affected differently by all indicators of capital structure, total debt-to-asset ratio, cost of debt, and debt-to-equity. The capital structure significantly and positively affected the return on assets and net profit margin. Contrarily, all regressions show that the firms' capital structure had an insignificant impact on the earnings per share of the firms and partly on the net profit. Why the negative impact is more on the net profit and earnings per share, the effect on return on assets is moderate. This suggests that the chosen companies are highly leveraged, relying on substantial debt to finance their investments. This may hamper their ability to fulfill their financial commitments to shareholders.

The overall outcome showed a considerable effect of capital structure on the performance of the selected firms. Firm size and growth, the control variables, positively impact the sampled firms' performance. Capital structure has a material impact on business performance when there is a negative impact on performance. Additionally, this conclusion conflicts with the irrelevance hypothesis put forward by Modigliani and Miller (1958).

Finally, financial managers, lenders, and investors should consider the significant policy ramifications of this study. For instance, empirical findings suggest that financial managers should consider the consequences of leverage on performance before modifying debt levels. The practical result will assist the financial management in determining the best

capital structure to use to increase the firm's worth. Debt covenants should only be imposed after carefully considering their effect on business performance. Finally, investors should consider the firm's debt level before choosing an investment.

COMPETING INTERESTS

The authors have no compting interest to declare.

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