International Journal Research in Engineering Science & Business Management (IJRESBM)
Volume 1 Issue 1 Oct-Nov 2025
ISSN: 3108-1878
www.ijresbm.com

Capital Structure and Financial Performance of Firms in Nigeria.

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Abstract: Although capital structure keeps researchers pondering, yet there is paucity of extant studies on capital structure and firms' performance especially in developing countries. It is against this backdrop that this paper investigated capital structure and firms' performance in Nigeria. This objective was achieved using instrument variable – fixed effect (IV -FE). The findings show that capital structure in Nigeria is far below 2% threshold, implying that the efficiency of firms' performance can only be realized by ensuring optimal capital structure that equate to the threshold. On this basis, the paper recommends that ensuring optimal capital structure is a necessary condition that will enhance firms' performance in Nigeria.

I. Introduction

The controversial debate linking firm's capital structure and performance has been a growing concern in extant studies. This controversy arises partly from what constitute an optimal capital structure that will engender firm's competitive advantage, reduce cost of capital so as to maximize firm's market value and share prices as well as the environmental cum firm specific factors influencing firm's decision on capital structure (Seid, 2017). Thus, the link between capital structure and firm's performance is not only an empirical issue but also a theoretical problematic as the capital structure theories like pecking order, trade – off and signaling theories are contradictory (Abdullah & Tursoy, 2021).

Also, in spite of the arrays of capital structure theories and the underpinning empirical studies, there is no outstanding existing mechanism for computing perfect optimal capital structure (Salim & Yadav, 2012). This is because the parameter for computing capital structure such as debt and equity securities rely heavily on the firm's finance requirement, interval for which it is required, its financial position, security market as well as the culture of the country within which the firm operates (Ahmed & Bhuyan, 2020). All these are not only firm specific but also country specific making universal applicability very cumbersome.

Furthermore, although extant empirical evidence on the effect of capital structure on firm's performance abounds especially in developed countries, there is paucity of existing studies on the subject matter in developing countries. Thus, scholars, policy make as well as stakeholders in industries world over are interested on the association between capital structure and firm's performance from the perspective of developing nations.

In Nigeria, this issue has been investigated at micro level in few selected sectors such as banking, oil and gas among others, still no consensus exists between their findings as some revealed positive relationship while others indicated otherwise. Thus, hitherto, no study had been conducted at macro level on this issue especially in Nigeria. In finance literature, how firms choose their capital structure and how such decision influences firms' performance determines if a firm will succeed or not as inadequate capital structure to finance firm's activities can lead to liquidation or financial crisis or bankruptcy. It is against this backdrop that this paper is one of the recent attempts to unravel at macro level the effect of capital structure on firms' performance in Nigeria. Following the introduction, the rest of this paper is structured thus: Section 2 reviews relevant extant studies, Section 3 outline the methodology employed in the study, Section 4, deals with discussions of the results while Section 5 encompasses the conclusion and policy implications of the findings.

II. Literature Review

2.1 Theoretical Review

This paper is anchored on three theories namely the pecking – order theory, the trade – off – theory and signaling Theory.

Pecking -order theory: The pecking – order theory was developed by Myers (1984). The theory postulates that there is a preferential order in using various financing options or instruments. That is firms will weigh all means of funding available and will always settle for the least expensive source first. Thus, in financing new project, firms will first consider internal equity to debt and finally external equity. This is because equity is easily available for investment while external equity has to be sourced outside the firm. Furthermore, the theory posits that debt represent a positive signal of firm prospects as it portrays firms having more investment opportunities and growth that it can presently handle with internally generated funds. Thus, managers who are not sure of future prospect will unlikely subject their firms to bankruptcy risks. Consequently, it is only firms that are sure of their ability to repay obligations that will issue debt. The **trade – off theory** on the other hand developed by Harris and Raviv (1990) have it that firms with larger proportion of intangible assets should depend mainly on equity financing while those with high proportion of tangible assets should rely greatly on debt financing. To this end, the proponents of trade – off- theory while acknowledging tax advantage of debt, they also consider the threat of bankruptcy associated with tax. However, the beauty of trade – off theory is that it explains in clear term the danger of use of excessive debt as financing options. Lastly, the signalling theory proposed by Spence (1973) and Rose (1977) asserts that enterprises should use financial and performance information to send signals to the market because there is an information asymmetry. Market perception of manager-disclosed information as a positive signal is that it lessens information asymmetry. The signalling theory has been employed to explain financial success in corporate reporting, despite its original development as a means of elucidating the information asymmetry in the labour market.

A number of empirical studies (Watson, Shrives & Marston 2002; Haniffa & Cooke 2002) have examined the impact of signalling on the performance of businesses and have identified a number of variables that serve as proxies for the signalling theory's influence on capital structure. According to the hypothesis, directors who think their company can outperform competitors will want to let shareholders know in order to draw in additional capital. Directors have the option to disclose information beyond what is mandated by regulations. According to the signalling theory, managers of successful businesses will alert investors, stakeholders, and the market about their success by providing information that less successful businesses are unable to. Directors' increasing performance disclosures are a reaction to the company's rising worth, improved reputation, and perceived benefits (Abdulla, 2011). On the other hand, underperforming companies could decide to remain silent rather than disclose their underperformance. Investors, however, can mistake this quiet for the worst kind of information being withheld (Michailesco, 2010).

2.2 Empirical Literature

The capital structure and performance of Nigeria's banking sector were examined by Adesina, Nwidobie, and Adesina (2021). The study used ordinary least square regression to analyse data from ten Nigerian banks that were listed between 2005 and 2012 on the Nigerian stock exchange. The results showed a strong positive correlation between the financial performance of these Nigerian banks and their capital structure. The study concluded that, in order to enhance performance, managers of Nigeria's listed banks should continuously employ debt and equity capital for financing.

Oyedokun, Job-Olatuji, and Sanyaolu (2018) investigated the financial performance and capital structure of Nigeria's manufacturing industry. The study used balanced panel data analysis to examine 100 observations from 10 manufacturing firms between 2007 and 2016, and the results showed that capital structure had both statistically and non-statistically significant influence on the performance of Nigeria's manufacturing industry. The research concluded that, in order to maximise the performance of the manufacturing sector, the manufacturing industry should adopt a balanced capital structure strategy.

Jaworska and Nehrebecka (2015) looked into the performance of Ukrainian firms and their capital structure. Utilising correlation analysis as the estimation method, the study discovered a negative association between debt and profitability. The study suggested that in order to improve a firm's profitability, its capital structure should be carefully examined.

The impact of capital structure on Iranian firm performance was examined by Salteh (2012). There is a positive and significant relationship between firm performance and capital structure, according to the study, which used panel regression analysis on five performance measures (return on equity, return on assets, earning per share, market value of equity to the book value of equity, and Tobin's Q) as dependent variables and four capital structure measures (short-term debt, long-term debt, total debt to total assets, and total debt to total equity) as independent variables. Based on these results, the article came to the conclusion that enterprises must assure an optimal capital structural mix since capital structure and firm performance are positively correlated.

Skopljak (2012) looked into how Australia's financial sector performed in relation to its capital structure. Regression analysis was used in the article to find a strong correlation between capital structure and company performance. Furthermore, an increase in debt is associated by a comparable increase in the financial sector's profit efficiency at relatively modest leverage levels. In light of this, the study suggested that in order to help the

financial sector maximise performance, there should be an ideal debt level. This may be achieved by selecting a capital structure that maximises managerial incentives while minimising financial suffering.

Khan (2012) looked on the performance of engineering firms in Pakistan in relation to capital structure. Using panel pooled ordinary least square regression on data from 36 engineering firms listed on the KSE, the paper discovered a significant negative relationship between financial leverage, as measured by short-term debt to total and total debt to total assets, and the firm's performance, as measured by Return on Assets (ROA), Gross Profit Margin (GM), and Tobin's Q. The study suggested that in order to increase return on asset, debt to total asset value should be reduced in light of these findings.

The impact of capital structure on the financial performance of businesses listed on the Tehran Stock Exchange was investigated by Pouraghajan et al. (2012). The study, which employed panel regression analysis on 400 companies listed between 2006 and 2010 on the Tehran Stock Exchange, discovered a significant positive correlation between growth opportunities, asset turnover, firm size, and asset tangibility ratio and financial performance, and a significant negative correlation between debt ratio and financial performance of companies. The study did discover, however, that there is no meaningful correlation between return on equity and return on asset. Based on these results, the article draws the conclusion that management can raise the company's profitability and, consequently, the level of its financial performance by lowering the debt ratio.

Since no firm conclusion has been reached regarding the impact of capital structure on firm performance in the existing literature, the issue of capital structure and firm performance will continue to draw attention from academics and researchers given the inconsistent conclusions in the reviewed existing studies. This report looked into the capital structure and performance of Nigerian enterprises in order to close this gap.

III. Methodology

i. Research Design

Ex post facto research design using secondary time series data was used for this study. This is deemed suitable since it is methodical empirical research and the study's circumstances already exist or have already occurred, negating any need for the researcher to control or modify independent variables. Since annual reports provide well-established data on the variables related to capital structure and business performance, the researcher is unable to change the independent variables. That being said, the investigator is able to design or fabricate an environment that will produce the necessary data for examination. Ex post facto research is significant primarily because it represents a practical method to behavioural science research.This is due to the fact that experiments frequently do not occur in real-world settings and may require various forms of artificial research environments.

ii. Sources of Data

The paper utilized data on five(5) key variables from the listed firms in Nigeria. The variables, their definition/ measurement as well as their specific sources are presented on table 1

Table 1: Variable, Definition/ Measurement and Sources

Variable	Definition/Measurement	Source
Return on Asset (ROA)	Total earning after tax	Annual report
Total debt ratio (TDR)	Percentage of total asset to total equity	Annual report
Debt to equity ratio (DTER)	Percentage of total debt to total equity	Annual report
Short term debt to total asset (STDA)	Percentage of short-term debt to total asset	Annual report
Long term debt to total asset (LTDA)	Percentage of long-term debt to total asset	Annual report

Source: Authors' computation, 2023

iii. Model Specifications

The objective of this paper is achieved using instrumental variable (IV) fixed effects (FE) model. The justification for the use of IV -FE model is that it has the capacity of adjusting for simultaneity and reverse causality. It also accounts for unobservable heterogeneity across different firms in Nigeria. The IV -FE model also avoid inconsistency arising from the use of ordinary least square as it cures endogeneity problems. Thus, the IV – FE model entails the use of lag of the regressors in the model of instruments in the original regression. Therefore, the instruments are derived via ordinary least square regression model with first lag thus:

$\beta_{i,t} = \alpha_0 + \alpha 1 \gamma_{i,t-1} + \cup_{i,t}$ ----------(1),

Thus, transforming equation (1) into IV – FE model gives

$ROA_{i,t} = \propto_0 + \propto_1 TDR_{i,t} + \propto_2 DTER_{,t} + \propto_3 STDA_{i,t} + \propto_3 LTDA_{i,t} + \cup_i + V_{i,t}$ ----------(3)

Where ROA = Return on Asset, TDR = Total debt ratio, DTER = Debt to equity ratio, STDA = Short term debt to total assets and LTDA = Long term debt to total

It is expected that the effect of total debt ratio, debt to equity ratio, short term debt to total assets and long-term debt to total asset on return on asset be positive. That is $\propto_1, \propto_2, \propto_3$ and $\propto_4 > 0$.

IV. Presentation and Discussions of Results

To ascertain the inter – relationship among the variables employed in the estimation, correlation coefficient matrix was conducted, and the result presented on table 2

Table 3. Correlation coefficient Matrix Result

Variable	GDPR	TDR	DTER	STDA	LTDA
ROA	1.00				
TDR	0.10	1.00			
DTER	0.09	0.80**	1.00		
STDA	0.12	0.010	0.12	1.00	
LTDA	0.21	0.06	0.06	0.33	1.00

Source: Authors' Computation, 2023 Note * =1% and ** = 5% level of significance

The correlation matrix was employed to ascertain if significant relationship exists among the variables of interest to the study at 1% and 5% level of significant respectively. The result revealed that all the indicators of capital structure are significant and are positively related to firms' performance proxied by return on asset (ROA) with highest degree of association observed between long term debt to total asset (LTDA), short term debt to total assets (STDA) and firms' performance. Furthermore, the correlation result matrix showed that none of the inter – relationship among the variables used in estimation is more than 0.7. This implies that there is absence of multicollinearity problem among the variables employed in the estimation.

Furthermore, given that the pre-condition for the use of IV – FE requires the existence of cross – sectional dependence among the variables employed in the estimation, the paper utilized Pearson (2015) cross – sectional dependence test. This is found appropriate because it is robust for an unbalanced panels such as the one used in this paper. The result of the utilized Pearson (2015) cross – sectional dependence test is presented on table 3

Table 3: Cross – Sectional Dependence test Result

Variable	**Test Value**
TDR	41.6***
	(0.000)
STDA	15.1***
	(0.000)
LTDA	10.1***
	(0.000)
DTER	2.6**
	(0.008)

Source: STATA output, Standard errors in parentheses, *** p<0.01, ** p<0.05, * p<0.1

The findings from the cross - sectional dependence test result reveals a significant existence of cross – sectional dependence for each of the variable of interest to the paper at 1% and 5% respectively.

Thus, having established the presence of cross – sectional dependence, the paper estimated IV -FE model to underscore the unconditional effect of proxies of capital structure on firms' performance proxied by return on asset. The result is presented on table 4

Table 5: IV – FE model Result on Terrorism, military expenditure, and Economic Indicators

Independent variables	**Dependent variable (ROA)**
TDR	0.01***
	(0.006)
STDA	0.22***
	(0,007)
LTDA	0.006***
	(0,003)
DTER	0.002***

Net effect	(0.000)
Threshold effect	0.0003
Number of Observation	2.00
	111

Source: STATA output, Standard errors in parentheses, *** p<0.01, ** p<0.05, * p<0.1

Table 4 indicates that there is a favourable correlation between capital structure variables and the performance of Nigerian enterprises. This suggests that an improvement in the performance of Nigerian enterprises is correlated with an increase in the ratios of total debt, debt to equity, short-term debt to total assets, and long-term debt to total assets. The results also suggest that Nigerian enterprises' performance suffers when there is an inadequate diversity of capital structures. This research suggests that as capital structure is added to existing investment, organisations perform better. The results of Khan (2012), Adesina, Nwidobie, and Adesina (2021) who discovered a favourable correlation between capital structure and business financial performance are supported by these studies as well.

Additionally, the study used the formula [(mean of capital structure indicators * interaction coefficient) + (firms' performance indictor coefficient)] developed by Asongu, Nwachukwu, and Roux (2019) to examine the net (overall) effect of capital structure on firms' performance, given that the unconditional effect of capital structure on firms' performance is positive. With a net effect value of 0.0003, this indicates two things. First, there is a net positive overall impact of capital structure indicators on the performance of Nigerian enterprises. Second, it shows that the net impact of capital structure variables on the performance of Nigerian enterprises is much less than the threshold value of 2.00 that is derived from the interaction and unconditional effects. The implication of this finding is that a threshold must be surpassed before capital structure will yield desired effect on firms' performance in Nigeria.

V. Conclusion and Policy Recommendations

The drive towards optimal capital structure for firms' performance has become a major concern globally. However, in Nigeria. Capital structure is far below 2% threshold, implying that the efficiency of firms' performance can only be realized by ensuring optimal capital structure that equate to this threshold. Also, that capital structure in Nigeria has positive effects on firms' performance. On this basis, the paper recommends that ensuring optimal capital structure is a necessary condition that will enhance firms' performance in Nigeria.

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