

# Effect of Capital Structure on Firms Performance in Nigeria

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**Abstract** The lack of precise methodology to determine the capital structure mix on firm performance has generated a lot of mixed results. Empirical studies from emerging nations revealed a scarcity of empirical findings on the measures with a significant impact on firm performance. This paper examines capital structure measures on manufacturing firm's performance in Nigeria. Using annualized panel data for a sample of 15 quoted firms from diverse sectoral classifications from 1999-2018. Excluding the financial firms due to the uniqueness of their capital structure and the strict legal requirements for their financing choices. This study focus on non-financial firms. Capital structure measures book value and market value of the firm. Results indicate that performance proxy by ROE, and Tobin's Q, significantly influence SDTA, SIZE, LDTA, and TDTA while ROA negatively influences LDTA, D\_E, and TDTA. Findings revealed a robust relationship between Tobin's Q and financial performance compared to other book value. Tobin's Q is a better measure of performance within the period under review. The study reveals that Nigerian firms are keenly financed by short - term debt supporting the Pecking Order Theory. It's vital to note that no single theory can sufficiently explain the capital structure effect on firm performance.

**Keywords** Capital Structure, Performance, Manufacturing Companies, Debt, Equity

**JEL Classification numbers:** G32, L25, L6, N67, G 23, M41

## 1. Introduction

The financial decision of a firm is vital in determining the optimal capital structure mix. Measuring the firm managerial and financial prowess to adjust and direct its numerous leverages to maximize its value, growth, and generate optimum returns. Firms have a diverse level of leverage, the determination of the best mix to enhance performance by managers remains a puzzle to be solved in corporate finance theory and finance literature. The capital structure comprises long-term debt, specific short-term debt, common equity, preferred equity, and retained earnings. Firm performance is calculated by its capacity to generate optimum returns from its assets, maximize the value and wealth of the shareholders. The financing decisions of firms vary according to the rate of risk related to each financing option as well as the relationship between risk and return (Abu-Rub, [1]). Capital structure effect on firm performance varies proportionately in two ways; according to Desai, ([2]) highly leverage firms with similar risk level might have a higher cost of capital and leverage.

Similarly, high financial leverage stirs volatility and

lower firm values than others as a result of valuation in the capital structure. Modigliani, and Miller, ([3]) assert the irrelevance of the debt-to-equity ratio effect on firm value. The MM model considered the Arrow-Debreu environment of the perfect market condition of no taxes, rational investors, perfect competition, free economy, no bankruptcy costs among others (Hartono, and Utami [4]). According to Modigliani and Miller ([3]), firm's performance is independent of their capital structure; and their financing strategies "equity and debt" are "irrelevant" to the firm's value.

They further upheld that firms at all capital structure levels should maintain the same market value and Weighted Average Cost of Capital (WACC). Empirical findings, on the contrary, argued that the idealistic assumptions are unrealistic and impossible in reality where government taxes are inevitable. Ahmad, Salman, and Shamsi ([5]) observed that imperfect market condition factors group under firm-specific, industry-specific, and country-specific such as firm size, profitability, corporate tax, bankruptcy costs, industry type, and internal policies influences the capital structure decision of a firm (Akeem, Edwin, Kiyanjui and Kayode [6] Dada, and Ghazali [7]). In conceding the tax shield advantage on debt, under imperfect market conditions, Modigliani and Miller ([8]) upheld that a unit increase in firm value increases debt in the capital structure mix where interest payments are tax-deductible to maximize performance and minimizes borrowing cost. Firms enjoy tax shields using more debt under an imperfect market condition. The interest tax shields proposed by Modigliani and Miller, ([8]) are considered irrelevant to the firms with other tax shields, such as depreciation (DeAngelo, Harry, Ronald and Masulis. [9]).

The empirical literature suggests an optimal capital structure that maximizes firm value and simultaneously minimizes the cost of capital, to balance risk and return without a specific methodology to achieve the best mix (Dada, and Ghazali, [7]). Financial theorists, over the decade, tried to provide possible explanations on the financing decisions of firms with diverse and unrealistic assumptions such as the Net Operating Income Approach and the traditional theory. The agency cost theory and pecking order theory among other theories provided a rich understanding of the effect. According to the agency theoretical model popularized by Jensen, and Meckling, ([10]), the capital structure level of a firm minimizes the agency cost and maximizes firm values by trading off agency cost of debt against debt benefit (Riahi - Belkaoui [11] cited in Pirzada, and Bin Mustapha, and Wickramasinghe [12]).

The lack of a precise methodology to determine a firm's optimal capital structure, boost productivity, profitability, growth, stakeholder satisfaction, firm value, minimizes cost, and strike a balance between risk and return is the major problem of this study. Earlier studies

are in advanced countries with functional stock markets. In Nigeria and other emerging countries, contemporary studies reveal diverse results on firm Performance as presented in table (1) below. In Palestine [13], India Kannadhasan, ([14]), Pakistan Umar, Tanveer, Aslam, and Sajid, [15], Nigeria Aransiola, and Aransiola ([16]), Nigeria Nwachukwu and Akpeghughu [17] Oil and Gas Companies in Pakistan Raheel, and Shah, F.M [18] Bangladesh Hossain, Imran, and Hossain [19] also observed diverse results as a result of methodology, variable measurement, scope of study, method of data collection among others.

This study differs from previous studies to employ Tobin's Q a measure of market value and accounting value, along with other book value, to examine capital structure on non-financial firm performance which most studies ignored in Nigeria to focus on quoted Banks Nwachukwu and Akpeghughu [17]; Adesina, Nwidobie, and Adesina [20]; Olaniyan, Soetan, and Simon- Oke [21] among others. The contemporary econometric technique (panel data analysis) was also adopted to extend and improve on the other empirical, analysis conducted so far in Nigeria.

The panel data methodology allows for an unbiased and efficient estimation which most studies in Nigeria use the linear regression model predominantly.

## 2. Literature Review

The firm's performance is sizably affected by various factors and capital structure is key among them. Numerous theoretical, and empirical studies conducted to explore possible "positive, negative, or no relationship" between capital structure and firm performance reported mixed results and findings. Similarly, financial theorists tried to propose possible explanations on capital structure effect on firm performance, presenting idealistic assumptions. The Net Income Approach Theory Modigliani and Miller, [8] proposed a positive effect of debt on the firm value. This theory assumes that the cost of debt is less than the cost of equity and that corporate income tax exists. The theory supports 100% debt finance. The Net Operating Income Approach assumes that the common stock price is not affected by modest or excessive use of debt financing in the operational and business activities of the firm. The firm's value is independent of the weighted average cost of capital and total firm value (Pandey [22]). The assumptions of the Net Income and Net Operating, Income Approach were criticized on the ground of impracticability, artificial, and inadequate (Rezaei, and Ortt, [23]).

The traditional theory hypothesizes that at a minimum level the weighted average cost of capital; a firm optimal capital structure and shareholders' wealth are maximized and achieved. Kraus, and Litzenberger, [24] proposed the

trade-off theory of optimal capital structure to maximizes firms' value through debt financing to the extent where tax shield is higher than the bankruptcy cost. The trade-off theory allows firms to adopt both debt and equity financing sources notwithstanding their operational cost implication on their operational and business activities. The pecking order theory proposed by Myers, and Majluf, [25], envisages, no optimal leverage due to asymmetric information and transactions costs.

Firms adopt a hierarchical order of available and accessible financing preferences from the least sensitive (least risky) to the most sensitive (most-risky). Thus, firms preferred internal funding over external funding except where internal funds are inadequate or unavailable.

Debt funding is required where external financing is desirable and equity finance becomes the last resort where the desirable is unavailable and inaccessible. The hierarchical order was initiated by Myers, and Majluf, [25] regarding the adverse selection problem of information asymmetric between the managers and outsiders

(investors). Pecking order theory proposes that management would at all times prefer equity financing over debt financing in the presence of information asymmetry to reduce transaction costs. By implication, highly profitable firms would prefer internal funding, whereas firms with low profitability tend to employ external financing. The theory hypothesizes a negative relationship between profitability and debt usage. It can be inferred that external financing signifies firm unproductivity and a hostile effect on the stock price as a result of information asymmetry between managers and outsiders (investors). Information asymmetry also occurs when external financing signals a problem that may affect the share price (Frank and Goyal, 26; Kumar, Colombage, and Rao, 27]). The pecking order theory does not envisage the debt ratio (a mix of debt and equity) because of internal and external capital.

Table (1) presents empirical review of studies conducted locally and internationally on capital structure effect on firm performance.

**Table 1.** Empirical Review

Author(s)	Objective	Methodology	Findings/Results
<b>Positive</b>			
Le, and Phan [33]	Capital structure and firm performance	Regression	Positive effect on firm performance.
Yinusa, Ismail, Yulia, and Olawale [34]	Capital structure on firm performance	GMM model	Positive effect on performance where debt financing is moderately employed in Nigeria
Adesina, Nwidobie, and Adesina, [20]	Post consolidation capital structure on the financial performance of Nigeria quoted banks.	Regression	Positive effect on firm performance.
Kannadhasan [14]	Financial leverage on of Pharmaceuticals companies in India 2000-2012	Panel Data	Positive effect on performance.
Vätavu [35]	Capital structure on performance	Regression	Positive effect on performance.
<b>Negative Results</b>			
Ahmed and Amina [36]	Capital structure on the performance of non-financial firms in Egypt.	OLS Regression	Negative effect on performance
Olaniyan, Soetan, and Simon- Oke [21]	Capital Structure on Performance of firms in Nigeria.	GMM	Negative effect on performance
Umar, Tanveer, Aslam, and Sajid, [15]	Debt and equity financing on the performance of listed firms in Bursa Malaysia from 2001-2010	Regression	Negative effect on performance
Aransiola, and Aransiola [16]	Capital structure on the performance of manufacturing firms in Nigeria	Panel Regression	Negative effect on performance
Raluca, [37]	Capital structure on Corporate performance of listed Romanian firms	Regression	Negative effect on performance
<b>Mixed Results</b>			
Nwachukwu and Akpeghughu [17]	Capital structure and firms performance in the Nigerian banking sector	Regression	A positive relationship with equity capital and a negative relationship with debt capital and return on investment
Tianyu, [38]	Capital structure on performance in both developed and developing markets	Regression	Negative effect on Chinese firms and a positive on Germany and Sweden, firms before the 2008 financial crisis.
Saeedi and Mahmoodi [39]	Capital structure on performance of listed firms in the Tehran Stock Exchange	Panel Regression	Capital structure shows a weak-to-no impact on performance
<b>Inconclusive Results</b>			
Raheel, and Shah [18]	Financial leverage on firms' profitability in Oil and Gas Companies of Pakistan Listed in KSE	Regression Analysis	The non-significant effect between financial leverage and earnings per share.

Source: Authors Computation (2020).

The debt ratio represents the accumulated external financial needs of the firm. The theory concentrates on the cost of capital reduction and ongoing performance ignoring the firm's long-term reputation of reliability (regular debt payments), profitability (stable or increasing dividends), and performance. The underpinning theory of this study is the pecking order theory given its relevance in literature. Capital structure effect on firm performance under the perfect market conditions in the United States Petroleum, oil, and electricity industries was examined using the two-stage instrumental variable approach. Findings revealed a non-significant influence on the firm's value. Singh, and Hamid [28] and Singh [29] examined the Western models of capital structure theories in developing nations results revealed a mismatch of funding where long term investments are financed by short term debt. Most firms in developing countries finance their business and operational activities inversely, from the pecking order theorem relying heavily on external financing, the bulk of which is short-term finance (Singh [29]). On the other hand, firms in developing countries rely more heavily on equity issues than those in the developed business climate. Empirical literature acknowledged the long and short-term debt ratio as the best-fit measure of leverage ratios in developing countries like Nigeria. Salawu, [30] observed that 60% of Nigerian firm's capital structure is short - term debt. Myers [31] observed that only a small proportion of capital formation of US quoted firms are finance externally, equity issues represent a minor percentage while the bulk of external finance is debt. The findings and results vary with publicly quoted firms in Nigeria. The theory of capital structure is closely related to the firm's cost of capital (Nwude, Itiri, Agbadua, and Udeh [32]).

### 2.1. Knowledge Gap

The lack of precise methodology on the determination of the capital structure mix on firm performance has generated a lot of mixed results. Most contemporary empirical studies in Nigeria employed divers leverage measures excluding others; Salawu [30], adopted the short term debt, and excluding total debt to total assets, reporting a negative result. Dada, and Ghazali [7] employed total debt to equity excluding, short term debt to total assets, and long term debt to total assets, short-term debt, long-term debt, and total debt observing a mixed result of a positive and negative relationship while DeAngelo, Harry, Ronald and Masulis [9] employed total debt to equity and long term debt to total assets, excluding short-term debt, and total debt. This study employed Tobin's Q to proxy market value and growth, a leverage ratio of Long Term Debt to total asset, Total Debt to total asset, Short Term Debt to total asset, and Debt equity ratio to cover and expand the frontiers of other empirical analysis in Nigeria. Tobin's Q is a combination of market

value and accounting value measuring the firm's value. This study adopts a contemporary econometric technique of (panel data analysis), by using fixed - effect estimation, random - effect estimation, and a pooled regression model with an array of pre-test and diagnostic tests.

## 3. Methodology

The population of this study consists of 102 listed manufacturing firms in the Nigerian Stock Exchange (NSE) as in December 2018. To achieve the study objective, panel data gathered from the annual report of studied firms covering 19 years (1999-2018) of 15 listed firms in all the 7 sectors of Agriculture (FTN Cocoa Processors Plc), Oil and Gas (MRS Oil Nigeria), Basic Material (Meyer and Berger paint), Consumer Goods (Vita foam, Presco and Honey Well), Health Care (Juli Nigeria, Nigeria-German Chemicals), Information, Communication & Telecoms (Airtel Nigeria, MTN Nigeria) and Industrial Goods (Dangote Cement, Lafarge Africa and UAC of Nigeria) were selected.

For this study, lots of factors were put into consideration in the selection of the sample firms. Such factors highlighted include: firms that were listed in NSE before the year of inception of the study, firms that ceased operation at any point during the period of the study and those that had problems with NSE and Securities and Exchange Commission (SEC) within the period under review were also excluded.

The study adopted the Panel Least Squares models of either the Random Effects Model (Error Component Model) or the Fixed Effect Model (Least Squares Dummy Variable Approach (LSDV) to analyse the effect of capital structure on firm performance in Nigeria. This study excluded the financial companies and the banking sector due to the uniqueness of their capital structure and the strict legal requirements for their financing choices. This study adopted the return on assets (ROA), return on equity (ROE), and Tobin's Q to measure a firm's performance and Long Term Debt to the total asset (LD/TA), Total Debt to total asset (TD/TA), Short Term Debt to total asset (SD/TA) and Debt equity ratio (D\_E) as measures of leverages. Firm size is the controlled variable and is considered to be an important determinant of a firm's profitability.

The functional relationship between firms' performance and capital structure is shown below:

$$Y_{IT} = \beta_0 + \beta_1 X_{it} + \beta_2 Z_{it} + \mu_i \quad (1)$$

$$Y_{it} = \beta_0 + \beta_1(LDTA_{it}) + \beta_2(TDTA_{it}) + \beta_3(SDTA_{it}) + \beta_4(DE_{it}) + \beta_5(SIZE_{it}) + \mu_{it} \quad (2)$$

### Model 1

$$ROA_{it} = \beta_0 + \beta_1(LDTA_{it}) + \beta_2(TDTA_{it}) + \beta_3(SDTA_{it}) + \beta_4(DE_{it}) + \beta_5(SIZE_{it}) + \mu_{it} \quad (3)$$

**Model 2**

$$ROE_{it} = \beta_0 + \beta_1(LDTA_{it}) + \beta_2(TDTA_{it}) + \beta_3(SDTA_{it}) + \beta_4(DE_{it}) + \beta_5(SIZE_{it}) + \mu_{ii} \quad (4)$$

**Model 3**

$$Tobin's\ Q_{it} = \beta_0 + \beta_1(LDTA_{it}) + \beta_2(TDTA_{it}) + \beta_3(SDTA_{it}) + \beta_4(DE_{it}) + \beta_5(SIZE_{it}) + \mu_{it} \quad (5)$$

Where:  $Y_{it}$  = Dependent Variables.

$\beta_0$  = Intercept of the Equation,

$\beta_1$  = Coefficient of  $X_{it}$  Variable.

$X_{it}$  = Independent Variable.

$I$  = (Cross-Sectional Variables) Number of Manufacturing Firms

$t$  = Time Period

$\mu$  = Error terms

**Estimation Procedure:** The estimation processes follow an array of pre-estimation tests, Panel estimation, and diagnostic tests. The unit root test was conducted using the summary method to determine the dataset stationarity.

**Estimation Technique:** The choice of either pooled Ordinary Least Square (OLS), Fixed Effects, and Random

Effects regression models is dependent on the Hausman Test conducted on the panel regression results.

$$Hstat = (\beta_{FE} - \beta_{RE})'[Var(\beta_{FE}) - Var(\beta_{RE})] - 1(\beta_{FE} - \beta_{RE}) \sim X^2(k)$$

Large statistic implies that the estimated p-value between the  $H_0$  Random Effects (ECM) Error Component Model and the  $H_1$  the Fixed Effects (LSDV) Least Square Dummy Variable Approach is significant. The  $H_0$  is rejected and  $H_1$  is accepted otherwise  $H_0$  is accepted and  $H_1$  is rejected.

## 4. Data Analysis and Results: Descriptive Statistic

### Pre-Test

Figure 1 shows the mean, and median of the series. The standard deviation measures dispersion. Skewness shows the degree of or departure from symmetry and kurtosis the degree of peakedness and Jarque-Bera measure the normality. The results are largely Mesokurtic, the Kurtosis equal (3). By implication, the datasets are normally distributed.

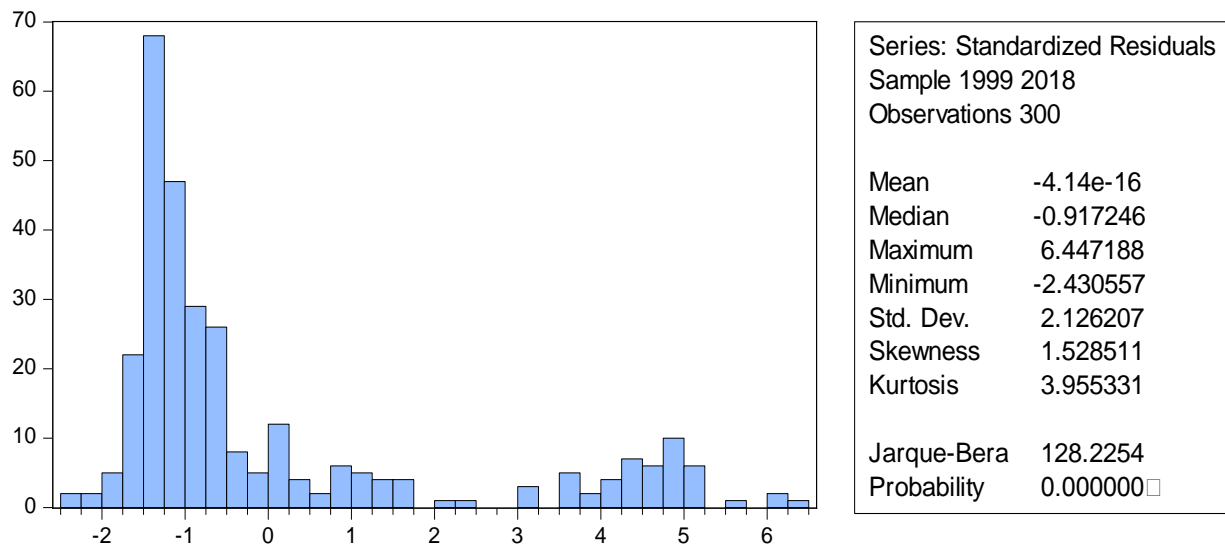


Figure 1. Descriptive Statistics

**Table 2.** Summary of Panel Unit Root Test Results

Variables	Levin, Lin & Chut	Breitung t-stat	Im, Pesaran & Shin W-stat	ADF-Fisher Chi-Sq	PP-Fisher Chi-Sq	Status
D_E	34.0423*** (0.0000)	-7.91893*** (0.0000)	-7.66577*** (0.0000)	110.137*** (0.0000)	250.402*** (0.0000)	1(0)
LDTA	-4.00291*** (0.0000)	-6.80445*** (0.0000)	-5.3681*** (0.0000)	80.5630*** (0.0027)	229.044*** (0.0002)	1(0)
LOGSIZE	-4.78906*** (0.0000)	-0.70201*** (0.2413)	-6.51502*** (0.0000)	97.6679*** (0.0000)	209.216*** (0.0000)	1(0)
ROA	-5.50497*** (0.0000)	0.77728 (0.7815)	-7.42021** (0.0000)	112.351* (0.0000)	234.444*** (0.0000)	1(0)
ROE	-14.8383*** (0.0000)	-6.76110*** (0.0000)	-10.9254** (0.0000)	138.305** (0.0000)	260.685*** (0.0000)	1(0)
SDTA	-5.35865*** (0.0000)	-5.68768* (0.0000)	-7.23945*** (0.0000)	105.291*** (0.0000)	244.655*** (0.0000)	1(0)
SIZE	-2.29973 (0.0107)	2.21615* (0.9867)	-3.37353*** (0.0004)	68.2886** (0.0001)	175.752*** (0.0000)	1(0)
TDTA	-6.01908*** (0.0000)	-1.76351* (0.0389)	-4.46514*** (0.0000)	72.6531*** (0.0000)	215.854*** (0.0000)	1(0)
TOB Q	-6.41906*** (0.0000)	-1.71783*** (0.0429)	-6.41906*** (0.0000)	96.7111* (0.0000)	186.441*** (0.0000)	1(0)

Source: Authors' Computation (2020)

The p-values are smaller than 1%; the null hypothesis is rejected; we conclude that the variables series are stationary.

\*\*\*, \*\*, \* mean significant at 1%, 5% and 10% respectively. P-Values are in parenthesis. The results depict that all the variables both explanatory and control variables are stationary at level.

#### 4.1. Unit Root Test

The summary methods of Levin, Lin, Chu [40] (assuming common unit root process), Im, Pesaran and Shin W-stat, Augmented Dickey-Fuller test (ADF), and PP-Fisher Chi-square panel unit root tests were employed to examine the stationarity properties of the variables for a meaningful analysis.

#### 4.2. Panel Regression Analysis

##### Model 1: Capital structure correlates with return on assets of manufacturing firms in Nigeria

The Hausman test was adopted to select the best fit model to test the hypothesis; the Cross-Section chi-square statistic with 5 degrees of freedom is 2.80 and the p-value of 0.7305 is presented in Table 3 below. The P-value of the Hausmann Chi-square Statistic is greater than 5%. The null hypothesis is accepted (random effect).

**Table 3.** Capital Structure Versus Return on Assets of Manufacturing Firms in Nigeria

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	284.340	114.730	2.478	0.0138
LDTA	-17.463	10.501	1.662	0.0000
D_E	-29.678	7.485	-3.964	0.0001
LOGSIZE	21.032	7.603	-2.766	0.0060
SDTA	96.198	8.036	11.969	0.0000
TDTA	-10.116	2.912	-0.040	0.0001
Effects Specification				
R <sup>2</sup>	0.66	Hausman Test	2.80	
Adjusted R-squared	0.63	P-value	0.7305	
F.Stat.	28.87	D.W stat	1.902	
P-value	0.0000			

Source: Authors' Computation (2020)

Table (3): The R<sup>2</sup> of 66% shows, the goodness of the

panel regression. The exogenous variables are jointly responsible for a 66% variation in the endogenous variable with an unexplained variation of 34%. Firm performance proxy by return on asset indicate a negative and significant relationship between long term debt, debt-equity, and total debt. The overall panel regression results are significant. F-stat of (28.87) is associated with a P-value of (0.000). The result is reliable for a meaningful analysis. The Durbin Watson Statistics of 1.90 is approximately 2 ruling out all possible suspicion of first-order positive autocorrelation.

##### Model 2: Capital structure correlates with return on equity of manufacturing firms in Nigeria

The Hausman test was adopted to select the best fit model to test hypothesis two; the Cross-Section chi-square statistic with 5 degrees of freedom is 1.761 and the p-value of 0.881 is presented in Table 4 below. The P-value of the Hausmann Chi-square Statistic is greater than 5%. The null hypothesis is accepted (random effect) following the standard null hypothesis.

**Table 4.** Capital Structure Versus Return on Equity of Manufacturing Firms in Nigeria

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	2.649	1.802	1.469	0.1427
D_E	-0.185	0.148	-1.2467	0.0001
LOGSIZE	0.008	0.1185	0.069	0.0002
LDTA	0.399	0.181	2.202	0.0285
SDTA	0.535	0.162	-3.294	0.0001
TDTA	0.136	0.062	-2.170	0.0001
Effects Specification				
R <sup>2</sup>	0.87	Hausman Test	1.761	
F.Stat.	3.407	P-value	0.881	
P-value	0.0000	D.W stat	2.161	

Source: Authors' Computation (2020)

Table (4): The R<sup>2</sup> of 87% shows, the goodness of the panel regression model. The exogenous variables are jointly responsible for an 87% variation in the endogenous variable with an unexplained variation of 13%. Firm performance proxy by return on equity showed a positive and significant relationship with firm size, LDТА, SDТА, and TDТА and a negative relationship with ROE under the measure of D\_E. The overall panel regression results are significant. F-stat of (3.407) associated with the P-value of (0.000). The result is reliable for a meaningful analysis. The Durbin Watson Statistics of 2.161 rules out all possible suspicion of first-order positive autocorrelation

**Model 3: Capital structure correlates with a market value of manufacturing firms in Nigeria**

The Hausman test was adopted to select the best fit model to test hypothesis three; the Cross-Section chi-square statistic with 5 degrees of freedom is 6.773 and the p-value of 0.238 is presented in Table 5 below. The P-value of the Hausmann Chi-square Statistic is greater than 5%. The null hypothesis accepted (random effect) is preferable over the fixed effect following the standard null hypothesis.

**Table 5.** Capital Structure Versus Market Value of Manufacturing Firms in Nigeria

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.263	0.876	0.300	0.7639
TDТА	-0.027	0.022	-1.246	0.0011
SDТА	0.091	0.061	1.487	0.1380
LOGSIZE	0.087	0.058	1.505	0.1333
LDТА	-0.212	0.080	-2.647	0.0086
D_E	0.0056	0.057	0.098	0.9220
Effects Specification				
R <sup>2</sup>	0.68	Hausman Test	6.773	
F.Stat.	12.925	P-value	0.238	
P-value	0.0000	D.W stat	2.108	

Source: Authors' Computation (2020)

Table (5): The R<sup>2</sup> of 68% shows, the goodness of the panel regression model. The exogenous variables are jointly responsible for a 68% variation in the endogenous variable with an unexplained variation of 32%. The overall panel regression model result is significant. F-stat of (12.925) is associated with the P-value of (0.000). The result is reliable for a meaningful analysis. The Durbin Watson Statistics of 2.108 rules out all possible suspicion of first-order positive autocorrelation.

**5. Discussion**

The results in model (1) of table (3) reveal a negative

and significant relationship between LDТА, D\_E, and TDТА on the performance level of studied firms by 17.46%, 29.67%, and 10.11% respectively. Supporting the pecking order theory hypothesizes a negative relationship between profitability and debt usage. [41;42] argued that long - term debt increases a firm's value, due to a lower long - term debt ratio in the capital structure of companies. Highly profitable Nigerian firms require less debt finance. On the other hand, a positive and significant relationship was observed between short-term debt leverage ratio, ROA, and ROE supporting the agency cost model of debt ratios as a disciplinary device to reduce cash flow waste mitigating the opportunistic behaviours of shareholders-managers to generate sufficient cash flow to prevent liquidation. The result correlates with the true nature of the Nigerian business climate where the majority of firms depend on short-term financing from deposit money banks as a result of the high cost of raising equity from the stock market and debt market underdevelopment. The findings are consistent with the finding of (Nwachukwu and Akpeghughu 17; Hossain, Imran, & Hossain 19)].

A positive and significant correlation was reported between TDТА, LDТА, SDТА, and ROE. A unit increase influences manufacturing firm performance in model (2) of table (4). In model 3 of table (5) the results show a positive and significant relationship between market value measured by (Tobin Q) and SDТА, LDТА, D\_E. A negative relationship with TDТА was also reported. The control variable of firm size reveals a strong significant effect on firm performance and market value measured by Tobin Q. The significance of a firm's size on performance indicates that large firms earn higher returns compared to smaller firms, presumably as a result of diversification of investment and economies of scale. Total debt shows a negative and significant relationship with the firm market value. It can be inferred that a unit increase in total debt decreases the firm market value. The findings substantiate the findings and results of (Umar, Tanveer, Z., Aslam, S.,and Sajid 15; Akguc, , Choi,, Kim, and McKenzie, 43; Aransiola, and Aransiola 16; Ardalan,44]) and others.

**6. Conclusions**

The results and findings of this study revealed a disparity between the capital structure of firms in an emerging business climate like Nigeria and those in the developed nations. Manufacturing firms in Nigeria prefer and rely heavily on short-term debt rather than long-term financing. Firm-specific factors that are relevant in the developed business climate are also relevant in Nigeria in explaining the capital structure and corporate performance. Overall, empirical results support the pecking order and agency cost theories of capital structure.

The findings limit the explanatory power of the capital structure theories in Nigeria showing that the theoretical underpinnings are still largely unresolved.

It's vital to note that no single theory can sufficiently explain the relationship between capital structure and firm performance. Theories are based on critical assumptions ignoring the extremely diversified and complex realities in the economic and business climate.

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The author confirms that the data do not contain any conflict of interest.

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