

# CAPITAL STRUCTURE AND FIRM PERFORMANCE: EVIDENCE FROM NIGERIAN CONSUMER GOODS MANUFACTURING FIRMS

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## ABSTRACT

*The paper examines the capital structure and firm performance of Nigerian consumer goods manufacturing firms listed on the Nigerian stock exchange. Inconsistencies in the results on the relationship between capital structure and firm performance necessitated this study. Secondary data was collected from consumer goods manufacturing companies listed on the Nigerian stock exchange. Eighteen companies were used in this study, and panel data method was used in sampling the 18 listed manufacturing firms from 2008-2018. The study adopted the popular accounting and financial measures used in the vast literature on the subject matter namely, return on equity, return on asset, Tobin's Q and earning per share) as the dependent variable. In measuring the independent variable of the study, which is capital structure, long term debt, short term debt, total debt ratios, and growth was adopted. The study also included size as a control variable. The results from the regression analysis carried out in this study show that firm performance has a negative relationship with the capital structure in listed Nigerian manufacturing firms. Additionally, growth and performance had a positive correlation for the 18 consumer goods manufacturing companies.*

**Keywords:** Capital Structure; Firm Performance, Return on Equity; Total Debt ratio; Tobin's Q.

## INTRODUCTION

The capital structure of a company is crucial in determining the stability and profitability of the enterprise. Evidence from professionals and researchers on capital structure points to the capability of high debt proportion to stimulating the profitability of the enterprise in the long run (Chadha & Sharma, 2015). Nevertheless, the capacity of high debt ratio to influence profitability positively comes with the risk of bankruptcy in a situation where the growth experienced by the company, in the long run, is temporarily hampered by environmental forces.

Capital structure is the mix of finance used by the corporation. The sources of long term finance for the corporations are classified into two groups which are referred to as debt or borrowed capital, and equity (Rajan & Zingales, 1995). Equity is the capital provided by the owners of the corporation, which in turn give them rights to have shares in the company (Heinkal, 1982). The issue with borrowed capital is that the business enterprise has to pay the agreed interest rates and payback rate as at when due. The company using borrowed capital will have to meet its financial obligations irrespective of situations of low sales or reduced incomes or any other situations that affect the capability and operations of the company (Ganiyu, Adelopo, Rodionova & Samuel, 2019). In a situation where the corporation is unable to meet its financial obligations to those from whom capital was borrowed, the risk is bankruptcy and liquidation of its assets. On the other hand, when the second type of capital is used, the corporation is free from the risk associated with borrowed capital because the use of equity or

owner's capital poses no such risks. So, a greater percentage of debt in a company's capital structure will, *ceteris paribus*, results in greater degree of risk of bankruptcy for the corporation. Conversely, when tax deductibility of interest payments and the comparative protection relished by the suppliers of debt capital is considered, the conclusion is that debt is a much inexpensive form of capital for a corporation than equity. Consequently, the utilization of a high percentage of debt capital can enlarge the profitability of a corporation when its sales are increasing and when its assets can gross a greater rate of return than the cost of its debt (Dawar, 2014). The preceding has been able to show that the two types of capital have their advantages and disadvantages; hence, the onus is on the company to find the optimal balance for its capital structure. Corporations have to determine how best to combine borrowed capital and equity so that the performance of the company is not influenced negatively the interest rates on borrowed capital and the cost of equity.

There is no consensus in the literature on how the capital structure of listed firms on the Nigerian Stock Exchange (NSE) can affect performance. Hence, this study aims to examine the relationship between capital structure and firm performance using financing choices to measure capital structure while return on asset and return on equity is used as a measure of performance.

This study commences with a review of theories that can help in the understanding of capital structure and firm performance. It also reviews the empirical evidence of previous researchers on the subject matter. After the theoretical and empirical review, the paper presents the methodology used in the study to achieve the study aims. The next sessions are dedicated to the analysis and presentation of data. This study finalizes with the presentation of the conclusions and the implication of the results.

## **LITERATURE REVIEW**

This section reviews relevant capital structure theories and concludes with an empirical review of capital structure and firm performance.

### **Net Income Approach to Capital Structure Theory**

This method was initially proposed by David Durand in 1952. Durand was an advocate of financial leverage. Durand (1952) hypothesized that a modification in financial leverage outcomes in a variation in capital costs. The implication of this theory is that an escalation in the debt ratio increases capital structure while the Weighted Average Cost of Capital (WACC) decreases, which outcomes in greater firm value. In Durand (1952) net income approach to capital structure theory, the cost of capital is a function of the capital structure. The Net Income theory assumes that there is an optimal capital structure. The optimal capital structure suggests that at a definite ratio of debt and equity, the cost of capital is at the least possible, and the value of the corporation is at a maximum.

### **The Modigliani & Miller (M & M) Theory**

This theory and approach to the capital structure are named after Franco Modigliani and Merton Miller in 1950. The M & M theory states that in perfect markets the capital structure a business adopts is not important since the market value of the business is influenced by its earning influence and the risk of its fundamental assets (Modigliani & Miller, 1963). According to Modigliani & Miller (1963), value is autonomous of the mode of funding adopted and a business's investments.

## Pecking Order Theory

The pecking order theory centers on asymmetrical information costs. This theory holds the belief that corporations rank their financing approach using the method that offers the least resistance (Matemilola & Bany-Arifin, 2011). Internal financing is the ideal method, followed by debt and external equity financing as a last resort. To summarize, it is vital for corporations to understand the subject of capital structure. Precise and truthful examination of capital structure can assist corporations by enhancing the cost of capital and therefore augmenting profitability.

## Empirical Review

Salim & Yadav (2012) carried out a study titled capital structure and firm performance: evidence from Malaysian listed companies. The objective of the study focused on an empirical exploration the correlation between capital structure and firm performance. Salim & Yadav (2012) used panel data of 237 Malaysian companies listed on Bursa Malaysia Stock exchange was sampled for sixteen years from 1995-2011. The results indicate that return on asset, return on equity, and earnings per share have a negative correlation with short term debt, long term debt and total debt.

Furthermore, there is a positive correlation between the growth and performance of all the subdivisions under study. Tobin's Q demonstrates that there is a considerably positive correlation between short term debt and long term debt. Salim & Yadav (2012) likewise demonstrate that total debt has a substantial negative correlation with the performance of the companies studied.

Dawar (2014) carried out a study on agency theory, capital structure, and firm performance: some Indian evidence. Founded on the agency theory, Dawar (2014) sought to empirically examine the impact of capital structure choice on firm performance in India as one of the developing economies. The researcher adopted the use of fixed effect panel regression model. Data was collected for ten years (2003-2012). The results from Dawar (2014) reveals that financial leverage hurts financial performance the studied business corporations in India. The results of the study enrich the literature on capital structure and agency costs issues in several ways because the outcome contradicts the assumptions of agency theory.

Chadha & Sharma (2015) carried out a study on the determinants of capital structure: an empirical evaluation from India. Chadha & Sharma (2015) studied the key determinants of capital structure for Indian manufacturing firms and existing theoretical implications. Four hundred twenty-two manufacturing companies listed on the Bombay Stock Exchange was selected as the study sample. Data was collected for ten years (2003-2013). Ratio analysis and panel data were adopted for data analysis. It was empirically established that company size, company age, company asset tangibility, company growth, company profitability, non-debt tax shield, business risk, uniqueness, and ownership structure are considerably connected with the firm financial leverage or crucial determinants of capital structure in Indian manufacturing sector. The findings of Chadha & Sharma (2015) would enrich the literature on capital structure and is substantial for the Indian manufacturing firm's assessments as it comprises the most topical data and covers the passé of both pre and post-recession of 2008-2009.

Ganiyu, Adelopo & Rodionova, et al. (2019) carried out a study on capital structure and firm performance in Nigeria. Ganiyu, Adelopo & Rodionova, et al., (2019) scrutinizes the likelihood of non-monotonic correlation between capital structure and firm performance. The authors adopted a dynamic panel model; data were collected from 115 listed non-financial firms in Nigeria. Unambiguously, Ganiyu, Adelopo & Rodionova, et al., (2019) adopted the

Generalized two-step Method of Moments (GMM) approximation technique. Ganiyu, Rodionova & Samuel, et al. (2019) study demonstrates that substantial correlation exists between capital structure and firm performance predominantly when debt financing is discreetly engaged. Nevertheless, Ganiyu, Rodionova & Samuel, et al. (2019) discovered substantiation of non-monotonic correlation between capital structure and firm performance.

### **Research Method: Sample and Data**

The sample consists of 18 Nigerian companies listed on the NSE belonging to the manufacturing sector. Listed companies on the NSE were then vetted using numerous factors; especially availability of an annual report on the internet that can be easily be downloaded for analysis. The 18 selected corporations were examined over 2008-2018 periods, allowing us to form a cylinder of panel data. All data were collected from the annual report of the companies which was retrieved online and also from NSE factbook. The dependent variable in the study is firm performance measured using Tobin Q, Return On Equity (ROE), the Return Of Asset (ROA), and Earning Per Share (EPS).

To calculate the ROE for the companies used in this study, the net profit figure is extracted from the annual financial report, which is subsequently divided with data for total equity extracted from the financial report. This procedure is done for ten years from 2008-2018. ROA is derived by using the extracted data on net profit, which is then divided by a total asset, which is extracted from the annual financial report of the 18 selected companies. In other to obtain the figure for the Tobin Q, the researcher adopts the book value of total debts and market value of equity, which is divided by book value of the total asset. To arrive at the figure for the EPS net income is extracted from the annual report and divided by several shares unresolved. The capital structure, which is the independent variable, is measured using short term debt and long term debt of the company. Short term debt of the company is computed by dividing the ration of short term debt owned by the company by the figure for the company's total asset, which is extracted from the financial report. The Long Term Debt (LTD) of the companies under study is derived by dividing the ratio of long term debt divided with long term debt; the result is then added to equity. To calculate Total Debt (TD) of the company the ratio of total asset computed earlier is subtracted from the company's total equity, which is then divided by the total asset of the company under study. In this study, growth is computed as the ratio of total asset.

### **Variable measurement: Organizational Performance**

Different measures have been adopted in the literature to measure organizational performance. The popular measures are accounting based, which are easily extracted from the financial reports of the company is available in the public domain. Researchers such as (Dawar, 2014; Salim & Yadav, 2012; Ganiyu, Rodionova & Samuel et al. 2019) have made use of the accounting measures of performance used in this study. Tobin's Q, ROE, ROA, EPS are used. Financial leverage was measured using short term debt to total assets, the long term debt to total asset and total debt to total asset.

### **Control Variable**

Dawar (2014), Salim & Yadav (2012) suggest that the firm s size might affect firm performance; this is because bigger corporations may have more aptitude and competences. Consequently, this study controls the variances in organizations operating environment by

integrating size as a control variable in the model. Size of the company is measured in this study by computing the log of total assets to control for effects of corporation size on firm performance.

### Study Model

The relationship between capital structure measured with financial leverage and firms listed on the NSE performance was verified by the succeeding regression models:

$$\text{ROE (Performance)} = \beta_0 + \beta_1\text{LTD} + \beta_2\text{Size} + \beta_3\text{Growth} + \beta_4\text{TD} + \beta_5\text{STD} + \varepsilon_i \text{-----Eqn 1}$$

$$\text{ROA (Performance)} = \beta_0 + \beta_1\text{LTD} + \beta_2\text{Size} + \beta_3\text{Growth} + \beta_4\text{TD} + \beta_5\text{STD} + \varepsilon_i \text{-----Eqn 2}$$

$$\text{Tobin Q (Performance)} = \beta_0 + \beta_1\text{LTD} + \beta_2\text{Size} + \beta_3\text{Growth} + \beta_4\text{TD} + \beta_5\text{STD} + \varepsilon_i \text{-----Eqn 3}$$

$$\text{EPS (Performance)} = \beta_0 + \beta_1\text{LTD} + \beta_2\text{Size} + \beta_3\text{Growth} + \beta_4\text{TD} + \beta_5\text{STD} + \varepsilon_i \text{-----Eqn 4}$$

Where: STD: Short Term Debt to total assets for firm

LTD: Long Term Debt to total assets for firm

TD: Total Debt to total asset for firm

Size: Logarithm of total assets for firm

Growth: Changes in total asset

$\varepsilon_i$ : The error term

### Analysis and Results Descriptive Statistic

As discussed earlier, there are four dependent variables which are ROE, ROA, Tobin Q, and EPS, whereas TD, STD, LTD, and growth represent as independent variables. Table I presents a summary of the descriptive statistics of the dependent (ROE, ROA, Tobin Q) and independent variables (TD, STD, LTD) used in the study. The mean values for return on asset of the 18 companies under study are 0.023471, return on equity is 0.06, Earnings per share shows a negative value of -0.34262 while Tobin Q stands at 0.3421. The independent variable (capital structure) when measured with TD, LTD and STD shows that total debt has a mean of 18, while long term debt has a mean of 7.106 and short term debt stood at 7.100. The implication of the high mean score is that the 18 manufacturing companies studied finance their operations mainly through a mixture of long term debt instruments like equity and short term debt instruments like capital borrowings. The implication of this result is that 18 manufacturing companies studied utilize roughly about 7% debt to bankroll and meet operational obligations. The implication is that the board of directors and corporate managers managing the financial affairs of the manufacturing companies in Nigeria are averse to the adoption of debt instruments and are much more in a safe position. Nevertheless, the manufacturing business in Nigeria can expand to meet the needs of the African continent, hence the need for the manufacturing business firms in Nigeria to take advantage of long term and short term debt instruments to finance operational expansion which in the long run would enhance the market value of the corporations. However, a note of caution is sounded because Age is a moderating variable introduced because some of the manufacturing companies are relatively new while some have been around for a long time.

	<b>ROA</b>	<b>ROE</b>	<b>Tobin Q</b>	<b>EPS</b>	<b>TD</b>	<b>LTD</b>	<b>STD</b>	<b>Growth</b>	<b>Size</b>
Mean	0.023471	0.060041	0.3421	0.34262	0.18351	0.7106	0.71	0.03219	5.895
Median	0.02248	0.034224	0.4824	0.024	0.21434	0.02142	0.042643	0.025423	5.229
Minimum	-1.3341	-12.363	-43.114	-323.01	-11.224	-6.041	-14.341	-17.431	2.3321
Maximum	3.3344	8.044	13.233	70.14	24.369	17.462	4.4324	3.3018	8.231
Standard Deviation	0.11943	0.32352	1.1224	11.421	0.2321	0.34413	0.31126	0.44212	0.1142
Skewness	3.344	-6.21	-11.324	-14.654	7.204	17.048	-12.433	-15.649	0.23
Kurtosis	120.2	201.23	401.15	421.41	332.48	550.2	590.4	560.2	0.2413
No of cases	720	720	720	720	720	720	720	720	720

Source: Author's computation

### **Regression Results for Performance Measured by Return on Asset (ROA)**

Table 2 demonstrates the outcomes of the regression analysis carried out to examine the kind of relationship that exists between return on asset a measure of financial performance and capital structure (TD, LTD, STD, growth, and size). The analysis shows that for the 18 manufacturing companies under study, firm growth and firm size exhibit a positive correlation to the financial performance of the 18 manufacturing companies when measured by Return on the asset. However, Short term debt and Long term debt exhibit a negative correlation with the implication that it significantly influenced the performance of manufacturing companies in Nigeria. The foremost reason for the negative relationship is as a result of the high cost of borrowing that manufacturing companies are exposed to in Nigeria. In this analysis, the manufacturing company's exhibit firm growth, which has a substantial positive correlation with the performance of the 18 manufacturing companies when measured by ROA. The negative relationship is further confirmed by the low value of the adjusted R squared, which implies that the capital structure is not adequate to explain the performance of the company. This is in line with Modigliani and Miller's theory reviewed earlier.

<b>Independent variable</b>	<b>Measure</b>	<b>Consumer Goods Manufacturing Firm</b>
Total Debt (TD)	P-value	0.00301***
	T-stat	-9.43
Long Term Debt (LTD)	P-value	0.23138
	T-stat	-0.666
Growth	P-value	0.00101
	T-stat	7.186
Short Term Debt (STD)	P-value	0.00501***
	T-stat	-3.643
Size	P-value	0.13348
	T-stat	-0.447

Adjusted R <sup>2</sup>	0.12111
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Source: Author's computation

### Regression Result for Performance Measured by Return on Equity (ROE)

Table III presents the outcome of analysis carried out to investigate the relationship between capital structure (TD, LTD, TD to total assets) and the 18 consumer goods manufacturing business performance measured using Return On Equity (ROE). The regression results in Table III indicate that a negative correlation between capital structure (TD, LTD, TD to total assets) and performance (ROE); the coefficient value of Short Term Debt (STD) to the asset reveals a negative figure and however statistically substantial at the degree of confidence of 99 percent. The negative outcome of the analysis implies that the more the manufacturing companies under study increased their long, short, and total debt to asset ratio, the more the return on asset decreased. However, the study findings also revealed a positive relationship in the area of firm growth. Analysis carried out revealed that a positive correlation exists between firm growth and return on equity. The implication of this is that the manufacturing companies should expect a return on equity to reduce with an increase in debt to asset ratio but also expect increase in growth to increase performance when measured with return on equity.

Independent variable	Measure	Consumer Goods Manufacturing Firm
Total Debt (TD)	P-value	0.12211
	T-stat	-1.1333
Long Term Debt (LTD)	P-value	0.34434
	T-stat	-0.1013
Growth	P-value	0.01124**
	T-stat	1.3
Short Term Debt (STD)	P-value	0.03359
	T-stat	-1.4046
Size	P-value	0.55452
	T-stat	-0.042
Adjusted R <sup>2</sup>		0.00358

Source: Author's computation

### Regression Result for Performance Measured by Earnings Per Share (EPS)

Table IV presents the outcome of analysis carried out to investigate the relationship between capital structure (TD, LTD, TD to total assets) and the 18 consumer goods manufacturing business performance measured using Earnings Per Share (EPS). The regression results in Table IV indicate that a negative correlation between capital structure (TD, LTD, TD to total assets) and performance (EPS); the coefficient value of total debt to the asset (STD) reveals a negative figure with the implication that debt will decrease manufacturing business performance when measured using EPS. The low value produced by the Adjusted R<sup>2</sup> confirms that firm performance EPS has no significant correlation with the control variable (firm size).

<b>Independent variable</b>	<b>Measure</b>	<b>Consumer Goods Manufacturing Firm</b>
Total Debt (TD)	P-value	0.00031***
	T-stat	-3.2363
Long Term Debt (LTD)	P-value	0.00001***
	T-stat	-4.231
Growth	P-value	0.06219
	T-stat	1.3442
Short Term Debt (STD)	P-value	0.00193***
	T-stat	-1.0644
Size	P-value	0.05842*
	T-stat	1.1511
Adjusted R <sup>2</sup>		0.03274

Source: Author's computation

Table 5 presents the results of the examination of the relationship between capital structure measured by TD, LTD, STD, growth and the manufacturing companies performance when measured by Tobin Q. Tobin Q is becoming increasingly important as a measure of performance. Tobin's Q signifies the stock market measure of the 18 manufacturing companies performance used in this study, which is calculated as the market value of equity and the book value of debt divided by the book value of assets (Tobin, 1969).

The outcome of the analysis reveals that all the independent variables used in this study, except growth show a statistically significant level of confidence at 99% (TD, LTD, STD). The control variable firm size display statistically significant impact on the performance of the 18 manufacturing companies used in this study when measured by Tobin Q. Adjusted R-squared value of 0.8509 statistically established that all dependent variable (ROA, ROE, EPS) can predict the performance of the 18 Selected consumer goods manufacturing firms listed on the NSE to a degree of more than 85% when Tobin Q is used in the analysis. Tobin Q analysis also confirmed that total debt has a negatively significant correlation with the performance of the 18 selected consumer goods manufacturing firms listed on the NSE used in this study. The implication of this for the management of this manufacturing company is that any substantial increase in total debt will lead to a reduction in the financial performance of the companies when measured with ROA, ROE, and EPS. Tobin Q analysis further revealed that the performance of the 18 manufacturing companies used in this study has no substantial correlation with the size of the sampled companies.

<b>Independent variable</b>	<b>Measure</b>	<b>Consumer Goods Manufacturing Firm</b>
Total Debt (TD)	P-value	0.00001***
	T-stat	-121.114
Long Term Debt (LTD)	P-value	0.00001***
	T-stat	5.1844
Growth	P-value	0.69671

	T-stat	-0.1054
Short Term Debt (STD)	P-value	0.00001***
	T-stat	51.3214
Size	P-value	0.00001***
	T-stat	4.901
Adjusted R <sup>2</sup>		0.8509

Source: Author's computation

## CONCLUSIONS

The study investigates the impact of capital structure on the performance of consumer goods manufacturing firms listed on the NSE. To assess the performance of the Nigerian manufacturing firms listed on the NSE, four measures popularly used in the accounting and finance literature are adopted which are a return on asset, return on equity, earnings per share and Tobin. From the analysis carried out from the extracted reports of the manufacturing company for ten years revealed that capital structure influenced negatively the performance of Nigerian manufacturing firms. The aspect of capital structure that was largely responsible for this is the total debt and short term debt of the studied companies. Return on the asset was significantly but negatively influenced total debt and short term debt of the studied companies. A previous research study by Amjed (2010) is of the view that an increase in the short term debt and total debt of the company will result in lessening of the performance of the companies.

The researcher also measured the impact of long term debt to see if it would influence performance positively; the analysis revealed that the impact of return on the asset was significant but negative. These findings are consistent with researchers such as Seitun & Tian (2007), who examined the relationship between capital structure and performance of Jordan firms. Abor (2007) also carried out a study on small and medium-sized enterprises in Ghana and South Africa and discovered that long-term and total debt level is negatively related to performance. Ebaid (2009) Berger, A & Bonaccorsi di Patti, E (2006), Capital structure and firm performance: a new approach to testing agency theory and an application to the banking industry, *Journal of Banking and Finance*, 32: 1065-1102. Studied non-financial Egyptian listed firms and revealed that capital structure has a weak-to no impact on a firm's performance. The empirical studies show that increase in debt structure of the corporations influenced performance negatively. On the other hand, there are research findings from researchers such as which indicate the capability of capital structure to influence performance positively.

These findings are in contrast with Champion (1999), who discovered that capital structure had a positive and significant impact on firm performance. Gosh, et al., (2000) study on the pricing of seasoned equity offerings: evidence from real estate investment trust discovered that capital structure has a positive influence on firm performance. Berger & Bonaccora di Patti (2006) studied the capital structure and firm performance: a new approach to testing agency theory and an application to the banking industry; the study revealed that there is a positive relation between firm performance and capital structure. Performance in this study was proxied through Earnings per share, and the result was also negative however when performance was measured using Tobin Q; there was a significant positive relationship between the three independent variables and performance of manufacturing firm listed on the Nigerian stock exchange. When the effect of the control variable, which is the size of the manufacturing firms was analyzed, Tobin Q revealed a positive and significant relationship.

When Tobin Q was applied, the study concludes that there was a positive relationship between firm performance, long term debt, and short term debts of the studied 18 manufacturing

companies in Nigeria. To the researcher knowledge, this study is one of the very first in the manufacturing industry in Nigeria to use Tobin Q as a measure of firm performance. The advantage of using Tobin's q is that the challenging problem of approximating either rates of return or marginal costs is avoided (Tobin, 1969). The Tobin q can be used by manufacturing firms in Nigeria to explain several corporate occurrences. The Tobin q is used in this study because it is considered by researchers as a statistic with the capability to function as a proxy for the firm's value from an investor's viewpoint. This paper consequently adopts Tobin q as a measure of a firm's performance in the consumer goods manufacturing industry in Nigeria, and how it relates to the capital structure of the firm. Future researchers are encouraged to carry out further studies using not only the manufacturing industry but all the industries listed on the NSE to assess the impact of capital structure on firm performance.

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