International Journal of Education, Business and Economics Research (IJEBER)

ISSN: 2583-3006

Vol. 2, Issue.5, Sep - Oct 2022, pp. 56-65

To cite this article: Okudo, Chijioke Louis, Mbonu, Chikwelu Maduabuchi and Amahalu, Nestor Ndubuisi (2022). Capital Structure And Firm Value Of Quoted Pharmaceutical Firms In Nigeria. International Journal of Education, Business and Economics Research (IJEBER) 2 (5): 56-65

CAPITAL STRUCTURE AND FIRM VALUE OF QUOTED PHARMACEUTICAL FIRMS IN NIGERIA

Okudo, Chijioke Louis[1], Mbonu, Chikwelu Maduabuchi[2] and Amahalu, Nestor Ndubuisi[3]

[1]Department of Law, Olabisi Onabanjo University, Ago-Iwoye, Ogun State, Nigeria
[2]Department of Accountancy, Federal Polytechnic, Oko, Anambra State, Nigeria
[3]Department of Accountancy, Nnamdi Azikiwe University Awka, Anambra State, Nigeria

ABSTRACT

This study ascertained the effect of capital structure on firm value of Pharmaceutical firms listed on the floor of the Nigerian Exchange (NGX) Group between 2010 and 2021. Equity capital, short term debt, long term debt and total debt served as proxies for capital structure, while Tobin's Q was used to measure firm value. Secondary data were used in this study. Ex-post facto research design was adopted. Purposively sampling technique was used to sample the seven (7) pharmaceutical firms. Pearson Correlation Coefficient and Panel Least Square (PLS) Regression analysis via E-Views 10.0 statistical software were used to test the hypotheses of the study. The result of this study revealed that Equity Capital has a significant and positive effect on Tobin's Q ($\beta1 = 0.165227$, P-value = $0.0001<0.05$); Short Term Debt has a significant and positive effect on Tobin's Q ($\beta2 = 0.897693$, P-value = $0.0444<0.05$); Long Term Debt has a significant and positive effect on Tobin's Q ($\beta3 = 0.333631$; P-value = $0.0006<0.05$); Total Debt has a significant and positive effect on Tobin's Q ($\beta4 = 0.039992$; P-value = $0.0000<0.05$). In conclusion, this study upholds that Capital Structure has a significant and positive effect on Firm Value of quoted Pharmaceutical companies in Nigeria at 5% level of significance. The study recommended that companies should use more equity than debt in order to have a lower risk of bankruptcy. Also, companies that use equity capital, have no obligation to make interest payments or to repay equity investors' initial investment, thereby making such companies to keep more profits and allowing more spending flexibility.

KEYWORDS: Equity Capital, Short Term Debt, Long Term Debt, Total Debt, Tobin's Q

INTRODUCTION

Capital structure is the combination of capital from different sources of finance. The capital of a company consists of equity share holders' fund, preference share capital and long term external debts. The concept of capital structure received much attention after Modigliani and Miller (1958) demonstrated in their paper that the choice between debt and equity does not have any material effects on the value of the firm. This proposition indeed holds assuming perfect capital markets. A perfect market is one in which there are no frictions such as transaction and bankruptcy costs. However, in the real world, one may ask whether all capital markets are perfect. When market imperfections such as transaction and bankruptcy costs are considered, capital structure may well be relevant. As pointed out by Mbonu and Amahalu, N.N. (2022), small adjustment costs may cause large variations in capital structure. Modigliani and Miller (1963) subsequently corrected their capital structure irrelevance proposition for taxes. Because interest on debt is a tax-deductible expense, the firm effectively reduces its tax bill as it employs more debt. As the debt to equity ratio increases, the market value of the firm increases by the present value of the interest tax shield. This implies that the cost of capital will not rise, even if the use of leverage increases to excessive levels. Eze, Okoye, Amahalu and Obi (2022) argue that, in an extreme leverage position, the cost of capital must rise. This is because excessive levels of debt will induce markets to react by demanding higher rates of return. Therefore, to minimize the weighted average cost of capital, firms will avoid a pure debt position and seek an optimal mix of debt and equity.

A capital structure is said to be optimal when the proportion of debt and equity is such that it results in an increase in the value of the equity share. Factors which are affect capital structure include company constitution, company characteristics, stability of earning amongst other others. Capital structure provides an organized way to raise capital. Both debt and equity have their advantages and disadvantages. The equity investor gets a portion of the earnings no matter how much earnings grow, and the amount earned by equity investors is not limited by a certain period of time like debt. A company with a particularly debt-heavy capital structure makes larger interest payments each year, thereby reducing net profit (Amahalu, Ezenwaka, Obi & Okudo, 2022). Very young companies often experience shortages in cash flow that may make such regular payments difficult, and most lenders provide severe penalties for late or missed payments. The capital structure combines financial instruments like shares (equity and preference), debentures, long-term loans, bonds, and retained earnings. These instruments help the company generate funds for its operations with the help of individuals and institutions. The optimal capital structure exists only when the debt and equity combine to reduce the cost of capital and enhance the firms' profitability. The management of firm has to set their capital structure in a way to maximize their firm value. It is to this end that this study tends to assess the effect of capital structure on firm value of quoted pharmaceutical firms in Nigeria.

Research Objectives

The broad objective of this study is to determine the effect of capital structure on firm value of quoted pharmaceutical firms in Nigeria. Specifically, this study:

i. ascertained the effect of equity capital on Tobin's Q
ii. examined the effect of short term debt on Tobin's Q
iii. assessed the effect of long term debt on Tobin's Q

iv. evaluate the effect of total debt on Tobin's Q

Research Hypotheses

Ho_1: Equity capital has no significant effect on Tobin's Q
Ho_2: Short term debt has no significant effect on Tobin's Q
Ho_3: Long term debt has no significant effect on Tobin's Q
Ho_4: Total debt has no significant effect on Tobin's Q

LITERATURE REVIEW

Capital Structure

Capital structure is the particular combination of debt and equity used by a company to finance its overall operations and growth. Equity capital arises from ownership shares in a company and claims to its future cash flows and profits. Debt comes in the form of bond issues or loans, while equity may come in the form of common stock, preferred stock, or retained earnings. Short-term debt is also considered to be part of the capital structure (Tuovila, 2022). Capital structure refers to the specific mix of debt and equity used to finance a company's assets and operations. From a corporate perspective, equity represents a more expensive, permanent source of capital with greater financial flexibility. Financial flexibility allows a company to raise capital on reasonable terms when capital is needed. Conversely, debt represents a cheaper, finite-to-maturity capital source that legally obligates a company to make promised cash outflows on a fixed schedule with the need to refinance at some future date at an unknown cost (Mbonu & Amahalu, 2021a).

Equity Capital

Equity capital is fund paid into a business by investors in exchange for common or preferred stock. This represents the core funding of a business, to which debt funding may be added. Once invested, these funds are at risk, since investors will not be repaid in the event of a corporate liquidation until the claims of all other creditors have first been settled. Despite this risk, investors are willing to provide equity capital for one or more of the following reasons: Owning a sufficient number of shares gives an investor some degree of control over the business in which the investment has been made; The investee may periodically issue dividends to its stockholders; The price of the shares may appreciate over time, so that investors can sell their shares for a profit (Fernando, 2022). Equity capital is considered to be the net amount of any funds that would be returned to investors if all assets were to be liquidated and all corporate liabilities settled. In some cases, this may be a negative figure, since the market value of company assets may be lower than the aggregate amount of liabilities.

Total Equity = Total Assets – Total liabilities

Short Term Debt

Short-term debt, also called current liabilities, is a firm's financial obligations that are expected to be paid off within a year. It is listed under the current liabilities portion of the total liabilities section of a company's balance sheet (Okegbe, Eneh & Amahalu, 2019). Short-term debt is defined as debt obligations that are due to be paid either within the next 12-month period or the current fiscal year of a business. Common types of short-term debt include short-term bank loans, accounts payable, wages, lease payments, and income taxes payable.

Short Term Debt: $\frac{\text{Short Term Debt}}{\text{Total Assets}}$

Long Term Debt

Long-term debt is debt that matures in more than one year. Entities choose to issue long-term debt with various considerations, primarily focusing on the timeframe for repayment and interest to be paid. Investors invest in long-term debt for the benefits of interest payments and consider the time to maturity a liquidity risk. Overall, the lifetime obligations and valuations of long-term debt will be heavily dependent on market rate changes and whether or not a long-term debt issuance has fixed or floating rate interest terms (Ezechukwu, Amahalu & Okudo, 2022). Long Term Debt (LTD) is any amount of outstanding debt a company holds that has a maturity of 12 months or longer. It is classified as a non-current liability on the company's balance sheet. The time to maturity for LTD can range anywhere from 12 months to 30+ years and the types of debt can include bonds, mortgages, bank loans, debentures (Vaidya, 2022).

Long Term Debt: $\frac{\text{Long Term Debt}}{\text{Total Assets}}$

Total debt

Total debt refers to the sum of borrowed money that a business owes. It is calculated by adding together the current and long-term liabilities. Total debt is calculated by adding up a company's liabilities, or debts, which are categorized as short and long-term debt. Financial lenders or business leaders may look at a company's balance sheet to factor in the debt ratio to make informed decisions about future loan options (Mbonu & Amahalu, 2021b).

Total Debt: $\frac{\text{Total Debt}}{\text{Total Assets}}$

Firm Value

It is an economic concept that reflects the value of a business. It is the value that a business is worthy of at a particular date. Theoretically, it is an amount that one needs to pay to buy/take over a business entity. Like an asset, the value of a firm can be determined on the basis of either book value or market value. But generally, it refers to the market value of a company. Firm value is very important for company because firm value shows how effective is the firm performance (Ndulue, Okoye & Amahalu, 2021). The company consists of manager as an agent and shareholders as principals/owners. Shareholders as the owner of the company certainly require other trustworthy party to manage job which cannot be done by them.

Tobin's Q

The Q ratio, also known as Tobin's Q, measures whether a firm or an aggregate market is relatively over- or undervalued. It relies on the concepts of market value and replacement value. The simplified Q ratio is the equity market value divided by equity book value (Hayes, 2021). If Tobin's q is greater than 1.0, then the market value is greater than the value of the company's recorded assets. This suggests that the market value reflects some unmeasured or unrecorded assets of the company.

Tobin's Q = $\frac{\text{Total Market Value of Firm}}{\text{Total Asset Value of Firm}}$

Capital Structure and Firm Value

The relationship between capital structure and firm value has been the subject of considerable debate, both theoretically and in empirical research. Throughout the literature, debates have focused on whether there is an optimum capital structure for an individual firm or whether the proportion or level of debt usage is irrelevant or relevant to firm's value. Ezuma (2022) opines that, the capital structure decision of a firm should be examined from the point of its impact on the value of the firm. Onyeozili, Okoye, Amahalu and Obi (2022) state that if capital structure decision can affect a firm's value, then firms would like to have a capital structure which maximizes their value. The aim of a firm should centre therefore on the maximization of its value through capital structure decisions.

Theoretical Review

The underpinning theory of this study is the Trade off Theory

Trade off Theory

The trade-off theory is based on the work of Modigliani and Miller in the 1958. The trade-off theory of capital structure is the idea that a company chooses how much debt finance and how much equity finance to use by balancing the costs and benefits. The classical version of the hypothesis goes back to Kraus and Litzenberger (1973) who considered a balance between the dead-weight costs of bankruptcy and the tax saving benefits of debt. Often agency costs are also included in the balance. An important purpose of the theory is to explain the fact that corporations usually are financed partly with debt and partly with equity. It states that there is an advantage to financing with debt, the tax benefits of debt and there is a cost of financing with debt, the costs of financial distress including bankruptcy costs of debt and non-bankruptcy costs (for example, staff leaving, suppliers demanding disadvantageous payment terms, bondholder/stockholder infighting, and so on) (Okudo & Ndubuisi, 2021). The prediction of the trade-off theory is that the optimal capital structure exists and is determined by the achievement of balance between tax benefits and costs of debt, considering other constant variables (Mbonu & Amahalu, 2021a). Companies substitute debt with equity or equity with debt until the value of the firm is maximized.

Empirical Review

Antwi, Mills and Zhao (2012) sought to provide evidence on the impact of capital structure on a firm's value. The analysis was implemented on all the 34 companies quoted on the Ghana Stock Exchange (GSE) for the year ended 31st December 2010. The ordinary least squares method of regression was employed in carrying out this analysis. The result of the study revealed that in an emerging economy like Ghana, equity capital as a component of capital structure is relevant to the value of a firm, and Long-term-debt was also found to be the major determinant of a firm's value.

Osasere and Osifo (2022) investigated the role of industry as a mediator on the capital structure-firm value nexus among listed Oil/Gas firms and Banking firms in the Nigeria Exchange Limited. Panel data spanning 21yrs (2000-2020) was subjected to empirical analysis. Capital structure was measured using leverage ratio, equity ratio and interest expense while market based measure was used to measure firm value (Tobin's Q). The panel least square was used for data analysis along with other preliminary tests. Competition and technology were used as measures for industry

factors while an industry dummy was used to capture industry differences. Findings showed that leverage and equity had a significant positive relationship with firm's value while interest expense had a negative but significant relationship with firm value. Finally, leverage was found to change with the different industries and positively impacted firm's value. However, the findings showed that competition and technology did not change with industry thus proving that these factors (technology & competition) are not significant in explaining possible changes in the capital structure of sampled firms. The study concluded that capital structure has a positive significance on firm's value while industry differences have a significant impact on this relationship.

Ezuma (2022) investigated the relationship between capital structure and financial performance of listed pharmaceutical companies in Nigeria from 2013–2017. The ex-post facto research design was adopted for the study with a population of ten (10) listed pharmaceutical companies in Nigeria as listed by the Nigerian Exchange Group in 2021. Data were retrieved from the annual reports of the selected listed pharmaceutical companies for the period 2013–2017. Multiple regression analysis was used to analyze the data gathered with the aid of Stata12 statistical software. The study revealed a positive and significant relationship between equity capital and profit before tax of listed pharmaceutical companies in Nigeria. It also revealed the existence of a positive and significant relationship between equity capital and return on assets of listed pharmaceutical companies in Nigeria.

METHODOLOGY

This study utilized Ex-post Facto research design in conducting the research. The population of this study comprised of the seven (7) pharmaceutical companies listed on the floor of the Nigerian Exchange (NGX) Group as at 31st December 2021. The pharmaceutical companies include: Fidson Healthcare Plc; Glaxo SmithKline Consumer Plc; May & Baker Nigeria Plc; Morison Industries Plc; Neimeth International Pharmaceutical Plc; Pharma-Decko Plc; PZ Cussons Nigeria Plc. The entire seven (7) pharmaceutical companies served as the sample size of this study. This study made use of secondary data. The data were sourced from publications of the Nigerian Exchange (NGX) Group and the annual report and accounts of the sampled pharmaceutical companies from 2010 to 2021.

Table 1 Variables Definition and Measurement Units

Variable Type	Indicators	Variable Symbols	Definition and Measurement
Dependent Variable (Firm Value)			
	Tobin's Q	TQ	$\frac{\text{Total Market Value of Firm}}{\text{Total Asset Value of Firm}}$
Independent Variable (Capital Structure)			
	Equity Capital	EQC	Total Assets – Total liabilities
	Short Term Debt	STD	$\frac{\text{Short Term Debt}}{\text{Total Assets}}$
	Long Term Debt	LTD	$\frac{\text{Long Term Debt}}{\text{Total Assets}}$
	Total Debt	TD	$\frac{\text{Total Debt}}{\text{Total Assets}}$

Model Specification

This study adapted and modified the Omabu, Okoye and Amahalu (2021):

$CVA = \beta o + \beta_1 STD_{it} + \mu_{it}$

$CVA = \beta o + \beta_1 LTD_{it} + \mu_{it}$

$CVA = \beta o + \beta_1 TD_{it} + \mu_{it}$

Where:

CVA_{it} = Cash Value Added

Following the adapted model, the specific constructs for this study's model is:

Tobin's $Q_{it} = \beta o + \beta_1 EQC_{it} + \beta_2 STD_{it} + \beta_3 LTD_{it} + \beta_4 TD_{it} + \mu_{it}$

Where:

β_o = Constant term (intercept)

β_{it}= Coefficients of Capital Structure of company i in period t

μ_{it} = Error term/unexplained variable(s) of company i in period t

EQC_{it} = Equity Capital of company i in period t

STD_{it} = Short Term Debt of company i in period t

LTD_{it} = Long Term Debt of company i in period t

TD_{it} = Total Debt of company i in period t

Presentation and Analysis of Data

Table 2 Pearson Correlation Matrix

	TQ	EQC	STD	LTD	TD
TQ	1.0000				
EQC	-0.0476	1.0000			
STD	-0.0995	0.0448	1.0000		
LTD	0.0339	-0.0642	-0.0600	1.0000	
TD	0.0303	0.0224	0.0151	-0.1743	1.0000

Source: Researcher's computation (2022) using E-Views 10.0

The Pearson correlation output in table 4.2 shows that TQ associates negatively with EQC (-0.0476) and STD (-0.0995) but positively correlates with LTD (0.0339) and TD (0.0303).

Table 3 Panel Least Square Analysis showing effect of Capital Structure on Firm Value

Dependent Variable: TQ				
Method: Panel Least Squares				
Date: 09/17/22 Time: 15:38				
Sample: 2010 2021				
Periods included: 12				
Cross-sections included: 7				
Total panel (balanced) observations: 84				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	1.265601	0.279832	4.522713	0.0000
EQC	0.165227	0.040115	4.118869	0.0001
STD	0.897693	0.439347	2.043244	0.0444
LTD	0.333631	0.093004	3.587268	0.0006

TD	0.039992	0.009235	4.330377	0.0000
R-squared	0.484873	Mean dependent var		1.462013
Adjusted R-squared	0.458790	S.D. dependent var		0.664523
S.E. of regression	0.488869	Akaike info criterion		1.464236
Sum squared resid	18.88047	Schwarz criterion		1.608927
Log likelihood	-56.49791	Hannan-Quinn criter.		1.522401
F-statistic	18.59003	Durbin-Watson stat		1.633470
Prob(F-statistic)	0.000000			

Source: Researcher's computation (2022) using E-Views 10.0

The panel regression output in table 3 shows that there is a significant and positive relationship between capital structure surrogates and firm value as indicated by the Beta coefficients and probability value: $\beta 1 = 0.165227$; P-value = 0.0001; $\beta 2 = 0.897693$; P-value = 0.0444; $\beta 3 = 0.333631$; P-value = 0.0006; $\beta 4 = 0.039992$; P-value = 0.0000. The R-Squared value equals 0.458790 tells that 45.88% variations that occur in TQ is influenced by EQC, STD, LTD and TD, while the remaining 54.12% is caused by other factors outside the scope of this study. The Durbin-Watson statistics at 1.633470 is an indication that the model of this study is serial correlation free. The F-statistic = 18.59003 and the associated Prob(F-statistic) = 0.000000 signifies that capital structure (proxied by equity capital, short term debt, long term debt and total debt) has a positive and significant effect on Tobin's Q of quoted Pharmaceutical firms in Nigeria at 5% level of significance.

Findings and Conclusion

The findings of this study revealed that Equity Capital has a significant and positive effect on Tobin's Q ($\beta 1 = 0.165227$, P-value = 0.0001<0.05); Short Term Debt has a significant and positive effect on Tobin's Q ($\beta 2 = 0.897693$, P-value = 0.0444<0.05); Long Term Debt has a significant and positive effect on Tobin's Q ($\beta 3 = 0.333631$; P-value = 0.0006<0.05); Total Debt has a significant and positive effect on Tobin's Q ($\beta 4 = 0.039992$; P-value = 0.0000<0.05). In conclusion, this study upholds that Capital Structure has a significant and positive effect on Firm Value of quoted Pharmaceutical companies in Nigeria at 5% level of significance.

Recommendations

1. Sequel to the positive relationship between equity capital financing and firm value, companies should use more equity than debt in order to have a lower risk of bankruptcy. Also, companies that use equity capital, have no obligation to make interest payments or to repay equity investors' initial investment, thereby making such companies to keep more profits and allowing more spending flexibility.
2. As a result of the positive relationship between capital debt financing and firm value, firms should judiciously take advantage of debt financing since it allows a business to leverage a small amount of money into a much larger sum, enabling more rapid growth than might otherwise be possible, also, considering the fact that payments on debt are generally tax-deductible.

REFERENCE

Amahalu, N.N., Ezenwaka, F.A., Obi, J.C., & Okudo, C.L. (2022). Effect of treasury single account on accountability in Nigeria public sector. *International Journal of Management Studies and Social Science Research*, *4*(5), 66-76.

Antwi, S., Mills, E.F., & Zhao, X. (2012). Capital structure and firm value: Empirical evidence from Ghana. *International Journal of Business and Social Science, 3*(22), 102-111.

Eze, A.J., Okoye, P.V.C., Amahalu, N.N., & Obi, J.C. (2022). Financial mix and bottom line profit of quoted industrial goods companies in Nigeria. *International Journal of Management Studies and Social Science Research, 4*(1), 44-59

Ezechukwu, B.O., Amahalu, N.N., & Okudo, C.L. (2022). National information technology development levy and financial performance of telecommunication companies in Nigeria. *International Journal of Business Marketing and Management (IJBMM), 7*(5), 77-84.

Ezuma, S.C. (2022). Capital structure and financial performance of listed pharmaceutical companies in Nigeria. *African Journal of Accounting and Financial Research, 5*(2), 1-12.

Fernando, J. (2022). Equity for shareholders. https://www.investopedia.com/terms/e/equity.asp. Accessed 16/09/2022.

Hayes, A. (2021). Tobin's Q. *https://www.investopedia.com/terms/q/qratio.asp*. Accessed 16/09/2022.

Kraus, A., & Litzenberger, R.H. (1973). A state-preference model of optimal financial leverage. *Journal of Finance, 28*(4), 911–922.

Mbonu, C.M. & Amahalu, N.N. (2022). Effect of corporate social responsibility costs on financial performance of listed deposit money banks in Nigeria. *Journal of Global Accounting, 8*(1), 40 - 52.

Mbonu, C.M., & Amahalu, N.N. (2021a). Effect of firm characteristics on capital structure of insurance companies listed on Nigeria stock exchange *International Journal of Management Studies and Social Science Research, 3*(5), 217-228

Mbonu, C.M., & Amahalu, N.N. (2021b). Effect of board diversity on borrowing cost of listed conglomerates in Nigeria. *American Research Journal of Humanities Social Science (ARJHSS), 04*(10), 62-73.

Modigliani F., & Miller M. (1958). The cost of capital, corporation finance and the theory of investment. *The American Economic Review, 48*(3), 261-281.

Modigliani F., & Miller M. (1963). Corporate income taxes and the cost of capital: A Correction. *American Economic Review, 53*, 443-453.

Ndulue, G.C., Okoye, P.V.C., & Amahalu, N.N. (2021). Earnings management and shareholders wealth creation of quoted conglomerates in Nigeria. International *Journal of Research in Education and Sustainable Development 1*(9), 47-65.

Okegbe, T.O., Eneh, O.M., & Amahalu, N.N. (2019). Effect of firm characteristics on capital structure of deposit money banks listed on Nigeria stock. *International Journal of Academic Research in Accounting, Finance and Management Sciences, 9*(2), 198–210.

Okudo, A.G., & Ndubuisi, N.A. (2021). Corporate governance and carbon disclosure practices of quoted manufacturing firms in Nigeria. *International Journal of Contemporary Research and Review, 12* (07), 20420-20433.

Omabu, S.E., Okoye, Pius V.C., & Amahalu, N.N. (2021). Financial leverage and shareholders wealth creation of quoted industrial goods firms in Nigeria. *International Journal of Trend in Scientific Research and Development (IJTSRD), 5*(6), 673-681.

Onyeozili, C.Z., Okoye, E.I., Amahalu, N.N., & Obi, J.C. (2022). Effect of firm characteristics on capital structure of deposit money banks listed on Nigeria stock exchange. *International Journal of Advances in Engineering and Management (IJAEM), 4*(1), 815-827.

Osasere, B., & Osifo, O. (2022). Capital structure and firms value in Nigeria: does industry heterogeneity hold? *Journal of Academic Research in Economics, 14*(1), 121-137.

Tuovila, A. (2022). Capital structure. *https://www.investopedia.com/terms/c/capitalstructure.asp.* Accessed 16/09/2022.

Vaidya, D. (2022). Long term debt. *https://www.wallstreetmojo.com/long-term-debt/*. Accessed 16/09/2022.