

Capital Structure and Value of a Firm in Nigeria

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Abstract

This study investigates the capital structure and value of quoted manufacturing firms in Nigeria. Secondary data was obtained from Factbook published by the Nigerian Stock Exchange (NSE) and financial statements of the investigated companies from 2008-2014. A panel regression model was employed to analyze the data. The results showed a significant and positive relationship between capital structure and market price per share of Nigerian quoted manufacturing firms.

Keywords: Capital structure, financial leverage, operating leverage, optimal capital structure, market price per share, market value.

1 Introduction

Capital is very important to an organization for its survival and growth and it has a key role to play in the attainment of the organization's goals and objectives. The capital structure, on the other hand, is the mix of debt and equity employed by a firm to finance its assets. After the seminal work of Modigliani and Miller of 1958 and 1963, important question facing corporate finance managers in need of funds to finance their company's projects is whether to raise debt or equity capital. Uremadu and Onyekachi (2018) stated that equity financing is the method of raising capital by selling firm's stock to investors in return for investment. The shareholders receive ownership interest in the firm. Equity financing involves the sale of firm's stock and giving a portion of the ownership of the firm to the investors in exchange for cash. The reward of equity holders is the dividend they receive from the company. Uremadu and Onyekachi stated further that debt financing implies raising funds through selling of bonds, mortgages or borrowing directly from financial institutions. Borrowed funds must be repaid as at when due with interest charged. A lender incurs risk and charges a corresponding interest based on the risk. Debt financing could be debenture, overdraft or loan from a bank they concluded. Debt can be introduced into the company's capital structure up to a point where such benefits as may be expected may begin to dwindle or disappear. Adebola (2002) stated that introduction of debt in the capital structure of the firm increases the fixed interest capitals and this is accompanied by proportionate increase in the interest rates payable even in undesirable situations and circumstances in which profits are not made.

How an organization is financed is of paramount importance to both the managers of the firm and providers of fund. This is because if a wrong mix of finance is employed, the performance and survival of the business enterprise may be adversely affected. Akintoye (2008) submitted that capital structure is a mix of debt, preferred stock and common equity with which the enterprise plans to raise needed funds. According to Saad (2010), capital structure in financial terms, means the way firms finance their assets through the mixture of equity, debt or hybrid security.

Debates have centred on whether there is an optimal capital structure for an individual firm or whether the proportion of debt usage is relevant to the individual firm's value (Baxter, 1967). An optimal capital structure is the best debt/equity ratio of a firm, which minimizes the cost of financing and maximizes the value of the firm (Chechet & Olayiwola, 2014). Tax deductibility of interest payments has made firms to rely on debts as against equity thereby causing an increase in debt to equity ratio and increase in bankruptcy risk, giving rise to debt bias. The debt bias can be made less intense by making the interest payments not to be tax deductible or by introducing tax deductibility for equity returns (Waheed, Fawad, Adan & Jehangir, 2016). Pandey (2010) stated that the capital structure decision of a firm influences its shareholders return and risk. Consequently, the market value of its shares may be affected by the capital structure decision. The objective of a firm should, therefore, be

directed towards the maximization of its value by examining the capital structure or financial leverage decision from the point of view of its impact on the firm value.

The main objective of a business firm is to maximize the value of its shareholders. The value of a firm is represented by the market value of the company's ordinary shares, which in turn is a reflection of the firm's investment, financing and dividend decisions. Since financial leverage affects the cost of capital of a firm, it will also affect the value of the firm. There have been several studies on the effect of capital structure on value of a firm. All these studies have come out with different results. This study attempts to fill this gap by investigating how capital structure affects value of a firm in Nigeria.

2 Literature Review

This section reviews previous studies carried out in the field of capital structure and the value of the firm.

2.1 Theoretical Literature Review

2.1.1 Modigliani and Miller Irrelevance and Relevance Theory

These theories were propounded by Modigliani and Miller in 1958 and 1963. The theory stated that under perfect capital market conditions, a firm's value depends on its operating profitability rather than its capital structure, that is, value irrelevant (Modigliani and Miller, 1958). But in their tax-corrected paper, Modigliani and Miller (1963) showed that when corporate tax laws permit the deductibility of interest payments, the market value of a firm is an increasing function of leverage. The benefit derived from issuing debt finance is the tax deductible interest payments, which made debt finance cheaper. But while this theory successfully introduced the potential effects of corporate taxes into the capital structure theory, it only leads to an extreme corner effect as the firm's value is maximized when 100 percent debt finance is used (Molik, 2008). From the discussion above, one can infer that a strong relationship exists between capital structure of a firm and its market value.

2.1.2 Capital Structure and Stabic Trade-off Theory

Proponents of this theory postulate the non-existence of optimal structure. They posit that a firm sets its target debt level and then works towards it. The theory refers to the idea that a company chooses how much debt finance and how much equity finance to use by balancing the cost and benefits. It identifies the benefit of financing with debt, the tax benefit of debt, as well as the cost of financing with debt, financial distress, including bankruptcy costs of debt. The stabic trade off theory of capital structure predicts that firms will choose their mix of debt and equity financing to balance the cost and benefits of debt. It should, however, be realized that a company cannot continuously minimize its overall cost of capital by employing debt. Therefore, it would be of advantage to employ debt further, so there is a combination of debt and equity, which minimizes the firm average cost of capital and maximizes the market value per share (Titman & Wessels, 1988).

2.1.3 Capital Structure and Pecking Order Theory

This theory was formed by Myers and Majluf (1984). The theory states that the purpose of a firm is to maximize the shareholder's wealth. It also stated that there is a hierarchy in choosing sources of financing. A firm will prefer to use internal financing than external financing. The internal financing is from the retained earnings that are earned by doing operational activities. The firm will choose securities with lower risks if it needs external financing. This theory is of the opinion that the main problem in determining the capital structure of a firm is asymmetric information between managers and investors (Amidu, 2007).

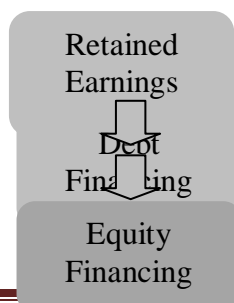


Figure 2.1: Pecking-order theory**Source: Adopted from Myers (1984)****2.1.4 Capital Structure and Agency Cost Theory**

Agency cost theory was propounded by Jensen and Meckling (1976). The theory stated that the optimal capital structure would be determined by minimizing the costs rising from conflicts between the parties involved. They argued that agency costs play an important role in financing decisions due to the conflict that may exist between shareholders and debt holders. And that when companies are approaching financial distress, shareholders can encourage management to make decisions which in effect, expropriate funds from debt holders to equity holders. Agency cost theory is of the opinion that management of firms is agents to their shareholders. Agency costs are costs to justify whether management acts consistently according to contractual agreement of firm with the shareholders.

2.2 Concept of Capital Structure**2.2.1 Concept of Operating Leverage**

Operating leverage is simply the extent to which a firm uses fixed costs in producing its goods or offering its services. Degree of operating leverage (DOL) which Akintoye (2008) defined as the percentage change in the earnings before interest and taxes related to a given percentage change in sales is computed thus:

$$\text{DOL} = \frac{\% \text{ change in EBIT}}{\% \text{ change in sales/turnover}}$$

$$\text{DOL} = \frac{\% \Delta \text{ EBIT/EBIT}}{\% \Delta \text{ Turnover/Turnover}}$$

The following equation is also used for calculating the degree of operating leverage

$$\text{DOL} = \frac{Q(S-V)}{Q(S-V)-F}$$

Where: Q – unit of output
V – unit variable cost
S – unit selling price
F – total fixed cost

2.2.2 Degree of Financial Leverage

Rehman (2013) defines financial leverage/financial risk as a measure of how much the firm uses equity and debt to increase its assets. Risk results primarily from the use of debt as reflected by leverage. Financial leverage can increase shareholders' returns and as well could increase their risk. Financial leverage affects the earnings per share (EPS) when the economic conditions are good and the firm's earnings before interest and tax (EBIT) are increasing.

Degree of financial leverage can be computed thus:

$$\text{DFL} = \frac{\% \text{ change in EPS}}{\% \text{ change in EBIT}}$$

$$\text{DFL} = \frac{\% \Delta \text{ EPS/EPS}}{\% \Delta \text{ EBIT/EBIT}}$$

Advantages of financial leverage are: it can accelerate earnings per share (EPS) under favourable economic condition; it can be used to calculate the strength of a company; it shows degree of risk a company is carrying

by raising funds through debt shareholders can maintain the control of the business without increasing their investment.

2.3 Empirical Review

The literature on capital structure and value of the firm has produced different results. While some have positive relationship between capital structure and firm performance others reported negative impact. Adeyemi and Oboh (2011) examined the relationship between capital structure and firms value. Their study used chi-square to measure longitudinal data. Their findings reveal significant positive relationship between the choice of capital structure and market value. Also Antwi and Zhao (2012) used cross-sectional data on 34 quoted firms in Ghana and their result shows that component of capital structure, i.e. equity capital is important to the firm value, long term debt as the key determinant of firm value is discovered to have more impact than equity capital. A study carried out by Margatitis and Psilaki in 2009 where they used quartile regression methods and found out that the nature of relationship between leverage ratios and firm performance is positive and significant. However, in a study by Ogebe, Ogebe and Alewi (2013) results produced established a significant negative relationship between leverage and performance. From their study, they strongly recommended that firms should use more equity than debt in financing their business activities. Also Chechet and Olayiwola (2014) examined capital structure and profitability of the Nigeria listed firms. The result of the study showed that debt ratio was negatively related to profitability while equity was directly related to profitability. Jou (1999) found that value of a firm initially increasing with financial leverage and then falling with financial leverage.

3 Methodology

The research design adopted in this study was *ex-post facto*. *Ex-post facto* is a systematic enquiry in which the researcher does not have direct control over the independent variables as the events that were observed have indeed taken place (Obadara, 2007). Data considered for the study were selected mainly from secondary sources. The data were collected from the Stock Exchange Factbook, annual reports and statement of account of the companies. The data sets on the surrogates of the variables used in this study had time series (2008-2014) and cross-sectional, i.e., twenty (20) quoted manufacturing firms. proportionate sampling technique was used considering sectorial grouping of the firms in the Nigerian Stock Exchange.

3.1 Method of Data Analysis

Data gathered were analyzed using regression analysis method. Regression analysis is a statistical tool for estimating relationships among variable especially when focus is on the relationship between a dependent variable and one or more independent variables. A panel regression model was used.

$$y \text{ (MPPS)} = f(x=kd)$$

where:

MPPS = market price per share

kd = cost of debt capital component

Regression analysis was carried out with capital structure being the independent variable and the firm value as a dependent variable to show if a relationship exists between the two (2) variables. The independent variable which is capital structure measured by debt capital while value of a firm is depicted by its share price, i.e. market price per share (MPPS).

$$MPPS_{i,t} = \beta_0 + \beta_2 KD_{i,t} + \mu_2$$

From the Model

$$MPPS = -0.4354 + 12.1978KD + \varepsilon_2$$

Table 1: Panel Least Square (PLS) Analysis Regression Results

Variable	Model			
	Coefficient	Std. Error	t-Statistic	P-Value
Constant	-0.43541	1.0301	-0.4200	0.6730

KD	12.1978	2.9978	4.0700	0.0000*
Wald Test	16.56			0.0000*
Hausman Test	0.34			0.8224
Heteroskedasticity: Breusch-Pagan/Cook- Weisberg	0.66			0.4150
Wooldridge test for autocorrelation	6.857			0.0169*

Source: Panel Regression Analysis Results

*significance at 5%

Diagnostics Test Result

From the table, the Hausman Test was first used to determine whether the fixed or random effect is suitable for the model. The probability of this test showed 0.822 which was higher than the acceptable 5%. Thus, the null hypothesis to estimate the random effect was accepted. Thus, random effect was estimated for model 2. Also, the Breusch-pagan Heteroskedasticity Test showed a p-value of 0.414, implying that the null hypothesis of constant variance was accepted thus indicating the absence of heteroskedasticity. However, the probability value of Wooldridge Test for autocorrelation stood at 0.016, indicating that the null hypothesis of no serial correlation was rejected. Thus, there is presence of serial correlation. In order to accommodate the presence of serial correlation in the model, the Feasible Generalized Least Squares (FGLS) Estimator was used. As such, the model was specified correctly.

The regression estimate of the model shows that the cost of debt measured by KD has a positive effect on market price measured by the natural logarithm of market price per share (LNMPSP). This was indicated by the sign of the coefficient, which is $\beta_2 = 12.197$. This result is consistent with a-priori expectations that cost of debt would have a positive effect on market price.

Interpretation

From the table, the size of the coefficient of the independent variable (β_2) showed that a 1 unit increase in the cost of debt would lead to a 1219% increase in market price of the sampled manufacturing firms in Nigeria. Also, the overall R-square of the model showed that 61% variations in Market price could be attributed to cost of debt, while the remaining 39% variations in Market price were caused by other factors not included in this model. This shows that the model had a strong explanatory power. Furthermore, the Z-test showed a probability value of 0.000, which indicates that the explanatory variable was statistically significant because this was less than 5%, the level of significance adopted for this study. Therefore, the model is statistically significant.

Based on the above analysis, and at a 5% level of significance, the t-statistics is 4.0700, while the p-value is 0.0000 which was less than 0.05. We, therefore, reject the null hypothesis and accept the alternate which means that debt capital had significant effect on market price per in Nigerian manufacturing firms. Thus, the null hypothesis that cost of debt had no significant effect on Market price of selected companies in Nigeria was rejected. The alternate was accepted which means that cost of debt had significant effect on market price of firms.

Discussion of Findings

Objective two of this study is to determine the effect of debt capital (kd) on the market price per share (MPPS) of Nigerian quoted manufacturing companies. The analysis of this study was done in three folds. The first part showed the description of the data, the second part gave the trend analysis test results of the cost of capital; on the corporate performance of selected quoted Nigerian manufacturing companies for the period under review, and the third part gave the empirical analysis where regression analysis estimates were shown and interpreted. At 5% level of significance for model two, the t-statistics is 4.700, while the p-value was 0,0000 which was less

than 0.05. We, therefore, rejected the null hypothesis and accepted the alternate, which meant that debt capital had significant positive effect on market price per share in Nigeria manufacturing firms ($\beta = 12.1978; 9140 = 4.0700; R^2 = 0.6319; p < 0.05$). This is consistent with a *priori* expectation that debt capital will have positive effect on market price. This finding is consistent with the result obtained by Javed, Rao, Akram and Nazir (2015) in their study of the effect of capital structure on share price of listed firms in Kenya. They concluded that debt ratio is positively related with market to book value ratio. In a study conducted by Adesina *et al.* (2015), their result revealed that bank management in Nigeria should consistently use debt in the capital structure so as to enhance bank financial performance. Fosu (2013) studied 257 South African listed firms using panel data to investigate the relationship between capital structure and firm performance, paying particular attention to the degree of industry competition, found that financial leverage has a significant positive effect on firm performance.

Also, Adeyemi and Oboh (2011) in their study, established that a positively significant relationship exists between a firm's choice of capital structure and its market value in Nigeria. They suggested that listed firms in Nigeria should strategically plan and manage their capital structure in order to maximize their market value. This is in contrast with the original Modigliani and Miller proposition that financial leverage is irrelevant to the market value of the firm. Akintoye (2008) also discovered that higher financial leverage does not necessarily lead to better firm performance. In agreement with Akintoye (2008), Simon-Oke and Afolabi (2011), their study revealed a negative relationship between firms' performance and debt financing. Stulz (1990) in an indifferent position argued that debt could have both a positive and negative effect on the value of the firm (even in the absence of corporate taxes and bankruptcy cost). He developed a model in which debt financing can both alleviate the overinvestment problem and the underinvestment problem. It is suggested that there should be a significant policy implication for finance manager to utilize debt to form optimal capital structure to maximize the wealth of shareholders.

Conclusion

The purpose of this paper was to establish if a relationship exists between capital structure and value of the firm. The results showed a significant and positive relationship between capital structure and market price per share of Nigerian quoted manufacturing firms, i.e. debt capital has positive and significant effect on Nigerian manufacturing firms.

Recommendation

From the result of this study, we recommend debt capital should be employed by corporate finance manager as this will increase the value of the firm. The corporate finance manager should also be aware that there is a level to which debt can be employed in the capital structure as there is an optimal capital structure. Investors in capital market should also be aware of the level of leverage of the company they want to invest in as the level of leverage will determine the quantum of return on their investment.

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Appendix

List of Nigerian firms used in the study

S/N	NAME OF FIRM	SECTOR
1	Nestle Nigeria Plc	Food/beverages and tobacco
2	Cadbury Nigeria Plc	Food/beverages and tobacco
3	7-up Bottling Company Plc	Food/beverages and tobacco
4	Honeywell Flour Mills Plc	Food/beverages and tobacco
5	Nigeria Bottling Company Plc	Food/beverages and tobacco
6	Portland Paints & Product Plc	Chemical and Paints
7	Vitafoam Nigeria Plc	Industrial and domestic product
8	BOC Gases Plc	Chemicals
9	Studio Press Nigeria Plc	Printing and Publishing
10	GSK Nigeria Plc	Healthcare
11	May & Baker Nigeria Plc	Pharmaceutical
12	Livestock Feeds Plc	Livestock/Animal specialist
13	Nigeria Wire Industry Plc	Construction
14	Lafarge Wapco Plc	Building materials
15	Nigerian Breweries Plc	Breweries
16	Presco Plc	Crop production
17	PZ Nigeria Plc	Conglomerates
18	Unilever Nigeria Plc	Conglomerates
19	Guinness Nigeria Plc	Breweries
20	Berger Paints Plc	Chemical and Paints