



DETERMINANTS OF FINANCIAL LEVERAGE IN NIGERIA MANUFACTURING FIRMS

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Abstract

The paper examines the factors that determines the financial leverage of manufacturing firms in Nigeria. Data were gathered through the administration of structured questionnaire to the finance department of the 50 selected firms. Cross tabulations and Chi-square were used to analyse the data. The study concludes that opinions of firm's own analysts/employees is the most important factor affecting capital structure decision while the most important factor affecting the source of debt financing is the liquidity of the debt instrument. Also, the most important factor that determine the appropriate amount of total debt is the level of interest. The result showed that growth opportunities, profitability, earnings per share, issuing cost, tax economics associated with debt financing and risk/cost of financial distress were significant in determining the financial leverage of a firm except asset tangibility which is insignificant. The study recommends that firms should strive to set a target debt level that maximizes performance.

Keywords: *Leverage, Capital Structure, Financing, Determinants, Debt*

Introduction

An important decision to be made in any business organization is how the operations of the business are to be financed. Firms' survival depends on their financial performance, it is therefore important for firms to source for the funds needed in running their operations. To finance their operations, firms frequently have to make decision about the composition of their capital structure, whether to increase debt, issue shares or finance internally.

There have been various views on the appropriate amount of leverage a firm should incorporate in its capital mix. The traditional view states that there exist

that optimum leverage level that a firm is expected to attain and maintain. Modigliani and Miller (1958) however challenged this view in their MM irrelevance theorem that there are some conditions under which a firm value is not affected by its financial decisions. The static trade-off theory, however, states that an optimal target financial debt ratio exists which focuses on the benefits and costs of issuing debt. Myers (2001) proposes that this optimal point can be attained when the marginal value of the benefits associated with debt issues exactly offsets the increase in the present value of the costs associated with issuing more debt

Myers and Majluf (1984) suggest that firms have a particular preference order for capital used to finance their businesses, the firm will prefer retained earnings to debt, short-term debt over long-term debt and debt over equity. Baker and Wurgler (2002) suggest the theory that capital structure is the cumulative outcome of past attempts to time the equity market; therefore firms are more likely to issue equity when their market values are high, relative to book and past market values, and to repurchase equity when their market values are low.

Zarebski and Dimovski (2011) states that in practice, the Global Financial Crisis has exposed the failures of many highly levered entities, and urgent restructuring has placed doubt on the ability of Modigliani and Miller's seminal work to remain robust over the vagaries of the global economic system, more so determining the appropriate capital structure is not done in a static world.

Before the financial crisis, many companies succumbed to the temptation of a capital structure that was loaded with debt (Jones, 2011). The deduction of interest payments from corporate tax liability has been the main advantage of this debt financing. According to Modigliani and Miller (1963), this creates a 'tax shield' whereby interest is subtracted from company profits before tax is assessed. The administrative and issuing costs of debt are also normally lower than equity, and the pre-tax rate of interest is invariably lower than the return required by shareholders. Debt can, therefore, be viewed as cheaper than equity, meaning that high debt to equity ratios will minimize a firm's weighted average cost of capital (WACC). It is argued that debt financing raises the pressure on managers to perform because it reduces the moral hazard behaviour by reducing "free cash-flow" at the disposal of managers (Jensen, 1989). This means that the firms with the higher leverage should be the most inclined to improve their performance. On the other hand, firms with higher leverage will have a higher agency cost because of the diverging interests between shareholders and debt-holders: this moral hazard problem suggests that leverage may be negatively

associated with performance (Myers, 1984). The aim of this paper is to examine the determinants of financial leverage in manufacturing firms in Nigeria.

The specific objectives are:

- (i) To examine the factors that influence capital structure decision
- (ii) To identify the factors affecting the source of debt financing
- (iii) To evaluate the factors that determine the appropriate amount of total debt

This study will therefore help manufacturing firms in understanding the factors to consider in taking financial leverage decisions and directions of their capital structure in order to improve their performance.

Determinants of Capital Structure

It is important to find those factors that determines firms' choices of leverage because financial leverage influences performance of firms (Uremadu & Efobi, 2012). Capital structure determinants are those factors that different capital structure theories suggest may affect a company's financing decision (Song, 2005). The factors that determine capital structure choices cannot be limited to one or some specific factors (Harris & Raviv, 1991)

Profitability

The financial performance of a firm presented in terms of its earnings before interest and tax, earnings per share, return on investment or capital employed has been identified as one of the determinants of capital structure choice. Pecking order theory based on works by Myers and Majluf (1984) suggests that profitable firms tend to have less debt as firms will use retained earnings first as investment funds and then move to bonds and new equity only if necessary. Song (2005) asserts that this behavior may be due to the costs of issuing new equity, as a result of asymmetric information or transaction costs. Tax-based models however suggest that profitable firms should borrow more, *ceteris paribus*, as they have greater needs to shield income from corporate tax (Hung & Song, 2006). Lim (2012) states that higher leverage indicates the good performance of business, thus managers and investors are more confident about future operation.

Growth

The pecking order hypothesis predicts that firms with growth prospects indicate the greater demand of capital, thus external fund is preferred through debt financing (Lim, 2012). Rao and Lukose (2001) posit a positive relationship between growth and leverage since higher growth opportunities implies a higher

demand for funds, and, all things equal, a greater preference on external financing through the preferred source of debt according to the pecking-order theory. Nguyen and Neelakantan (2006) find a positive relationship between leverage and firm growth in a study of small and medium Vietnamese firms. However, according to the trade-off theory, firms having growth potential of more intangible assets, which cannot be collateralized, are likely to issue fewer debts than firms with more tangible assets (Chen, 2004). The agency cost theory argues that firms with greater growth opportunities have more flexibility to invest sub-optimally, thereby, transferring wealth from debtholders to shareholders and this results in high agency cost; thus suggesting a negative relationship between growth and leverage (Myers, 1984)

Firm Size

The trade-off theory suggests a positive relationship between firm size and leverage. Larger firms have been shown to have lower bankruptcy risk and cost, lower agency costs of debt, relatively smaller monitoring costs, less volatile cash flows, easier access to credit market, and require more debt to fully benefit from the tax shield (Deesomsak, Paudyal & Pescetto, 2004). Chen (2004) suggests that large firms are likely to reduce the transaction costs of issuing long-term liabilities. However the Pecking order hypothesis infers the relationship of firm size to total debt as negative; as large firms tends to have more retained earnings and will prefer retained earnings to external funds.

Risk

Halov and Heider (2006) predict that a firm should issue more equity and less debt if risk plays a larger role in the adverse selection problem of external financing. Ferri and Jones (1979) using the coefficient variation of sales as a measure of business risk discover that volatility of sales will increase the probability of default on interest payment; therefore, conclude that sales variability is negatively related to leverage. This is consistence with both the trade-off theory (more volatile cash flows increased the probability of default) and the pecking order theory (issuing equity was more costly for firms with volatile cash flows). Flexibility theory of capital structure explains why small and risky firms issue equity and why these firms do not follow pecking-order theory (Miglo, 2012). Shah and Khan (2007) explain that volatility of income had no impact on the debt level and that the magnitude of earning volatility was a sign of expected bankruptcy. Although, Gworo (2019) finds that earnings volatility have positive effect on the market value of listed firms in Kenya, Pandey (2001)

however finds that there is a negative relation of earnings volatility with book and market value of long-term debt ratio but a positive relation between risk and short-term debt ratios. Gaud, Jani, Hoesli and Bender (2003) conclude that companies with a high operating risk tried to control total risk by limiting financial risk.

Tax

Modigliani and Miller (1958) pioneer the impact of tax on capital structure. DeAngelo and Masulis (1980) argue that one of the advantage of debt financing is the allowance for tax deductions for depreciation and investment tax credits. Huang and Song (2002) suggest that firms with a higher effective marginal tax rate should use more debt to obtain a tax-shield gain.

Asset Structure/Tangibility

Assets tangibility represents the effect of the collateral value of assets on the firm's gearing level. A borrower is restricted to using debt funds for specific projects, if debt can only be secured against assets. Securing debts against assets improves creditors' guarantee of repayment, but without collateralised assets, such a guarantee does not exist.

The trade-off theory predicts that debt-capacity increases with the proportion of tangible assets on the balance sheet; therefore it predicts a positive relationship between the fraction of tangible assets and leverage (Jensen and Meckling; 1976). Drobotz and Fix (2003) confirms this in his study and finds that the regression coefficient on tangibility was significant in about half of all regressions. An enterprise with a high proportion of fixed assets is expected to be associated with high ability to repay their liabilities, thus more opportunities to raise debt financing (Lim, 2012). Çağlayan and Şak (2010) also find the relationship between tangibility and leverage to be negative in their study further confirming the position of the agency cost theory.

Empirical Review

Chandrasekharan (2012) found out that size, age, growth, profitability and tangibility are strong determinants of leverage in the Nigerian firms and recommended that in carrying out their debt financing decision, the financial managers of Nigerian listed firms should deploy and properly measure size, age, growth, profitability and tangibility of the firms in order to have an optimum financing mix for their firms. Barine (2012) in his study of capital structure determinants of quoted firms in Nigeria finds that capital structure is positively

determined by cost of equity, existence of debt tax shield, covenant restrictions in debt agreements, firm dividend policy, competitor's capital mix and profitability; while cost of debt, parent company influence and fear of financial distress inversely affect firm capital structure. Also, Salawu (2007) tangibility is positively correlated to leverage while tangibility is positively correlated. However, Ishaya, Sannomo and Abu (2013) in their study of determinants of capital structure in Nigerian Chemical and Paints companies listed in Nigeria find that there exist a negative relationship between tangibility and leverage contrary to both trade off theory and pecking order theory. Size was also found to be negatively correlated to leverage while tangibility, growth and age show a positive coefficient.

Uremadu and Efobi (2012) discover that increasing rates of both short-term and long-term debts on the overall liability of the firm reduces corporate profitability and that this could in line with this general belief that if a firm takes more debts there are chances that it is bankrupt and consequently, investors cannot have trust on it. Using a cross-sectional survey data from 110 firms listed on the Nigerian stock exchange in ascertaining the determinants of capital structure of firms, Ogbulu and Emeni (2012) find that size has a positive and significant impact on capital structure, age has a negative and significant influence while tangibility, growth and profitability do not have any significant impact on the capital structure of firms in Nigeria. However, Akinlo and Ashaolu (2012) in their study on the impact of leverage on profitability of Nigerian firms discover that that firm size has a significant positive effect on profitability, while leverage has negative effect on profitability. Bassey, Arene and Okpukpara (2014) examine the determinants of capital structure decision and compared the capital structure of quoted and unquoted agro-based firms in Nigeria and find that firm size, asset structure and growth coefficients had significant positive relationships with both long and short term debt finance. Akinlo (2011) examines the determinants of capital of 66 firms listed on the Nigerian stock Exchange and finds a negative relationship between leverage and growth opportunities, leverage and tangibility, but a positively relationship between leverage and liquidity as well.

Methodology

The population of this study consists of all the 63 manufacturing firms listed on the Nigerian Stock Exchange (NSE) market. This study utilized primary data obtained from fifty (50) purposively selected manufacturing companies quoted on the Nigerian Stock Exchange (NSE) market. The analysis is limited to manufacturing companies in order to have a homogenous sample. The choice of

the selected companies is as a result of the availability of data required for the analysis. Listed companies are used because their data can be easily accessed and more reliable and also because management of unlisted firms are usually not ready to divulge information on their companies.

Primary data were obtained by administering copies of the structured questionnaires to the finance department of the selected firms. A pre-testing was conducted using a preliminary version of the questionnaire. From the questionnaires retrieved, the specific factors affecting leverage decisions of firms were determined. The hypotheses formulated from the research objectives were tested using of Chi Square (χ^2) and descriptive statistics; the variables that are significant at 5% critical values are considered as determinants of the firms' financial leverage for each period. Out of the 50 copies of questionnaire distributed, only 42 copies (representing 84%) were returned by the selected companies.

Results and Discussion

Respondents were asked on their preference for sources of debt financing, table 1 shows that 29% preferred long term debt while the remaining 71% preferred short to medium term debt. This implies that most firms in Nigeria prefers to use short to medium term debt financing to long term debt financing. This may be as a result of the strict terms associated with long term debt instruments in Nigeria, hence many organisations decide to opt for short to medium term sources of financing

Table 1: Source of debt financing

	<i>Observed Frequency</i>	<i>Percentage</i>
<i>Long term (>5 years)</i>	12	29
<i>Medium term (1-5 years)</i>	14	33
<i>Short term (<1 year)</i>	16	38
<i>Total</i>	42	100

Table 2 reveals the source of finance preferred by the sampled firms. 57% stated that internal financing is used, 10% stated issue of shares while 33% stated borrowing. This implies that most firms will prefer internal sources of financing, followed by debt financing and will only prefer issuance of shares as a last resort. This agrees with the pecking order theory.

Table 2: Source of finance

	<i>Observed Frequency</i>	<i>Percentage</i>
<i>Internal Reserve</i>	24	57
<i>Issue of shares</i>	4	10
<i>Borrowing</i>	14	33
<i>Total</i>	42	100

Table 3 shows that the most important factor is the opinions of firm's own analysts/employees with a mean score of 4.71. Analysis shows that most of the 21 respondents agreed that it is an important factor. The second important factor is the opinions of financial institutions/bankers with the mean score of 4.10. Analysis shows that out of 21 respondents, 33% strongly agreed, 48% agreed, 5% were indifferent and 14% disagreed. The next important factor is opinions of shareholders with a mean score of 3.90. Analysis shows that out of 21 respondents, 28% strongly agreed, 38% agreed, 28% were indifferent and 5% disagreed. Opinions of suppliers has the least mean score of 3.00. Analysis shows that out of 21 respondents, 5% strongly agreed, 28% agreed, 38% were indifferent and 19% disagreed and 10% strongly disagreed. This indicates that firms relies on the competence of their own analysts and employees in taking capital structure decisions while the opinions of their suppliers is of little relevance.

Table 3: Factors affecting capital structure decision

	<i>Mean Score</i>
<i>Opinions of shareholders</i>	3.90
<i>Opinions of financial institutions/bankers</i>	4.10
<i>Comparative industry ratios</i>	3.48
<i>Opinions of the firm's own analysts/employees</i>	4.71
<i>Opinions of financial analysts/potential investors</i>	3.71
<i>Opinions of suppliers</i>	3.00

Table 4 reveals that the most important factor is the Liquidity of the instrument with a mean score of 4.52. Analysis shows that out of the 21 respondents 48% agreed that it is an important factor while 52% strongly agree. The second important factor is the Cost of the debt instrument with the mean score of 4.38. Analysis shows that out of 21 respondents, 52% strongly agreed, 38% agreed, 5% were indifferent and 5% disagreed. The next important factor is the Nature of asset/project to be financed with a mean score of 4.29. Analysis shows that out

of 21 respondents, 43% strongly agreed, 43% agreed and 14% were indifferent. Opinion of shareholders has the least mean score of 3.14. Analysis shows that out of 21 respondents, 5% strongly agreed, 28% agreed, 38% were indifferent and 19% disagreed and 10% strongly disagreed. This suggests that firms will foremost consider financial instruments that are more liquid and the cost of such instrument as this will assist the firm in easily meeting its financial obligation at a lower cost.

Table 4: Factors affecting the source of debt financing

	<i>Mean Score</i>
<i>The financing policy of the firm</i>	4.19
<i>Opinions of shareholders</i>	3.14
<i>Cost of the debt instrument</i>	4.38
<i>Liquidity of the instrument</i>	4.52
<i>Nature of asset/project to be financed</i>	4.29
<i>Repayment terms of the debt</i>	4.00

Table 5 shows that the most important factor is the level of interest rates with a mean score of 4.05. Analysis shows that most of the 21 respondents, 38% strongly agreed, 38% agreed, 14% were indifferent and 10% disagreed that it is an important factor. The second important factors are the restrictive covenants imposed by debt providers and tax advantage of interest deductions to the company both with the mean score of 3.90. Analysis shows that out of 21 respondents, 24% strongly agreed, 52% agreed, 14% were indifferent, 5% disagreed and 5% strongly disagreed. Debt levels of other similar firms or firms in similar industries have the least mean score of 3.05. Analysis shows that out of 21 respondents, 14% strongly agreed, 14% agreed, 38% were indifferent and 29% disagreed and 5% strongly disagreed. This suggests that firms will try take advantage of more debt if the cost of the debt is low and that the debt level of similar firms does not influence the amount of debt taken by firms.

Table 5: Factors that determine the appropriate amount of total debt

	<i>Mean Scores</i>
<i>Debt levels of other similar firms or firms in similar industries</i>	3.05
<i>Restrictive covenants imposed by debt providers</i>	3.90
<i>Level of interest rates</i>	4.05
<i>Tax advantage of interest deductions to the company</i>	3.90
<i>Volatility of the company's earnings and cash flows</i>	3.86

<i>Projected cash flow or earnings from assets financed</i>	3.86
<i>Changes in the firm's level of profitability</i>	3.57
<i>Maintenance of a desirable creditability</i>	3.71

Respondents were to state their degree of agreement or disagreement with each statement. A non-parametric test- chi-square test was employed to test the differences in the opinion of respondents on each of the possible determinants of leverage. 7 factors were tested; they are growth opportunities, profitability, tangibility, Earnings per share, issuing cost, tax economics associated with debt financing and risk/cost of financial distress. Table 6 indicates that the 7 factors tested were significant in determining the financial leverage of a firm except asset tangibility.

Table 6: Chi square distribution showing determinants of financial leverage of firms

<i>Determinants</i>	<i>Chi-Square</i>	<i>Df</i>	<i>Asymp Sig</i>
<i>Growth opportunity</i>	8.762	4	.043
<i>Profitability</i>	8.000	4	.018
<i>Tangibility</i>	0.857	4	.651
<i>Earnings per share</i>	14.619	4	.002
<i>Issuing cost</i>	7.714	4	.021
<i>Tax economics associated with debt financing</i>	7.714	4	.021
<i>Risk/cost of financial distress and insolvency</i>	1.190	4	.027

Conclusion

The study examined those factors affecting capital structure decision, source of debt financing, the appropriate amount of total debt and the determinants of financial leverage of firms in Nigerian manufacturing firms. The result shows that the most important factor affecting capital structure decision is the opinions of firm's own analysts/employees while the least important factor is opinions of suppliers. Likewise, the result shows that the most important factor affecting the source of debt financing is the liquidity of the debt instrument and the least important factor is opinion of shareholders. The result shows that the most important factor that determine the appropriate amount of total debt is the level of interest while the debt levels of other similar firms or firms in similar industries is the least factor. Different factors were tested on the possible

determinants of leverage, it was discovered that growth opportunities, profitability, tangibility, earnings per share, issuing cost, tax economics associated with debt financing and risk/cost of financial distress were all significant in determining the financial leverage of a firm except asset tangibility which is insignificant. This study recommends that firms should set a target debt level that maximizes profit and should strive not to go beyond such levels in order to maximize their performance.

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