



Effect of Debt Financing on Financial Performance of Privately - Owned Manufacturing Firms in Nigeria

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Abstract

This research focuses on the effect of debt financing on financial performance of manufacturing firms in Nigeria. The study seeks to examine the effect of debt financing on financial performance of privately owned manufacturing firms. The study's population comprises of all publicly quoted Industrial Goods Sector on the Nigerian Stock exchange group from 2010 to 2021, and sample size of ten (10) listed manufacturing firms on the Nigerian Stock Exchange was purposively selected. Descriptive statistics and panel regression are used as methods of estimation. Mean; median; maximum value; minimum value; standard deviation; coefficient of variation; skewness and kurtosis are the descriptive statistics were used to present the data. While Random Effects Model (REM) was the panel regression estimator applied in assessing the effect of debt financing on the financial performance. The study reveals that the ratio of short-term debt to total assets had a positive and significant effect on the financial performance of the Industrial Goods Sector in Nigeria during the period under consideration. This is indicated by the sign of the coefficient, which is 0.039, and is statistically significant at the 1% level given the p-value of 0.008. This suggests that a 1 percent rise in short-term debt might raise ROA by as much as 3.9 percent. Therefore, the study concludes that a high ratio of short-term debt could result in increased profits for banks. Based on the findings, the study recommended that manufacturing firms should employ a mix of debt to equity financing in order to enhance their financial performance and to maintain an optimal capital structure.

Keywords: *Debt financing, debt ratio, financial performance, manufacturing firms, return on assets*

1. Introduction

The financial structure of a business is often composed of preferred stock, common stock, and long and short-term obligations. This implies that the means and methods by which a business funds its assets create the financial structure of the business. As a result, subtracting the company's short-term obligations from its financial structure, the resultant is the company's capital structure. In other terms, the capital structure refers to the company's long-term obligations, which include preferred stock, common stock, and long-term debt/loan (James & Sam, 2022). Thus, the primary purpose of financial management in a business is to build the capital structure components in such a way that shareholders wealth is maximized as the primary metric of management success. Financial performance is a term that relates to a business's capacity to meet its financial goals and objectives (Yahaya & Lamidi, 2015). According to Kajirwa (2015), a firm's financial success is determined by how efficiently it utilizes its assets in carrying out revenue-generating business operations. Financial performance may also be defined as a business's overall health, i.e., the availability and creation of additional funds by a firm during a certain time period. Similarly, Umenzekwe, Okonewa, & Uche, (2022), opined that Financial analysts often utilize financial performance to analyze and compare the performance of various organizations, whether within the same sector or across industries. This is a critical tool for making prudent investing choices. In summary, financial performance is a principal goal that organizations, particularly profit-oriented corporations, aspire or strive to attain (Yahaya & Lamidi, 2015) Financial performance is a major indicator of a business's performance. Profitability and growth of a firm are contingent upon its activities and capability.

When a business is profitable, it can tolerate a high level of debt because it has a greater capacity to pay financial commitments resulting from debt acquisition (Vijayalakshmi & Manoharan, 2014). This indicates that profit-generating organizations are more inclined to increase debt in their capital structure than loss-making enterprises, demonstrating the essential role of financial success in financial leverage choices. Return on equity is calculated as the ratio of profits before interest and taxes to total equity.

Objectives of the study

The broad of this study is to examine the effect of debt financing on financial performance of manufacturing firms in Nigeria. However, the specific of the study is to determine whether short term debts affects firm performance especially manufacturing firms in Nigeria.

Statement of problem

The research issue are as follows the quantity of debt held by a business impacts the amount of fixed expenses paid by the business this constant cost linked with debt/borrowed funds is referred to as the cost of debt, which is often referred to as interest. According to Padron & Santana (2005), businesses that borrow excessively from creditors experience a high cost of debt, which reduces profits/net income this confirms the results of SooCheong & Eunju (2005), who determined that financial leverage/debt has an effect on the financial performance and income levels of businesses. In other to share more light on the effect of debt financing on the financial performance of manufacturing firms in Nigeria.

2.0 Literature review

2.1 Financial performance

According to Umenzekwe, Okonewa, & Uche, (2022), firm performance is normally measured using major profitability indices such as ROA, ROE, ROI, EPS, DPS, NAPS, operating profit margin, EBIT and sales growth. When a company is successful, it may accept a high level of debt because it has a stronger capacity to meet the financial obligations that follow from the purchase of debt. This suggests that firms that generate a profit are more likely to expand debt in their capital structure than organizations that incur a loss, highlighting the significance of financial success in financial leverage decisions. Return on equity is determined by dividing pre-interest and tax earnings with total equity. Financial success is more directly associated with the components of a company's financial statements. Financial performance is a crucial measure of a company's economic success since it reveals how well the company meets its financial goals and maximizes shareholder value (Xu & Wanrapee, 2014). Prior to investing money or resources in a company, shareholders and other stakeholders are mainly concerned with its financial performance (Nyamita, 2014). A company's competitiveness is determined by its commercial potential, ability to satisfy financial requirements, social corporate responsibilities, rising sales and production, and high profits (Dufera, 2010). Prices and sales growth are not indicators of a company's financial health, nor is sales growth a component in a company's improved financial performance (Kalio & Maghanga, 2012)

2.2 Financial Leverage

According to Kenn-Ndubuisi & Joel, (2019) leverage may be defined as the proportion of a firm's fixed expenses that is exposed to risk. Leverage, as a proxy for financial risk, refers to a long-term financing arrangement with fixed financing costs on the company's assets. Kenn-Ndubuisi & Joel, (2019), they opine that the use of the debt finance by a firm is refereed as financial leverage which arises from the debate of the optimal capital structure and has been a hot topic for scholars' discussion for several years. The use of debt in the capital structure mix of a company is that its efficient reduction of the WACC which helps the increase in the net returns of the firm (Kenn-Ndubuisi & Onyema, 2018). A firm that uses more of debt-funding or financing in its capital structure mix, the more financial leverage it employs. Increased financial leverage entails increased financial risk and an inherent high capital cost for the business. According to Jordan (2014), capital structure refers to the proportionate amount of debt that a business uses to support its operations. Leverage is calculated using a variety of ratios. Within a firm's capital structure, the ratios demonstrate the firm's capacity to serve the interests of its many stakeholders and quantify its debt. The financial statements include information that is needed to calculate the ratios, which are primarily concerned with the shareholders' equity and obligations to debt holders of the business. Additionally, they are used to determine the firm's capacity to fulfill its debts' fixed payments. Harris & Artur, (2020) noted that when alternative measures of leverage are utilized, varied findings and hence likely divergent interpretations may occur. In contrast to market leverage, which swings significantly, book leverage is preferred as a measure of leverage (Myers, 2017).

2.2.1 Debt Ratio and Financial Performance of Firms

The debt ratio is a financial statistic used to determine the extent to which a company has supported its assets with debt. A corporation's debt ratio is calculated by dividing its short-term and long-term debt by its total assets. The bigger the debt ratio, the more leveraged a firm is, and the greater the financial risk. However, it is essential to note that leverage is a significant instrument for a company's expansion (Mungai, 2010). Due to the varying capital requirements of various industries, this ratio fluctuates considerably across different types of businesses. (Akhatar, 2012). Ezeamama (2010) defines debt ratio as a financial leverage measure that evaluates the percentage of total creditors' funds to total firm assets. Total liabilities of a corporation are divided by total assets to get the debt ratio. Mahnoor (2010) conducted a study on the effect of financial leverage on the performance of enterprises in the Iraqi Fuel and Energy industry. The study used the debt ratio (DR) as a proxy for measuring financial leverage. Return on equity (ROE) and Return on assets (ROA) were used as surrogates to measure the performance of businesses. The use of the least squares method revealed a significant positive relationship between the debt ratio and the return on assets of enterprises.

According to Samuel and Oboro (2021) proper planning of the composition of debt and equity is a sine qua non for sound financial management, since the debt-equity mix has implication on shareholder's earnings and risk, which in turn will affect the cost of capital and the market value of the firm. Adequate management of the composition of debt and equity funds is important aspect of health financial management. This is because, a mix of debt and equity effect significantly on the owners earnings and risk which might affect the cost of finance and market price value of the firm in concern.

2.3 Theoretical framework

2.3.1 Modigliani-Miller Theorem

Modigliani & Miller (1958) opine that the value of a company is defined by the risk and revenue-generating capacity of its assets. In addition, this thesis states that investment finance and dividend distribution decisions have no impact on the market value of a company. A company may finance its investments through the sale of stock, the borrowing of funds, or the retention/reinvestment of earnings.

This theory assumes that in an imperfect market, it makes no difference whether a company employs equity or debt to finance an investment. This theorem says that the value of any firm is independent of the method of financing or the quantity of money invested. As a consequence, the capital structure of the company has no bearing on the valuation of the company. Thus, regardless of a company's debt level, the capital structure mix has no discernable impact on the value of the company (Modigliani & Miller, 1963).

Further, Modigliani & Miller (1963) concur that a firm's market value is affected by its future growth potential, but that investment risk has no bearing on a firm's market value. This signifies that a company's market worth and stock prices will rise if its future growth prospects are excellent.

This indicates that investors will be more interested in businesses with a high growth potential compared to those with a low growth potential (Miller, 1977). This hypothesis assumes that the capital structure component has no influence on the firm's value regardless of the tax scheme. In addition, it argues that both equity and debt investors in a corporation have the same interest and priority in the business, and should thus get an equal share of profits.

In addition, the proponent asserts that debt holders have an advantage in claiming a company's profits, so increasing the cost of debt, which increases expenditures and reduces earnings before interest and taxes (EBIT), which is connected to the third variable in this study: ICR. In summary, the essential premise of this theorem is that in a perfect market, the debt-to-equity ratio has no influence on a company's value.

This argument relates to the first and second variables of the research (debt ratio and debt equity ratio). In addition, according to this idea, a company's financial leverage / debt level is directly proportional to its cost of equity. As a result, a growth in debt signifies an increase in risk for equity owners, which causes the price of stock to climb.

2.4 Empirical review

Table 1: Literature Mapping

S/N	Author	Year	Topic	Variables	Methods	Findings
1	Ashraf, Ahmad and Mehmood	2017	A study on the impact of financial leverage on firm performance using ten (10) listed firms in the Fuel and Energy Sector.	Financial leverage using debt ratio, debt equity ratio and equity ratio, while return on asset, return on equity, (NPM), earnings per share and (ROCE)	The study utilized descriptive statistics, correlation and regression analyses as the techniques of analyses.	Results of the regression analysis reveal that debt ratio has no significant impact on all the measures of firm performance,
2	Nazir	2017	Impact of financial leverage on the financial performance of twenty (21) quoted firms from the Textile, Engineering Sectors of Pakistan	Debt ratio, debt equity ratio and equity ratio, while return on asset, return on equity	Ordinary Least Squares (OLS) and correlation techniques as the methods of analyses	The results reveal that financial leverage represented by debt to asset ratio has a statistically negative effect on the return on asset
3	Mohamed	2016	Evaluated the effect of financial leverage on the financial performance	Ratio of total debt to total assets, return on asset	Descriptive statistics, correlation and multiple regression analyses as the methods of data analyses	Financial leverage has a significant negative effect on the return on asset, size and liquidity have positive effect return on asset
4	Alghusin	2015	He impact of financial leverage, company's growth, tangibility, firm size on profitability using twenty-five (25) Jordanian Industrial companies	Ratio of total debt to total asset. Return on asset	Using fixed effects model (FEM)	Financial leverage proxy by the ratio of total debt to total asset is negatively related to roa

5	Tolulope et al.	2015	The impact of capital structure on the performance of 6 quoted firms in the Oil and Gas sector of Nigeria.	Long-term debt to total assets, short-term debt to total assets, total-debt to total assets, Return on equity, return on asset and gross margin	Random effects model (REM),	Has a significant negative effect on the performance represented by return on assets
6	Abubakar	2015	Study of eleven (11) Tier I, Tier II and Tier III quoted deposit money banks in Nigeria	Debt ratio, Return on equity	Using correlation technique	No significant relationship between debt ratio and the return on equity
7	Olokoyo	2013	Investigated the impact of financial leverage, company's growth	short-term debt to total asset, long-term debt to total asset, and total-debt to total asset, ROA	Using random effect model (REM)	Significant negative association between measures of financial leverage short-term debt to total asset, long-term debt to total asset, and total-debt to total asset and financial performance

3.0 Method and Material

The study adopted ex-post facto research design. This method is deployed because ready-made secondary data were applied in the study to examine the relationship between debt financing on financial performance of manufacturing firms. The study's population comprises of all publicly quoted Industrial Goods Sector on the Nigerian Stock Exchange group from 2010 to 2021, a sample size of ten (10) listed manufacturing firms on the Nigerian Stock Exchange group was purposively selected. The decision on the selected firms is based on the fact that they are manufacturing companies that are quoted under Industrial Goods Sector. This indicates that the researcher will be covering all the firms under Industrial Goods Sector. Descriptive statistics and panel regression are used as methods of estimation. Mean; median; maximum value; minimum value; standard deviation; coefficient of variation; skewness and kurtosis are the descriptive statistics used to present the data, while Random Effects Model (REM) is the panel regression estimator applied in assessing the effect of debt financing on the financial performance of manufacturing firms in Nigeria. The use of REM followed the results of the F-test and Hausman test for best model selection. Furthermore, a balanced panel of 120 observations including ten (10) listed manufacturing businesses on the Nigerian Stock Exchange group from 2010-2021 were used. The regression was run using the Robust Heteroscedasticity- and Autocorrelation Consistent standard errors which is robust in the presence of Autocorrelation and Heteroscedasticity. In addition, correlation matrix and variance inflation factor (VIF) are used in deciding whether or not multicollinearity exists among the independent variables.

3.1 Measurement of variable

S/N	Variables	Proxies	Acronym	Measurement	
1	Independent	Long-term debt ratio	LTDR	Short-term debt divided by total capital (total debt plus equity)	Abubakar (2016)
2	Independent	Short-term debt	STDR	Long-term debt divided by total capital (total debt plus equity)	okoyo (2021)
3	Independent	Total debt-equity ratio	TDER	Total debt (long-term and short-term debt) divided by equity	Pandey (2020)
4	Dependent	Return on asset	ROA	Earnings before interest and taxes divided by total asset	Ashraf, Ahmad and Mehmood (2017)

3.2 Model specification

The following models were adopted from Ahmadu Abubakar, (2021)

$$FPERFit = \alpha_0 + \beta_1 STDRit + \beta_2 LTDRit + \beta_3 TDRit + \beta_4 TDERit + Cit + \mu it \quad (1)$$

And now modified to suit the study and specified below as;

$$ROAit = \alpha_0 + \beta_1 STDRit + \beta_2 LTDRit + \beta_3 TDERit + Cit + \mu it \dots \dots \dots (1)$$

ROA = Return on asset

LTDR= Long-term debt ratio

STDR = Short-term debt

TDER= Total debt-equity ratio

4.0 Result and Discussions

Table 1: Descriptive Results

Variable	STDR	LTDR	TDER	ROA
Mean	0.49	0.35	1.29	0.34
Median	0.34	0.01	0.65	0.37
Minimum	-3.83	0.00	-9.95	-4.35
Maximum	0.91	2.38	33.85	1.82
Std Dev	0.48	0.37	3.94	0.74
C.V	1.65	2.50	3.37	2.18
Skewness	-6.28	4.02	5.78	-3.19
Kurtosis	51.73	17.71	47.18	17.36

The mean value of long-term debt ratio (LTDR) is 0.35, indicating that only around 35% of the capital of all publicly traded Industrial Goods Sector businesses on the Nigerian Stock Exchange was funded by long-term debt instruments. During the research period, enterprises in the Industrial Goods Sector of the Nigerian Stock Exchange prefer or have greater access to short-term finance than long-term financing. In addition, the average total-debt equity ratio (TDER) was 1.29. This indicates that Industrial Goods Sector businesses used more debt than equity in their capital structure during the period under consideration. In particular, debt is 1.29 times more than equity in the capital structure of the companies included for this research. The inference is that the enterprises depend excessively on debt, a condition that may expose delinquent firms to the danger of financial difficulty and bankruptcy fees. As shown by the ratio of 0.65, the median value of TDER indicates that more than fifty percent of enterprises utilized more equity than debt in their capital structure. The highest value of TDER indicates that a company's debt profile was about 34 times greater than its equity profile. In addition, the average ROA is 0.34, indicating that 1 worth of Asset created around 0.34 over the research period.

Table 2: Ordinary Least Square Diagnostic test

Variables	VIF	Tolerance value
LTDR	1.33	0.75
STDR	1.29	0.77
TDER	1.09	0.92
Other Tests	Chi square	P-value
Normality of residual	19.92	0.0000
Heteroscedasticity	2.11	0.146
Autocorrelation	3.80	0.073

An assumption of the OLS regression model is that explanatory variables are not fully connected (absence of multicollinearity). According to Gujarati (2004), the existence of multicollinearity in the estimations is indicated by a tolerance less than 0.1 and a VIF value of 10 or above. The findings of table 2 indicate, however, that there is no excessive connection between the independent variables, as the lowest Tolerance Value (TV) is 0.75 and the largest Variance Inflation Factor (VIF) is 1.33. Normality of residuals is another assumption that is evaluated. The normality of residuals was evaluated using Jacque Bera tests at a significance level of 5%. Table 3's findings indicate that the chi-square is significant with a p-value of 0.000, indicating that the residual is not normally distributed. Based on the OLS assumption that there is no serial/autocorrelation, the research used the Wooldridge test for autocorrelation in panel data. The test gives a chi square of 3.80 and a p-value of 0.073, both of which are inconsequential since they are more than the 5 percent criterion of significance. As a result, the conclusion of the research is that the study has a low autocorrelation. The Breusch-Pagan/Cook-Weiberg test was used to examine the homoscedasticity assumption of the regression model. The result indicates that chi2 is 2.11 and prob>chi2 is 0.146, which is not statistically significant at the 5% level of significance. This suggests that the residual is homoskedastic and there is no existence of heteroskedastic effects. Consequently, the residuals have a constant variance.

Table 3: Panel Analysis Test

Tests	Chi square	P-value
Hausman specification test	1.00	.692

Langragian multiplier test	2.41	0.068
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Due to the panel structure of the data, panel analysis was performed using the Hausman specification test instrument. The purpose of this was to determine whether a fixed model or random effect model should be used. Table 3 demonstrates that at a significance level of 5%, χ^2 is 1.00 and $\text{prob} > \chi^2$ is 0.692, which is not significant. This non-significance of the p-value indicates that the Hausman test favors the random effect model interpretation. The research next conducted the Breusch and Pagan Lagrangian multiplier test for random effects to assess the random effect result and the pooled OLS regression result. A chi-square value of 2.41 and a probability value of 0.068 indicate that there is no panel impact. Consequently, the research had to interpret OLS.

The Regression Analysis

Table 4 below presents the regression result of the dependent variable (ROA) and the independent variables of the study LTDR, STDR, TDER

Table 4- OLS Regression Result

Variables	Coefficient	Std error	T-value	P-value
LTDR	-.069	.024	-3.19	0.002**
STDR	.039	.014	2.68	0.008**
TDER	.016	.007	2.51	0.010*
Constant	-.196	.0834	-2.35	0.020*
R2 Overall	0.276			
F-statistic	10.06			0.000***

***significant at 5%, 1% Source: Robust OLS regression result using STATA 20

On the relationship between long term debt to total equity and return on asset, Table 4 above reveals a negative coefficient of -.069 and a p-value of 0.002 implying significance at 1% level. Long -term debt affects return on assets of listed deposit money banks in Nigeria in a negative manner. The statistics suggest that a percentage increase in long term debt will decrease return on asset by 6.9%. This means that any increase in long term debt will or can cause deterioration in the return on assets of the Industrial Goods Sector in Nigeria. This could result from the interest charged by the providers of long term funds to the manufacturing industries. As regards the effect of short term debt on financial performance, the result in Table 4 establishes that short term debt to total assets positively and significantly influenced the financial performance of Industrial Goods Sector in Nigeria during the period under review. This is indicated by the sign of the coefficient which is .039 and is significant at 1% considering the p-value which is 0.008. An inference from this is that 1% increase in short-term debt will likely increase ROA by as much as 3.9%. Thus, high short-term debt ratio would possibly result in improve earnings to banks. This may be due to less interest payable on short-term debt especially the depositors who lodge their money in the banks and lastly Total debt-equity ratio (TDER) is seen to have a coefficient of .016 which indicates that Total debt-equity ratio is about 16% of Industrial Goods Sector in Nigeria. The result revealed TDER has a p-value of 0.010 which statistically significant at 1% level of significance.

Conclusion and Recommendations

The study concludes and establishes that short term debt to total assets positively and significantly influenced the financial performance of Industrial Goods Sector in Nigeria during the period under review. The average value of long-term debt ratio (LTDR) is 0.35, suggesting that only around 35% of the capital of all manufacturing firms listed on the Nigerian Stock Exchange group was financed by long-term loan instruments. During the study period, the manufacturing firms prefer or have stronger access to short-term financing than long-term financing. Moreover, the average debt-to-equity ratio (TDER) was 1.29. For instance, the ratio of debt to equity in the capital structure of the enterprises included in this study is 1.29. As shown by the ratio of 0.65, the median value of TDER suggests that more than fifty percent of businesses used a greater proportion of equity than debt in their capital structure. The maximum TDER number shows that a company's debt profile was about 34 times bigger than its equity profile. Additionally, the average ROA is 0.34, meaning that 1 worth of Asset generated around 0.34 during the study period. The coefficient of -.069 and the p-value of 0.002 in Table 4 indicate significance at the 1 percent level. Long-term debt has a negative impact on the return on assets of listed deposit money banks in Nigeria. According to statistical evidence, a percentage increase in long-term debt would reduce return on assets by 6.9%. This indicates that any rise in long-term debt will or may result in a decline in the Industrial Goods Sector's return on assets in Nigeria. This could be due to the interest rates charged by long-term fund providers to the manufacturing industries. This is indicated by the sign of the coefficient, which is .039, and is statistically significant at the 1% level given the p-value of 0.008. This suggests that a 1 percent rise in short-term debt might raise ROA by as much as 3.9 percent. Thus, a high ratio of short-term debt could result in increased profits for banks. This may be the result of reduced interest paid on short-term debt and, ultimately, a decline in inflation. Total debt-equity ratio (TDER) coefficient of .016 implies that Total debt-equity ratio of Industrial Goods Sector in Nigeria is about 16 percent. TDER's p-value was determined to be 0.010, which is statistically significant at the 1% level of significance. From the above findings of the research, the study recommends the following:

1. Manufacturing firms should employ a mix of debt to equity financing in order to enhance their financial performance and to maintain an optimal capital structure.

1. Since the ratio of short-term debt to total assets had a positive and significant effect on the financial performance of manufacturing firms listed on the Nigerian stock exchange group, However firms should be cautious in the usage of debt leverage to finance its operational activities.

Implication of the study

The implication of this study is that the businesses are too dependent on debt, a scenario that may expose delinquent businesses to the risk of financial problems and bankruptcy expenses.

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