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FINANCIAL LEVERAGE AND MARKET VALUE ADDED OF LISTED INDUSTRIAL GOODS FIRMS IN NIGERIA

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Key words: *Debt to Asset Ratio, Debt to Capital Ratio, Debt to Equity Ratio, Market Value Added.*

ABSTRACT

This study investigated the effect of financial leverage and market value added of listed industrial goods firms in Nigeria for a period of sixteen (16) years covering from 2008-2023. Specifically, this study ascertained the effect of debt to equity ratio, debt to asset ratio, and debt to capital ratio on market value added. Panel data were used in this study, which were obtained from the annual reports and accounts of the ten (10) sampled listed industrial goods firms for the periods 2008-2023. Ex-Post Facto research design was employed. Inferential statistics using Pearson correlation coefficient and Panel Least Square (PLS) regression analysis were applied to test the hypotheses of the study. This study revealed that debt to equity ratio has a significant but negative effect on market value added (β_1 = -0.022514; P-value = 0.0154 < 0.05); debt to asset ratio has significant but negative effect on market value added (β_1 = -0.288527; P-value = 0.0000 < 0.05); debt to capital ratio has significant but negative effect on market value added (β_1 = -0.071215; P-value = 0.0006 < 0.05). In conclusion, the study posits that financial leverage has a significant but negative effect on market value of listed industrial goods firms in Nigeria at 5% level of significance. It was recommended amongst others that firms should lever on the amount of debt they undertake to finance their undertakings, as it enhances firms' bottom line. Also, that firm should operate with a capital structure mix that would minimize the cost of capital and reducing the reputational risks associated with the company's operations.

1INTRODUCTION

Debt bears a fixed cost. This means that when a firm increases debt level, the financial leverage level increases. Leverage is the use of borrowed funds for investment purposes. When firm's management increases the firms profit by using debt element, it is an indication

of quality corporate governance. Firm's investments can be finance by use of either debt or equity. When a firm uses fixed-charged funds especially preference capital and debt along with the shareholder's equity this is referred to as financial leverage or gearing. When a company's capital structure is made of only shareholders' / owners' equity only it's said to be unlevered firm whereas when a firm's capital structure is made of both debt and owners' equity it is said to be levered (Adibeli & Amahalu, 2023). Financial leverage can be informed of a loan or inform of debt (other borrowing). Financial leverage proceeds are reinvested to earn a greater return more than interest expense and cost incurred due to debt acquisition.. This means that if a company's marginal rate of return on asset is higher than the company's marginal rate of interest expense payable on the debt, then the company should increase the debt level since it will also increase return on investment and cash value added. Contrary, when the company's return on asset is lower than the interest rate payable on debt/loan acquisition, the firm should not borrow since borrowing will reduce the firms' returns (Okudo, Mbonu & Amahalu, 2022). In this era of globalization and the most competitive business world, financing decisions play a significant role in sustaining profitability of the firms. The primary objective of every rational investor be it an institutional investor or individual investor, is to maximize expected returns on their investments within an acceptable level of risk. Thus, they prefer to invest their funds in shares of companies with increasing prices that will eventually boost their wealth in the stock market.

A company's financial performance tells investors about its general well-being. It's a snapshot of its economic health and the job its management is doing, providing insight into the future: whether its operations and profits are on track to grow and the outlook for its stock (Amahalu, Okudo, Okafor & Onyeka, 2023). Monitoring financial performance therefore creates more certainty and confidence in making both short and long term decisions. This in turn leads to a healthier business and faster growth rate. It also allows a firm to outperform and outmaneuver competitors who fail in this regard. Market value added (MVA) is the amount of wealth that a company is able to create for its stakeholders since its foundation. It is the difference between the current market value of the company's stock and the initial capital that was invested in the company by both bondholders and stockholders (Okudo, Ndubuisi & Oshiole, 2023). Deciding the optimal capital structure is one of the essential obligations of finance manager. An important financial decision which corporations must take is to decide on the percentage of equity and debt that will make up its capital structure as well as decide on what share of corporate profits to be retained for reinvestment and what portion to be paid as dividend. Therefore, it becomes important to know how industrial goods firms finance its

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operations as well as what it is paying back to its equity investors in the form of dividend to maximize long-term free cash flow, and manage its relationships with all of its stakeholders. It is against this backdrop that this study sought to examine the effect of financial leverage on market value added of listed industrial goods firms in Nigeria.

1.1 Objectives

The main objective of the study is to examine the effect of financial leverage on market value added of listed industrial goods firms in Nigeria. The specific objectives of this study are to:

i. determine the effect of debt to equity ratio on market value added of listed industrial goods firms in Nigeria.
ii. ascertain the effect of debt to asset ratio on market value added of listed industrial goods firms in Nigeria.
iii. evaluate the effect of debt to capital ratio on market value added of listed industrial goods firms in Nigeria

1.2 Hypotheses

Based on the objectives of the study, the following hypotheses were developed:

H_{o1}: Debt to equity ratio has no significant effect on market value added of listed industrial goods firms in Nigeria.

H_{o2}: Debt to asset ratio has no significant effect on market value added of listed industrial goods firms in Nigeria.

H_{o3}: Debt to capital ratio has no significant effect on market value added of listed industrial goods firms in Nigeria.

2. LITERATURE REVIEW

2.1 Conceptual Review

2.1.1 Financial Leverage

Financial leverage is the use of borrowed money (debt) to finance the purchase of assets with the expectation that the income or capital gain from the new asset will exceed the cost of borrowing (Adam, 2024). Leverage is an investment strategy of using borrowed money, specifically, the use of various financial instruments or borrowed capital to increase the potential return of an investment. Leverage can also refer to the amount of debt a firm uses to finance assets. Leverage results from using borrowed capital as a funding source when

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investing to expand the firm's asset base and generate returns on risk capital (Amahalu & Okudo, 2023).).

2.1.2 Debt to Equity Ratio

The Debt to Equity ratio (also called the debt-equity ratio, risk ratio, or gearing), is a leverage ratio that calculates the weight of total debt and financial liabilities against total shareholders' equity. The Debt/Equity Ratio is a ratio of ordinary shareholders' equity and the stake of creditors in a company. In other words, it is a measure of a company's financial leverage (Aruna, Orji-Okafor, & Amahalu, 2024).). The debt-to-equity ratio (D/E ratio) shows how much debt a company has compared to its assets. It is found by dividing a company's total debt by total shareholder equity. A higher D/E ratio means the company may have a harder time covering its liabilities.

$$\text{Debt/Equity} = \frac{\text{Total Liabilities}}{\text{Total Shareholders' Equity}}$$

2.1.3 Debt to Asset Ratio

Debt-to-assets is a leverage ratio that defines how much debt a company owns compared to its assets. Debt-to-assets information can reflect how financially stable a company is. The higher the ratio, the higher the degree of leverage (DoL) and, consequently, the higher the risk of investing in that company. The debt-to-total-assets ratio shows how much of a business is owned by creditors (people it has borrowed money from) compared with how much of the company's assets are owned by shareholders (Okudo, Amahalu, Obi & Okafor, 2022). The debt to asset ratio is a financial metric used to help understand the degree to which a company's operations are funded by debt.

$$\text{Debt to Assets Ratio} = \frac{\text{Short-Term Debt} + \text{Long-Term Debt}}{\text{Total Assets}}$$

2.1.4 Debt to Capital Ratio

The debt-to-capital ratio (D/C ratio) measures the financial leverage of a company by comparing its total liabilities to total capital. The debt-to-capital ratio formula measures the proportion of debt that a business uses to fund its ongoing operations as compared with capital. The debt-to-capital ratio is a measurement of a company's financial leverage. The debt-to-capital ratio is calculated by taking the company's interest-bearing debt, both short- and long-term liabilities and dividing it by the total capital. Total capital is all interest-bearing debt plus

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shareholders' equity, which may include items such as common stock, preferred stock, and minority interest (Okudo, Ezechukwu, & Amahalu, 2022).

$$\text{Debt-To-Capital Ratio} = \frac{\text{Debt}}{\text{Debt} + \text{Shareholders}' \text{ Equity}}$$

2.1.5 Market Value Added

Market Value Added (MVA) is the goodwill attributed by the market to the firm. It operates as a periodical metric measure. Market value added equals market value minus the invested investment. If MVA is positive, from the investor`s viewpoint it means that the future expected results will be desirable. Market value added is the difference between the current market value of a firm and the capital contributed by investors. If MVA is positive, the firm has added value. If it is negative, the firm has destroyed value (Amahalu, Ezechukwu & Okudo, 2022).

MVA = Market Value of Shares – Book Value of Shareholders' Equity

2.1.6 Financial Leverage and Market Value Added

Debt structure decisions are among the most important finance decisions firms encounter. The debate still remains until the present day whether such decisions influence costs of capital and firm values. According to Ndubuisi and Osonwa (2023), debt financing decision refers to the financial framework of debt levels maintained by an entity. It is vital to managers by reason of the fact that it constitutes the basis for making financing decisions in any firm. Basically, the choice of debt structure a firm adopts is both financial and marketing problem and it depends on the risk and return characteristics of such firm and/or its management (Okudo, Amahalu, & Oshiole, 2023). Realistically, it is difficult to determine a firm's debt structure because the exact optimal debt mix can hardly be determined. For this reason, the firm must issue different securities in a countless mixtures to produce the combination that maximizes its overall value, and increase performance (Amahalu, Ezenwaka, Obi & Okudo, 2022). Optimal debt structure means a combination of funds which minimizes the weighted average cost of capital (WACC) and increases firm value (Okoye, Ndubuisi, & Okoye & Obi,2022).

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https://journals.unizik.edu.ng/joga

2.2 Theoretical Framework

This work derived theoretical support from Pecking Order Theory and Trade off Theory:

2.2.1 Pecking Order Theory

The Pecking Order Theory, also known as the Pecking Order Model, relates to a company's capital structure. Suggested by Donaldson in 1961 and later modified and made popular by Stewart Myers and Nicolas Majluf in 1984, the theory states that managers follow a hierarchy when considering sources of financing. The pecking order theory states that managers are given a preference to fund investment opportunities using three sources: first through the company's retained earnings, followed by debt, and choosing equity financing as a last resort. Hence, internal financing is used first; when that is depleted, then debt is issued; and when it is no longer sensible to issue any more debt, equity is issued.

2.2.2 Trade-Off Theory

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.

2.3 Empirical Review

Sanjay (2019) examined the empirical effects of corporate capital structure (financial leverage) on cost of capital and the market value of selected firms of Indian Cement Industry for the period from 2011 to 2018. The research evidence of the study indicated that no impact of financial leverage on cost of capital was found in the cement industry in India, i.e. no significant linear relationship between the financial leverage and cost of capital exists, and there is no correlation between the financial leverage and total valuation within the cement industry. In other words, financial leverage does not affect the total valuation of a firm in the cement industry in India.

Ogbonna and Chukwu (2020) employed panel generalised method moments to examine the controversy facing the dynamic relationship between market value of firms (MvFs) and capital structure. The study made use of twenty four quoted firms from ten sectors in Nigeria between 2010 and 2017 inclusive. However, this study revealed that both equity and debt capital instruments at first difference impacted positively and significantly on the MvFs. That

means the study supported the argument that capital structure is relevant to MvFs. The study suggested that firms should have a mix of both debt and equity in their financing structure in order to enhance the market value of the firm. It should be done in an optimal way so as to achieve the desired objective of increase in market value of the firm.

Nazir, Azam and Khalid (2021) investigated the relationship between the listed firms' debt level and performance on the Pakistan Stock Exchange (PSX) during a five-year period. The study used pooled ordinary least squares regression and fixed and random-effects models to analyse a cross-sectional sample of 30 Pakistani companies operating in the automobile, cement and sugar sectors during 2013–2017. The results indicated that both short and long-term debt have negative and significant impacts on firm performance (ROE) in profitability.

Abuamsha and Shumali (2022) identified the impact of debt structure on the financial performance of the organizations listed on the Palestinian Exchange (PEX) from 2014-2020. Thesample of the study consisted of 41 companies listed in the PEX, excluding the banking sector. The descriptive method was used, in addition to model measurement, to analyze the panel data using the multiple-regression method. The study concluded that the ROA increases when long-term debts are used for financing the assets in the insurance, investment, and industrial sectors. On the other hand, in the service sector, the ROA is negatively affected by the use of long-term debt, and only the industrial companies' ROA is significantly affected by the total debt. Furthermore, the study found that the ROA of companies in the insurance and investment sectors is positively impacted by short-term debts.

3. MATERIAL AND METHOD

This study employed *ex-post facto* research design. The population of this study consisted of all the sixteen (13) industrial goods firms listed on the floor of the Nigerian Stock Exchange as at 31st December, 2022. They include: Dangote Cement Plc; Beta Glass Plc; CAP Plc; Ashaka Cement Plc; Berger Paints; CutixPlc; First Aluminum Nigeria Plc; DN Meyer Plc; Premium Paints Plc; Austin Laz & Company Plc; Avon Crowncaps & Containers Nigeria Plc; Greif Nigeria Plc and Wapco Nigeria Plc. Purposive sampling technique was adopted to select the sample size of this study. The sample size of this study consisted of ten (10) listed industrial goods firms that were continuously listed by Nigeria stock exchange during the period 1st January 2008 to 31 December 2023 and whose financial statements and reports are

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https://journals.unizik.edu.ng/joga

available and have been consistently submitted to the Nigerian Exchange Group for the period of study. They include: Dangote Cement Plc; Beta Glass Plc; CAP Plc; Ashaka Cement Plc; Cutix Plc; DN Meyer Plc; Premium Paints Plc; Avon Crowncaps & Containers Nigeria Plc; Greif Nigeria Plc and Wapco Nigeria Plc.This study will basically utilise secondary data that will be extracted from the annual reports and statements of account of the sample listed industrial goods firms from 2008-2023.

Table 1 Variables Operationalisation

Variables	**Definition**	**Measurement**
Independent Variables (Financial Leverage)		
DER	Debt to Equity Ratio	$\frac{\text{Total Liabilities}}{\text{Total Shareholders' Equity}}$
DAR	Debt to Assets Ratio	$\frac{\text{Short-Term Debt + Long-Term Debt}}{\text{Total Assets}}$
DCR	Debt-To-Capital Ratio	$\frac{\text{Debt}}{\text{Debt + Shareholders' Equity}}$
Dependent Variable (Market Value Added)		
MVA	Market Value Added	Market Value of Shares – Book Value of Shareholders' Equity

This study adapted and modified the model of Abubakar & Garba (2019) in determining the relationship between financial leverage and market value added of listed industrial goods firms in Nigeria:

The modified model used for the study is shown below as thus:

$MVA = \beta 0 + \beta 1\ DER_{it} + \beta 2\ DAR_{it} + \beta 3\ DCR_{it}\ \mu_{it}$.....……Eqn 1.

Where:

βo = Constant term

$\beta_1 - \beta_3$= Regression coefficient of the independent variable

μ_t = Error Term of firm í in period t

í = individual firms (1,2,3...10)

t = time periods (2008, 2009 ... 2023)

MVA_{it} = Market Value Added of firm í in period t

DER_{it} = Debt-to-Equity Ratio of firm í in period t

DAR_{it} = Debt-to-Asset Ratio of firm í in period t

DCR_{it} = Debt-to-Capital Ratio of firm í in period t

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4. RESULT AND DISCUSSIONS

4.1 Data Analysis

Table 3: Panel Least Square Regression Analysis between Financial Leverage and MVA

Dependent Variable: MVA

Method: Panel Least Squares

Date: 09/21/24 Time: 08:32

Sample: 2008 2023

Periods included: 16

Cross-sections included: 10

Total panel (balanced) observations: 160

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.168749	0.012854	13.12860	0.0000
DER	-0.022514	0.009190	-2.449703	0.0154
DAR	-0.288527	0.026717	-10.79957	0.0000
DCR	-0.071215	0.020375	-3.495117	0.0006

R-squared	0.436592	Mean dependent var	0.140614
Adjusted R-squared	0.430494	S.D. dependent var	0.074138
S.E. of regression	0.072998	Akaike info criterion	-2.384335
Sum squared resid	0.841947	Schwarz criterion	-2.345895
Log likelihood	192.7468	Hannan-Quinn criter.	-2.368726
F-statistic	116.6308	Durbin-Watson stat	1.922145
Prob(F-statistic)	0.000000		

Source: E-Views 10 Regression Output, 2024

4.1.2.1 Multivariate Regression Result

The research output for hypothesis in table 3 represents the relationship between financial leverage measures (debt to equity ratio, debt to asset ratio, debt to capital ratio) and market value added. The coefficient value of DER (β_1) =-0.022514, t-statisitc (-2.449703) and p-value of 0.0154; DAR has a coefficient value of (β_2) =-0.288527, t-statisitc (-10.79957) and p-value of 0.0000; DAR has a coefficient value of (β_2) =-0.288527, t-statisitc (-10.79957) and p-value of 0.0000; DCR has a coefficient value of (β_3) =-0.071215, t-statisitc (-3.495117) and p-value of 0.0006 are indications financial leverage measures have a significant but negative

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https://journals.unizik.edu.ng/joga

effect on market value added. MVA = 0.168749 - 0.022514DER - 0.288527DAR - - 0.071215DCR

The implication of the resultant equation is that an increase in DER, DAR and DCR will cause MVA to reduce by 2.25%, 28.85% and 7.12%. The adjusted R^2 of 0.430494 presents 43.05% variation in predictive variable (MVA), while, the remaining 56.95% is explained by other factors outside the model.

Decision: Since the Prob>F = 0.000000 is less than the critical value 0.05, thus, H_1 will be accepted and H_0 rejected.

4.2.1 Hypothesis One

H_{o1}: Debt to equity ratio has no significant effect on market value added of listed industrial goods firms in Nigeria.

From table 3 above, since the β_1 = -0.022514 and the p-value = 0.0154 which is less than 0.05, it was concluded that Debt to equity ratio has a significant but negative effect on market value added of listed industrial goods firms in Nigeria at 5% significant level.

4.2.2 Hypothesis Two

H_{o2}: Debt to asset ratio has no significant effect on market value added of listed industrial goods firms in Nigeria.

Deducing from table 3, since the β_1 = -0.288527 and the pP-value = 0.0000 which is less than 0.05, it then implies that Debt to asset ratio has significant but negative effect on market value added of listed industrial goods firms in Nigeria at 5% level of significance

4.2.3 Hypothesis Three

H_{o3}: Debt to capital ratio has no significant effect on market value added of listed industrial goods firms in Nigeria.

A look at Table 3 revealed that β_1 = -0.071215 and the p-value = 0.0006 which is less than 0.05. This clearly implies that Debt to capital ratio has significant but negative effect on market value added of listed industrial goods firms in Nigeria at 5% level of significance.

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https://journals.unizik.edu.ng/joga

CONCLUSION AND RECOMMENDATION

Panel data were obtained from annual reports and accounts of the sampled industrial goods firms for the study period, using a sample of ten (10) listed industrial goods firms. Panel least square (PLS) regression analysis was employed via E-Views 10.0. The results of the tested hypotheses revealed that debt to equity ratio has a significant but negative effect on market value added (β_1 = -0.022514; P-value = 0.0154 < 0.05); debt to asset ratio has significant but negative effect on market value added (β_1 = -0.288527; P-value = 0.0000 < 0.05); debt to capital ratio has significant but negative effect on market value added (β_1 = -0.071215; P-value = 0.0006 < 0.05). In conclusion, the study posits that financial leverage has a significant but negative effect on market value of listed industrial goods firms in Nigeria at 5% level of significance.

Based on the findings of this study, the following recommendations were made:

i. Based on the negative relationship between debt to equity ratio and market value added, this study recommends that, firms should lever on the amount of debt they undertake to finance their undertakings, as it enhances firms' bottom line. Also, that firms should operate with a capital structure mix that would minimize the cost of capital and reducing the reputational risks associated with the company's operations.

ii. In order to revert the negative relationship between debt to asset ratio and market value added, this study suggests that firms judiciously optimal debt to asset ratio in financing operations so as to improve and sustain their organisational performance.

iii. Sequel to the negative but significant relationship that exists between debt to capital ratio and market value added, firms should use always use the debt to capital ratio to track a firm's improvement over time as it acquires properties. The debt-to-capital proportion can be used by shareholders to determine if a company seems to have enough income to finance its financial commitments and whether it can expect to be paid rates of return.

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