

## Debt financing and the profitability of listed manufacturing companies in Nigeria

<sup>1</sup>Yasar Sambo, <sup>2</sup>Dr. Lucky Onmonya

<sup>1,2</sup>Department of Accounting, Nile University of Nigeria

ISSN: 1533 - 9211

### Abstract

In light of the considerable role that debts currently play in building large organizations' financial structures, the concept of debt financing has become much more prevalent in recent years. The debt finance literature makes a strong case for the relationship between debt financing and profitability, suggesting that the two may be related. This study evaluates the effect of debt financing on profitability of listed manufacturing companies in Nigeria. The sample of the study comprised of 37 listed manufacturing companies in Nigeria. The study's data was gathered from annual reports and financial statements that had been submitted in to Nigeria Exchange Limited over a ten-year period (2013–2022). Results showed that Long Term Debt to Total Asset ratio, Total Debt to Total Equity ratio and firm size had a significant impact on Return on Equity of listed manufacturing companies in Nigeria. However, Current Ratio and Total Debt to Total Equity returned insignificant effects on Return on Equity of listed manufacturing companies in Nigeria. The study recommended that in making a decision on what the composition of their debt financing will be, management of listed manufacturing companies in Nigeria should assess critically and make comparison between the cost of obtaining a particular source of debt and the benefit that can be derived from it. This will help managers ensure that there will be a positive impact on their profitability.

### CORRESPONDING AUTHOR:

Yasar Sambo  
yasarsambo@gmail.com

### KEYWORDS:

Debt financing, Return on equity, Manufacturing companies

Received: 02 August 2024  
Accepted: 26 August 2024  
Published :07 September 2024

### TO CITE THIS ARTICLE:

Sambo, Y., & Onmonya, L. (2024). Debt financing and the profitability of listed manufacturing companies in Nigeria. *Seybold Report Journal*, 19(09), 178-200. DOI: [10.5281/zenodo.13712316](https://doi.org/10.5281/zenodo.13712316)

## 1. Introduction

The financial structure of a company is a mix of equity and debt financing used to finance its operations. An appropriate use of debt finance is expected to boost company profitability and thus increase shareholders wealth. The rationale of the superlative financing decision in terms of the blend of debt and equity to be used for firms is the principally considerable element of that can be known as capital structure financing (Orji et al., 2021). Similarly, Usman (2019) affirms that debt and equity are the main financing options used by the firms of different categories. Equity sources refer to funds obtained from equity shares offered on the stock exchange, with subscribers typically including associates, friends, personal funds, and others. Debt sources, on the other hand, result from borrowings from key investors through the capital market, such as bonds, debentures, and preference capital. However, if the firm is financing through debt they have to pay the interest to the bank and other accredited finance agent and if the financing is through equity it has to give the dividends to the shareholders from their profit and at times initiate the retained earnings account that they did not distribute to the shareholders but is reflecting in their profit (Ubesie, 2016).

Growth financed by debt could boost earnings; if this incremental profit increase exceeds the corresponding increase in debt service costs, shareholders should profit. The share price could, however, decrease if the extra expense of debt financing offsets the additional revenue it brings in. Market conditions can affect a company's ability to service its debt as well as its cost. Therefore, borrowing that initially appeared wise may later turn out to be unprofitable for various reasons (Fernando, 2024).

The effect of debt funding on profitability is of considerable importance to all businesses. However, the past failure and bad performance of many corporate organizations around the world were due to financial mismanagement and unseemly choice of sources of finance (Abeywardhana & Magoro, 2017). This is evident in companies like Mumias Sugar Company, Kenya Airways, and Uchumi Supermarkets, which have accrued enormous debt that surpasses their net profits. This has negatively impacted their performance and investor confidence, ultimately leading to their complete collapse and closure. For example, the Pan Paper Mills Company in Webuye and Cadbury East Africa have closed. Other firms such as Eveready East Africa are also facing similar challenges and are contemplating closing their operations (Wambua, 2019).

The appropriate level of debt a company employs to establish an optimal capital structure significantly impacts its profitability (Akhtar et al., 2021). Financial leverage is a commonly employed financial strategy by managers to enhance a firm's rate of return and overall value. However, financial leverage also creates a financial risk to the company, especially when highly levered firms are not able to make sufficient EBIT that will help meet the shareholders' demand for higher returns (Salman & Hassan, 2016).

Investments in the manufacturing sector are being discouraged, according to a report by the Manufacturers Association of Nigeria (MAN), among other things, by the availability of foreign exchange and long-term bank loans. "Based on the perceptions of CEOs of manufacturing companies for the fourth quarter of 2022, the implication of movements in macroeconomic variables such as forex, lending rate, commercial bank loans, and Federal Government Capital Expenditure shows that manufacturing activities continue to suffer due to persistent scarcity of forex and unfavourable naira exchange rate parity," the report stated. Moreover, two significant issues facing the industry that hinder production are the high cost of borrowing and the scarcity of long-term funding (Shuaibu, 2023).

Empirical evidence by Mukumbi, et al. (2020); Ahmed & Siddiqui (2019); Ng'ang'a (2017) indicates existence of positive nexus between debt financing and profitability. However, studies by Opoku-Asante (2022); Aziz (2019); Abeywardhana and Magoro, (2017); provide evidence that debt financing and profitability are inversely linked with each other. Rahman et al. (2020) established an insignificant nexus between debt financing and performance at firm level. Based on this, it has been argued that the relationship

between debt financing and profitability is mixed, showing both positive and negative outcomes. This inconsistency in the literature offers inconclusive evidence, highlighting the need for further research.

### **Research Hypotheses**

In order to direct the direct flow of this study, the following hypothesis were formulated in line with objectives of the study

H<sub>01</sub>: Long Term Debt to Total Assets ratio has no significant effect on return on equity of listed manufacturing companies in Nigeria

H<sub>02</sub>: Total Debt to Total Assets ratio has no significant effect on return on equity of listed manufacturing companies in Nigeria

H<sub>03</sub>: Current Ratio has no significant effect on return on equity of listed manufacturing companies in Nigeria.

H<sub>04</sub>: Total Debt to Total Equity Ratio has no significant effect on return on equity of listed manufacturing companies in Nigeria.

## **2. Literature Review**

This section conducts a review of the literature on effects of debt financing on profitability of listed manufacturing companies in Nigeria, as established by other scholars. Specifically, this study enumerates the conceptual review/ framework, theoretical framework on which it is grounded before presenting empirical literature by various scholars seeking to establish the relationship between the two variables. The chapter further identify the gap in existing literature.

### **Debt financing**

Debt is a financial agreement in which a business secures funding from a lender, with the obligation to repay it at an interest rate that may be either floating or fixed. Debt may come in the form of bank loans, trade credit and asset-based lending inter alia (Abor, 2005). Debt financing is the use of external funds to finance the activities of an organization to increase the short-term solvency and long-term stability of the organisation; it is the proportion of debt in the capital Structure (Racheal et al., 2017). External debt financing plays an important role to increase future productivity of firms and more important for future growth (Gomis & Khatiwada, 2016). Debt financing is an external source of financing that firms utilize to secure much needed funds for a reason or reasons considered strategically imperative to its operations. Financing business activities using debt is related to acquisition of capital from financial institutions with a commitment to repay plus interest (Ni, et al., 2017). The advance expense that ought to be paid on the obtained cash, alongside a repayment plan will be set out in the arrangement between the bank and the borrower (Mazikana, 2021). If the borrower doesn't fulfill their responsibilities set out in the arrangement, it can antagonistically influence on their financial assessment, which in this manner can make it all the more difficult for them to obtain reserves later on and it can similarly provoke finance related disappointment (Phan, 2018).

### **Long Term Debt to Total Assets Ratio**

The ratio of long-term debt to total assets measures the portion of a company's assets that are financed by long-term debt, which includes loans and other financial commitments that last longer than a year. This ratio offers a broad assessment of a company's long-term financial situation, including its capacity to repay outstanding loans (Kenton, 2020). Long term debt to total asset ratio therefore provides a measurement to the investor regarding the percentage of a company's assets which are financed with the help of loans or debts for a period lasting over a year (Orji et al., 2021). In this study, the long-term debt to total asset ratio

is computed as the ratio of non-current liabilities to the total assets of the organization for a given accounting period. This is the formula expressed as follows:

$$\frac{\text{Non – Current Liabilities}}{\text{Total Assets}}$$

### **Total Debt to Total Asset Ratio**

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. It is one of many leverage ratios that may be used to understand a company's capital structure (Peterdy, 2020). Hayes (2024) stated that total debt to total asset ratio is a leverage ratio that defines how much debt a company carries compared to the value of the assets it owns. It shows the amount of debt used to carry a company's assets and how the assets might be employed for debt repayment. It thus assesses the level of leverage possessed by a company. The ratio is used by investors to determine whether the company can pay a return on investment and whether it has sufficient funds to cover its current debt obligations. The ratio is used by creditors to determine the company's current debt load and ability to make loan payments. This will decide whether or not the company receives further loans. In this study, the debt-to-asset ratio is calculated as the ratio of a firm's total liabilities to its total assets for a specific accounting period. The formula is expressed as follows:

$$\frac{\text{Total Liabilities}}{\text{Total Assets}}$$

### **Current Ratio**

The current ratio is a metric used by accountants and other finance experts to assess the current state of a company's finances. The ratio operates by comparing the current liabilities of a business with its current assets. This ratio assesses whether a business can sustainably balance its financing, assets, and liabilities by comparing its current assets to its current liabilities. Since the current ratio demonstrates a company's capacity to settle short-term debts, it is typically used as a broad indicator of financial health (Girardin, 2022). Current ratio expresses the extent to which the current liabilities of a business are covered by its current assets (Ali, 2020). The current ratio is calculated as the ratio of a firm's current assets to its current liabilities during a specific accounting period. The formula is expressed as follows:

$$\frac{\text{Current Liabilities}}{\text{Current Assets}}$$

### **Total Debt to Total Equity Ratio**

The debt to equity ratio (DER) is a measure of the company's ability to fulfill all of its obligations which shows how much of equity capital was used to pay down the debt. In other words, this ratio is used to determine what portion of any equity capital as collateral for overall corporate debt or to assess the amount of debt used by the company (Heikal et al., 2014). One way to assess the financial leverage of a company is to look at its debt to equity ratio. It is a gauge of how much a business relies on debt rather than equity to fund its operations. The debt-to-equity ratio (D/E ratio) calculates a company's debt load in relation to the value of its assets less its liabilities (Fernando, 2024). In this study, the debt-to-equity ratio is calculated as the ratio of a firm's total liabilities to its total equity for a given accounting period. The formula is expressed as follows:

$$\frac{\text{Total Liabilities}}{\text{Total Equity}}$$

### **Profitability**

Profitability is a measurement of efficiency. This measure is employed to ascertain the extent of a business's profit in connection to its size and, eventually, its success or failure. Key stakeholders can learn from profitability whether a business can maintain its position in the market and grow further. It is the amount of profit a business makes (Horton, 2024). Financial indicators known as profitability ratios are employed

by analysts and investors to assess a company's capacity to turn a profit in relation to its revenue, balance sheet assets, operating expenses, and shareholders' equity over a given time frame. They demonstrate how well a business makes use of its resources to generate revenue and add value for investors (Vipond, 2024). Measuring profitability is the most crucial indicator of the health of the company, regardless of whether you are recording profitability for the previous period or forecasting profitability for the upcoming one. A non-profitable business cannot endure. On the other hand, a highly profitable company can provide a significant return on investment for its owners (Hofstrand, 2019).

### **Return on Equity (ROE)**

Return on Equity is a crucial ratio for shareholders which assesses a company's capacity to generate profits from its equity investments. Without more equity investments, return on equity could rise. Higher net income from a larger asset base financed by debt may cause the ratio to increase (Hayes, 2024). Return on equity is a financial ratio that indicates how much net income a business makes for every dollar of capital invested. It helps investors' understanding of how well a company uses its capital to turn a profit (Lewis, 2024). The formula is expressed as follows:

$$\frac{\text{Net Income}}{\text{Shareholder's Equity}}$$

### **Theoretical Review**

There are several theoretical paradigms which highlight the influence of debt financing on profitability, such as The Capital Structure Irrelevance Theory of Modigliani and Miller (1958), The Trade-Off Theory of Modigliani and Miller (1963), The Pecking Order Theory of Myres and Majluf (1984); and Free cash flow theory. This study is anchored on the trade-off theory; however, it is needful to review all the theories relating to debt financing so as to provide an insight into why trade off theory is the most relevant to the study.

### **Trade-off Theory**

Advanced by Modigliani and Miller (1963), trade-off theory presents a modified position of the Modigliani and Miller 1958 proposition. According to the authors, the trade-off theory postulates that the optimal level of debt is attained at a point where the marginal benefit of debt finance is equal to the marginal cost of debt finance. They argued that a firm's capital structure may be optimized by employing as much debt as capital to take advantage of the tax shield conditioned by interest expenses associated with debt (Korzh, 2015). The Trade-off Theory maintains that managers have to weigh the advantages and disadvantages accruing from debt to realize an ideal capital structure using the interest charges. The author maintains that this helps to reduce the tax burden, leading to a reduction in the cost of debt compared to equity financing. Accordingly, a rise in the amount of debt leads to a fall in the weighted average cost of capital of a firm until the firm obtains the debt equity ratio that maximizes its value. This is attributed to the fact that the problems of financial distress increase proportionately with the amount of debt, resulting in an optimal capital structure that shows the highest possible tax shield the firm can achieve (Abeywardhana & Magoro, 2017).

### **Capital Structure Irrelevance Theory**

This theory was advanced by Modigliani and Miller (1958). The theory holds that based on the perfect market assumptions concerning the behaviour of the capital markets and investors, the worth of an entity is not defined by the composition of its capital structure (Korzh, 2015). The authors maintain that the financing mix the entity adopts actually influences its value. Although the theory is considered to be based on unrealistic assumptions in the real world, it enhanced the understanding of the effect of capital structure on the financing decisions of firms. The Modigliani and Miller (1958) seminal work predicted that under conditions of free markets, investor's uniform access to market information, absence of taxes as well as



transaction charges, the capital structure remains immaterial in determining the worth of the firm. This theory was more based on assumptions that there were no bankruptcy costs, no information asymmetry among all the firm stakeholders (Abeywardhana & Magoro, 2017).

### **Pecking Order Theory**

The pecking order theory as proposed by Myres and Majluf (1984) holds that firms follow a particular hierarchy in selecting sources of finance. The proponents of the theory were motivated by the agency problem precipitated by the effect of information asymmetry between managers, shareholders, and potential investors (Serrasqueiro & Caetano, 2015). Information asymmetry about the firm's investment opportunities could lead the market to undervalue the firm's new shares relative to the value that would be assessed if the manager's information about the firm's investment opportunities were equally known by all the stakeholders (Abor & Biekpe, 2009). This would imply that when an entity issues shares to new investors; the old shareholders are disadvantaged by transferring share value from old to new shareholders. Hence, firms choose to finance their operation using their retained earnings first, if these are not sufficient, they use debt and lastly, equity.

### **Free Cash Flow Theory**

The theory was proposed by Jensen in 1986. Free cash flow theory emerged as a response to the rising disagreements among the various stakeholders of the entity including investors (owners) and the employees (management). Jensen attributes the emerging conflict to differing interests of the two parties in the investment priorities of the firm's idle resources. This led to the agency conflict that emerged out of the need to separate ownership from the management of firms which encouraged managers to foster their interests at the expense of the shareholder interests while deploying the free cash flow from operations (Zurigat, 2009). The authors describe free cash flow as the cash resources over and above the amount needed to finance approved investment activities considered to possess a positive net present value. The Jensen (1986) free cash flow theory postulates that for firms that are more likely to have high amounts of excess funds but without apparent investment opportunities, debt becomes an efficient way to resolving the agency costs associated with free cash flow. Excess amount of free cash flow that is not applied to positive net value firm investments are negatively linked to financial performance (Zhou et al., 2014). According to Zurigat (2009), citing Jensen (1986) debt generates an obligation for payment of interest and part of the principal at regular intervals which is the responsibility of the managers.

### **Empirical Review**

Several researchers have carried out a study on the effects of debt financing on profitability in both Nigeria and other parts of the world. These studies have generated different results and conclusions. Some of the empirical evidence on this subject is stated below

Debt Financing and Net Profit Margin of Quoted Consumer Goods Manufacturing Firms in Nigeria were studied by Akani (2024). All twenty consumer goods manufacturing companies quoted on the Nigerian Exchange Group as of December 31, 2022, made up the study's population. Ten (10) Nigerian consumer products manufacturing companies made up the sample size for this study, which used convenience sampling procedures. Panel least squares regression analysis was then used to examine the data. The study's conclusions demonstrated that the net profit margin of listed consumer goods manufacturing companies in Nigeria was positively and significantly impacted by the long-term, short-term, and total debt ratios.

The relationship between debt finance and manufacturing business performance is investigated by Hayati et al. (2022). Twenty-one businesses trading on the Indonesia Stock Exchange were utilised as a sample for the years 2016-2020. Purposive sampling was utilised to collect data, and panel data regression was employed for analysis. According to the data presented here, there is no correlation between the short-term debt ratio (STDA) and the return on assets (ROA), but there is a negative and statistically significant

correlation between the LTDA and ROA, and a positive and statistically significant correlation between the ROA and sales growth (GROWTH). Similarly, the STDA has no effect on the nett profit margin (NPM), while the LTDA has a negative and statistically significant effect on the NPM.

Additionally, Opoku-Asante (2022), examined the association between capital structure and business financial performance in Ghana and Nigeria using 425 cross-sectional firm-year samples from 2014 to 2019. Performance was measured by return on assets and return on equity, while capital structure was assessed by short-term debt to total assets, long-term debt to total assets, and total debt to total assets. The data was analyzed using Pearson's correlation technique, which led to the conclusions that total debt has a strong negative association with return on assets while debt maturity had no effect on the relationship between capital structure and financial performance.

Mukumbi, et al. (2020) studied the impact of capital structure on the financial performance of non-financial firms quoted at the Nairobi Securities Exchange. The study was conducted on sixteen (16) non-financial firms that were in operation in Kenya, quoted at the Nairobi Stock Exchange, and regulated by the Insurance Regulatory Authority and Central Bank of Kenya. Financial performance was measured by return on assets and return on equity, while the capital structure was measured using the change in debt and debt-equity ratio. Secondary data utilized was obtained from audited financial statements derived from company websites and NSE handbook over a period of five (5) years from 2013 to 2017. Correlation and regression analysis were employed in the statistical analysis that was carried out with the aid of STATA version 15 and Microsoft Excel 2019. The findings showed that capital structure has a direct influence on the financial performance of firms listed at the Nairobi bourse. The results showed that the financial performance of firms increases with the increase in the changes in debt in the capital structure. This thus supports debt financing in running the firms as compared to equity financing.

Alhassan and Mamuda (2020) explored the effect of ownership structure on the financial performance of quoted financial firms in Nigeria for the periods of 2010 to 2019. The study selected data from thirty-eight financial firms listed in Nigeria. The data were regressed using the pooled General Least Square, Random and Fixed Effects regression model in testing the hypotheses of the study. From the analytical output, the study found that ownership structure has positive significant effect on financial performance of the quoted financial firms except ownership concentration having negative effect on financial performance. The study suggested that a financial firm needs to expand their managerial equity ownership.

Okewale et al. (2020) examined the ownership structure and its financial performance of 18 food and beverage companies listed on the Nigerian Stock Exchange (NSE) between 2010 and 2018. The study uses secondary data and was obtained from the company's annual reports and financial statements. The data collected was analysed using pooled regression, fixed-effects regression, and random effects. The results showed that management ownership had an insignificant (positive) impact on return on equity. Employee ownership had a significant positive effect on return on equity.

Bello et al. (2020) investigation into the effect of capital structure on deposit money banks' financial performance in Nigeria. Data was combined from the 2009– 2018 annual reports of five conveniently picked Nigerian banks. Pearson's correlation and multiple regression were also used. The results showed that the capital structure, as determined by the short-term debt-to-asset ratio and the overall debt-to-total asset ratio, had a very good impact on financial performance (ROA). It also advised deposit money banks in Nigeria to use a larger proportion of their capital structure for short-term debt while growing and making sizable investments.

Nguyen and Nguyen, (2020) in their study assessed effect of capital structure on firm performance in state-owned and non-state-owned companies listed on the Vietnamese stock market. A panel data was used, with a sample size of 488 non-financial firms covering the period from 2013 to 2018. ROE and earnings per

share (EPS) were used to proxy performance; while ratios of short-term liabilities, long term liabilities, and total liabilities to total assets were used to proxy capital structure. Firm sizes, growth rate, liquidity, and ratio of fixed assets to total assets are control variables in the study. The study used Generalized Least Square (GLS) analysis technique to analyse data. The results reveal that capital structure has significant negative effect on firm performance.

Ahmed and Siddiqui (2019) examined the impact of Debt Financing on Performance: Evidence from Textile Sector of Pakistan. The objective was to examine the impact of capital structure primarily debt financing on firm performance in 70 textile companies in Pakistan. Panel data of 70 textile companies in Pakistan from year 2010-2015 were examined and the statement of Financial Position Analysis issued by State Bank of Pakistan was used for data collection. Fixed Effects Model was used to determine the relationship between firm performance (Return on Assets) and capital expenditure (Debt to Total Assets, Long Debt to Assets and Short-Term Debt). The findings present a positive relationship between return on assets and debt-to-asset ratio.

Rahman et al. (2019) examined Debt Financing and Firm Performance: Evidence from an Emerging South-Asian Country. The paper aimed to empirically investigate the impact of capital structure choice on the firm performance of the firms listed under the Dhaka Stock Exchange of Bangladesh from 2010 to 2015. Multiple regression was employed in this research to determine the relationship between the capital structure and the firm's financial performance. The research found that there is no significant effect of short-term debt, long-term debt and total debt on the firm financial performance measured by return on equity (ROE).

In Pakistan, Aziz and Abbas (2019) focused on how debt financing impact on ROA of non-financial firms. A causal research design was used on a population target of various sectors with secondary data being composed from the firm reports over a 9-year period. The study population included 14 non-financial sectors of Pakistan stock exchange for period 2006-2014. Using regression analysis, it was found that financial performance is negatively affected.

Abeywardhana and Magoro (2017) focused on debt capital and its effect on financial performance on South African companies. The study sampled 25 retail and wholesale South African firms for the period of 2011-2015. Using regression analysis secondary data was analysed and outcomes indicated that debt capital both long and short have a negative effects financial performance. Hence the study recommended that managers of firms should make decisions that ensure profit maximization and reduction of costs associated with debt so as to maximize shareholders wealth. The research presents a contextual gap as it focused on retail and wholesale South African firms but this study focused on debt financing effects on the performance financially of quoted firms in Kenya.

Ng'ang'a (2017) investigated the effect of debt financing on financial performance of private secondary schools in Kajiado county. The study applied a descriptive research design and carried out a census of the 61 private secondary schools in Kajiado County. A data collecting form was utilized to gather secondary data for the investigation. The data collecting form collected information between 2014 and 2016, a span of three years. To determine the relationship between dependent and independent variables, multiple linear regression was used. The findings indicated a positive and insignificant correlation between debt financing and the financial performance of private secondary schools in Kajiado County.

Birru (2016) studied the impact of capital structure on financial performance of selected commercial banks in Ethiopia over the past five (5) year period from 2011 to 2015 using secondary data collected from financial statements of the commercial banks. This study employed a survey design that was administered through structured review of documents from selected commercial bank's financial statements for five years. Data was then analysed on quantitative approach using descriptive statistics, correlation matrix,



multicollinearity test, heteroscedasticity test, random effect (RE) and fixed effect (FE) Pooled OLS, and multiple regression models using Stata 12. The study used two financial performance measures (return on equity, return on assets) as dependent variable and five capital structure measures (debt ratio, debt to equity ratio, loan to deposit ratio, bank's size, asset tangibility) as independent variable. The results indicated that financial performance, which is measured by both ROA and ROE, is significantly and negatively associated with capital structure proxies such as DER, SIZE and TANG whereas DR have negative impact on financial performance, which is measured by both ROA and ROE.

Based on the reviewed studies it was evident that research was not specifically focused on manufacturing firm in Nigeria, hence there exist a contextual and methodological research gap. It was also asserted that debt financing has mixed relationship with profitability which can either be positive or negative. This inconsistency in literature provide inconclusive evidence and calls for further studies. Hence this study aimed to fill this gap by concentrating on the effects of debt financing on profitability of listed manufacturing companies in Nigeria.

### 3. Methodology

In this section, the researcher explains the methodology used in the study. It handles the research design, population of the study, sample size, method of data collection, method of data analysis and model specification.

#### Research Design

Ex-post facto research design is used in the study. Ex-post facto research design is deemed the most acceptable research design, according to Kramer (2020), because the study used secondary data that was already in existence and had been approved by the right authorities without any manipulation.

#### Population of the study

For purposes of this study, population of interest consisted of fifty (50) manufacturing companies listed by Nigerian Exchange Group (NGX) between 2013 and 2022. The fifty manufacturing companies are shown in below table 3.1

**Table 3.1 Population of the Study**

S/N	Sector	Number of Firms
1	Consumer Goods	21
2	Industrial Goods	13
3	Agricultural Process	5
4	Natural Resources	4
5	Health Care	7
	Total	50

Source: Author's compilation from the Nigerian Exchange Limited website, 2024

#### Sample size and sampling techniques

The purposive sampling technique was used for this research. Purposive sampling is an appropriate technique given the specific requirements of this study. Purposive sampling, also known as judgmental or selective sampling, involves the deliberate selection of particular units or cases based on specific criteria

relevant to the research objectives. This method ensures that the sample chosen is directly aligned with the research questions, allowing for more accurate and meaningful analysis.

For this study, the primary criterion for the selection of companies is the availability of complete data for the period under study 2013-2022. This criterion is crucial because incomplete or missing data could lead to biased results or misinterpretation of the relationship between debt financing and profitability. By selecting only those companies that meet this criterion, the reliability and viability of the findings would be enhanced.

The use of purposive sampling in this context allows us to focus on companies that provide a full picture of their financial activities over the specified period. This ensures that the analysis is based on consistent and comprehensive data, thereby enabling you to draw more robust conclusions about the impact of debt financing on profitability in the Nigerian manufacturing sector. Thus, the study's sample size comprised of 37 selected firms listed in the Nigerian Exchange Group (NGX). The justification for selected 37 firms is that their annual financial statements were available and accessible over the sample period between 2013 and 2022. In addition, firms that had less than 10 years' annual financial statements records were excluded to enhance comparability and allow for valid generalizations. Thus, the final sample had 37 listed manufacturing companies as shown in below table 3.2

**Table 3.2 Sampled Companies**

S/N	Sector	Number of Firms
1	Consumer Goods	17
2	Industrial Goods	7
3	Agricultural Process	5
4	Natural Resources	4
5	Health Care	4
	Total	37

Source: Author's compilation, 2024

### **Sources and Method of Data Collection**

The study used secondary source of data that were extracted from annual published reports submitted to the Nigerian Exchange Group (NGX) for a period of 10 years (2013-2022). Secondary data usage provides systematic, empirical and unambiguous answers to research questions, since such data were independently provided by statutory auditors in audited financial statements. These reports are reliable, verifiable, and less prone to research manipulation. The published annual financial reports were obtained from the annual reports.

### **Model specification**

Given the nature of the variables, the study employed multiple linear regression analysis to examine the link between debt financing and profitability of listed manufacturing companies in Nigeria. The study specifies the following model to depict the relationship between debt financing variable represented by total debt to total assets ratio, total debt to total equity ratio, current ration and long-term debt to total assets ratio; and profitability represented by return on equity (ROE) with control variable represented by firm size:

$$ROE_{it} = \beta_0 + \beta_1 (LTDTA)_{it} + \beta_2 (TDTA)_{it} + \beta_3 (CR)_{it} + \beta_4 (TDTE) + \beta_5 (FS)_{it} + \varepsilon_{it} \text{----- (i)}$$

Where:

ROE = Return on Equity

LTDTA = Long Term Debt to Total Assets

TDTA = Total Debt to Total Assets

CR= Current Ratio

TDTE= Total Debt to Total Equity

FS= Firm Size

$\beta_0$  = A constant

$\beta_1, \beta_2, \beta_3$  = regression Coefficients

$\varepsilon$  = Error term

### Method of data analysis

The data collected was processed and cleaned using Microsoft Excel before exporting to STATA Version 13. Panel data was analyzed using descriptive and inferential statistics. Descriptive statistics comprised mean, minimum value, maximum value and standard deviation and inferential statistics included panel linear regression, correlation analysis, robustness test and the Hausman test for a fixed and random effect. The study employed a panel data regression analysis model. The Hausman specification test established that random effect model was appropriate for the study. Findings were presented in tables and figures.

### Pre-diagnostics/ post estimate test

Several diagnostic tests including tests for normality and multicollinearity were performed. To ensure the collected data is unbiased and that no variable is linearly related to another, a multicollinearity test was conducted. Multicollinearity occurs when two variables have a linear relationship. The Variance Inflation Factor (VIF) test is used to assess multicollinearity and a VIF between 1 and 10 indicates there is no multicollinearity, while a VIF greater than 10 or less than 1 suggests its presence. If the test indicates multicollinearity, standardizing the continuous variables by selecting a standardization method in the regression dialog box is recommended. For instance, you may choose variable centering approach (Cohen et al., 2013). The test for normality was conducted using the skewness and kurtosis statistics. The data in a series does exhibit a normal distribution if it has skewness that is the range of -0.8 to +0.8, and a kurtosis within the range of -3 to +3. (Ghasemi & Zahediasl, 2012).

### 4. Data presentation and analyses of result

This section contains the data that were used to perform the analysis. Data regarding the impact of debt financing on the profitability of Nigerian listed manufacturing companies is being collected. However, debt financing (an independent variable) is measured by the ratios of long- term debt to total assets, total debt to total assets, current ratio and total debt to total equity. Also, profitability (a dependent variable) is measured by Return on equity. While Firm Size measured by natural logarithm of total assets serves as control variable. The empirical data came from listed manufacturing companies' yearly published reports that were filed with the NSE over a ten-year period (2013–2022).

### Descriptive Statistics

Descriptive analyses were carried out to determine the distribution of the data used in this analysis. Table 4.1 shows the descriptive result of the variables that were used.

**Table 4.1: Descriptive Statistics**

Variable	Obs	Mean	Std. Dev	Min	Max
ID	370	19	10.69154	1	37.00
Years	370	2017.5	2.876171	2013	2022
ROE	370	.1001924	1.396096	-15.7224	19.673
LTDTA	370	.2249735	.3623714	0.0000	3.4387
TDTA	370	.9290686	2.264096	.0117	19.5571
CR	370	4.385997	36.32244	.0004	525.6642
TDTE	370	1.473741	9.672536	-109.0076	131.0757
FS	370	3.30482	.0006282	3.3038	3.3058

#### Research computation Using STATA 13

Table 4.1 describes the features/characteristics of the study's variables in terms of Return on Equity (ROE), Long term debt over total assets (LTDTA), Total debt to total assets, Current ratio (CR), Total debt over total equity (TDTE) and Firm size (FS). The observation value of 370 represents the 37 manufacturing companies sampled over a 10-year period (2013-2022). Table 4.1 shows the average score for the respective variables as ROE at 0.10, LTDTA produced an average of 0.22, TDTA averaged 0.92, CR gave 4.38, TDTE recorded 1.47 and FS averaged 3.30. The table revealed that Current Ratio has the highest maximum reached of 525.66, while Firm size has the lowest maximum reached of 3.3 and the highest minimum reached of 3.3.

Finally, the standard deviation results indicate that Firm size has 0.00062 implying that the variability of their values was low as indicated by the low standard deviation. While ROE, LTDTA, TDTA, CR and TDTE with standard deviation of 1.39, 0.36, 2.26, 36.3 and 9.67 has a moderate standard deviation.

### Correlation Matrix

To investigate the correlation between variables, the correlation matrix for the variables is provided in Table 4.2 below.

**Table 4.2: Correlation Matrix**

VAR.	ROE	LTDTA	TDTA	CR	TDTE	FS
ROE	1.0000					
LTDTA	0.0169	1.0000				
TDTA	-0.0092	0.8166	1.0000			
CR	0.0121	-0.0190	-0.0355	1.0000		
TDTE	-0.9268	-0.0469	-0.0358	-0.0107	1.0000	
FS	0.0245	-0.0042	0.0153	-0.1136	0.0263	1.0000

#### Research computation Using STATA 13

The correlation matrix between the dependent and independent variables is shown in the above table. The negative correlation between TDTA, TDTE, and ROE is well shown in this table. The coefficients of -0.0092 and -0.9268 demonstrate this. On the other hand, LTDTA, CR and FS display a positive correlation with coefficients of 0.0169, 0.0121 and 0.0245 with ROE.

### Pre-Diagnostic Test

The following pre-diagnostic test were done to select the appropriate regression model as shown in table 4.6 (Fixed Effect Regression Model).

### Hausman Test

The hausman is used to select between Fixed and Random Effect. If the P-value is significant at 0.05, fixed effect will be selected or else random effect is selected. Table 4.4 shows result of Hausman specification test, which guides in selecting between the fixed effect and the random effect model. Fixed effect model is chosen when the probability value is less than the t-value of 0.05. given the P-value of 0.0000 in table 4.4 which is less than the t-value of 0.05, the fixed effect model is chosen. Table 4.3 presents the hausman test.

**Table 4.3: Hausman Specification Test**

Variable	Fixed	Random	Var(Diff.)	Prob.
LTDTA	.4299314	.285569	.1443624	.0609628
TDTA	-.434905	-.0580301	.0145396	.033507
CR	.0002233	.0002266	-3.35e-06	.0002039
TDTE	-.139106	-.1372377	-.0018683	.0003178
FS	115.6668	115.3835	.2833013	2.181117
P-value				0.0000

**Research computation Using STATA 13**

### Variance Inflation Factor (VIF) Test

This test is used to detect the presence of multicollinearity. The purpose of multicollinearity test is to see whether the regression model has discovered any relationships or correlations among the independent variables. To avoid spurious regression analysis, the regression result was subjected to multicollinearity (to see if the independent variables were suffering from multicollinearity and heteroscedasticity tests). As shown in table 4.4 (VIF test for multicollinearity).

**Table 4.4: VIF Test**

Variable	VIF	1/VIF
LTDTA	3.01	0.332601
TDTA	3.01	0.332563
CR	1.01	0.985675
TDTE	1.00	0.997030
FS	1.01	0.985616
Mean VIF	1.81	

**Research computation Using STATA 13**

The residual of the regression analysis was subjected to a multicollinearity test to detect the presence of collinearity among the variables. An elevated Variance-Inflation-Factor (VIF) indicates the presence of multicollinearity. If the value of VIF is less than 10 and the tolerance value is more than 0.100, then multicollinearity is not present. The result shows the VIF of LTDTA and TDTA at 3.01 each, CR and FS at 1.01 each, TDTE at 1.00 and that the mean of the Variance Inflation Factor (VIF) was 1.81, which are all much lower than the threshold of 10. The VIF for individual variables was also very low. This indicates that the explanatory variables included in the model were not correlated, indicating an absence of



multicollinearity between the variables.

### Heteroscedasticity Test

The purpose of the heteroscedasticity test is to determine whether there are significant variations in the residuals and variance of the observations in the regression model. The heteroscedasticity was tested in the residuals of the estimations using the Breusch-Pagan/Cook-Weisberg test. One of the statistical assumptions of regression analysis is that the error terms for all observations have a common variance (homoscedastic). On the contrary, varying variance errors are said to be heteroscedastic. This test is shown in table 4.5.

**Table 4.5: Heteroscedasticity Test**

Chi <sup>2</sup>	Probability
656.32	0.0000

Source: Stata (2013)

The result shows the probability value of 0.0000 which is less than 5%. This indicate that there is no heteroskedasticity problem in the model. Therefore, the model is fit.

### Regression Analysis

The study utilised pooled Ordinary Least Squares (OLS), Fixed Effects (FE), and Random Effects (RE) regression models to examine the effect of four debt financing components Long-Term Debt to Total Asset ratio (LTDTA), Total Debt to Total asset ratio (TDTA), Total Debt to Total Equity ratio (TDTE) and Current Ratio (CR) on firm performance as assessed by Return on Equity (ROE), while accounting for Firm Size (FS).

**Table 4.6: Regression Analysis Result (Fixed Effects)**

Variables	Coefficients	Std. Err	t-stat	P-value
Constant	-382.0099	119.4294	-3.20	0.002
LTDTA	.4299314	.1367836	3.14	0.002
TDTA	-.0434905	.03928	1.11	0.269
CR	.0002233	.000695	0.32	0.748
TDTE	-.139106	.0023795	-58.46	0.000
FS	115.6668	36.13815	3.20	0.002
R <sup>2</sup>				0.9128
F-Stat				686.33
P-sig				0.0000

### Research computation Using STATA 13

Table 4.6 depicts the fixed effect regression result. Thus, the regression line of ROE = -382.0 +0.42 -0.04 +0.0002 -0.139 +115.66. LTDTA indicates that, return on equity (ROE) of quoted manufacturing companies in Nigeria increases by 42% for every 1% increase in LTDTA, while CR and FS indicates that, return on equity (ROE) of quoted manufacturing companies in Nigeria increases by 0.02% and 115% for every 1% increase in current ratio and firm size respectively. However, TDTA and TDTE decreases by 4% and 13% for every 1% increase in Return on equity respectively. The respective p-values indicate significant effect of only LTDTA, TDTE and FS on ROE, given by 0.002, 0.000 and 0.002 respectively.

However, insignificant effects of TDTA and CR are found based on a P-value of 0.269 and 0.748 respectively.

The R-Squared of 0.9128 indicates that about 91% of variation in ROE of quoted manufacturing companies in Nigeria can be explained by LTDTA, TDTA, CR, TDTE, and FS. The remaining 9% is captured by the disturbance or error term. The F-statistics of 686.33 with its p-value of 0.0000 indicates fitness of the model.

### **Long-Term Debt to Total Asset and Return on Equity**

The respective p-values indicate positive significant effect of LTDTA on ROE with coefficient of 42% and P-value of 0.002. This finding agrees with Orji et al., 2021 who examined Effect of Debt Financing on Firms Performance in Nigeria. Ex Post Facto Design was used in the study in order to examine the effect of debt financing on firms performance in Nigeria with reference to Oil and Gas Sector, Health Care Sector and ICT Sector of NSE. A total of 26 firms formed their sample size with 208 observations with data spanning from 2013-2020. OLS Regression Model was developed to test the linear relationship between the dependent and independent variables. It was operated using SPSS version 20. The result of the analysis of the study using OLS Regression model found that Long Term Debt Financing has no significant effect on Firms Performance in Nigeria.

The results, however, differ with those of Hajisaaid's (2020) investigation into The Effect of Capital Structure on Profitability of Basic Materials Saudi Arabia Firms. The study examined the relationship between the capital structure and profitability of eight Saudi Arabian enterprises operating in the basic material sector between 2009 and 2018. Regression analysis, the fixed effect model, the random effect model, and the Hausman test are the statistical methods employed. The findings show that Return on Equity and Long-Term Debt to Total Asset (LDA) have a negative insignificant relationship.

### **Total Debt to Total Asset ratio and Return on Equity**

The p-value of 0.269 and coefficient of -0.04% indicates a negative insignificant effect of TDTA on ROE. These findings concur with Hamid et al., 2015 who investigated Capital Structure and Profitability in Family and Non-Family Firms: Malaysian evidence. In this study, the general multivariate model was used as the basis of empirical analysis for testing the hypotheses. The study examined the influence of capital structure on profitability of 46 family firms and 46 non-family firms in Malaysia. Using 276 firm year observations of Malaysian listed companies over three years, 2009 to 2011, the result shows that debt ratio is negatively and significantly related to Return on Equity.

However, the findings don't line up with Hajisaaid's (2020) research on The Effect of Capital Structure on Profitability of Basic Materials Saudi Arabia Firms. Between 2009 and 2018, the study looked at the financial structure and profitability of eight Saudi Arabian businesses involved in the basic materials industry. The statistical techniques used are regression analysis, the fixed effect model, the random effect model, and the Hausman test. The findings showed a positive insignificant relationship between return on equity (ROE) and total debt (DA).

### **Current Ratio and Return on Equity**

The relationship between ROE and CR is a positive insignificant relationship as shown by the p-value of 0.748 and coefficient of 0.0002%. The findings are similar with that of Lusy et al., 2018 who researched on Effects of Current Ratio and Debt-To-Equity Ratio on Return on Asset and Return on Equity. The purpose of the present study was to examine the effects of current ratio and debt-to-equity ratio on return on asset and return on equity for companies of the food and noodle sub-sector. A total of 10 companies

listed on the Indonesia Stock Exchange (ISX) was sampled from 2014 to 2017. Data were processed using the multiple linear regression analysis with SPSS 24. The results showed that that CR had a significance level of 0.0300, meaning that CR has a positive effect on ROE.

The results, however, differ with those of Permada and Sari's (2024) study, which examined the impact of the effect of current ratio and debt to equity ratio on return on equity at PT. Timah Tbk. The objective of the study was to ascertain how return on equity (ROE) was impacted by the current ratio (CR) and debt to equity ratio (DER). The financial accounts of PT. Timah Tbk for the years 2010–2021 served as the study's population. This study employed a descriptive methodology with an associative approach. The Statistical Product and Service Solution (SPSS) was used to process the secondary data that was used. Multiple linear regression is employed in the data analysis. The results of this study show that the current ratio significantly affects return on equity.

### **Total Debt to Total Equity and Return on Equity**

Based on the p-value of 0.0000 and coefficient of -0.13%, the relationship between ROE and TDTE is negative and significant. The findings agree with those of Nasution et al. (2018). Who studied The Effect of Debt to Equity Ratio and Total Asset Turnover on Return on Equity in Indonesian Automotive Companies and Components. The goal of this research was to determine how the debt to equity ratio and total asset turnover affect return on equity, both partially and simultaneously. The research methodology used in this study included an associative technique. The secondary and empirical data used in this study were gathered by searching through papers on the official website of the Indonesia Stock Exchange (IDX). The 13 companies that were listed on the Indonesia Stock Exchange and were involved in the automobile and component industries made up the study's population. Ten businesses were chosen for the study's sample through the use of purposeful sampling in the sampling procedure. The data analysis technique used in this study was multiple linear regressions. The findings indicate that Return on Equity was negatively and significantly impacted by the Debt to Equity Ratio.

On the other hand, Lusy et al. (2018) conducted research on Effects of Current Ratio and Debt-To-Equity Ratio on Return on Asset and Return on Equity. The study's goal was to investigate how the debt-to-equity ratio and current ratio affected the return on equity and return on asset for businesses in the food and noodle subsector. From 2014 to 2017, a sample of ten firms that are listed on the Indonesia Stock Exchange (ISX) was taken. Multiple linear regression analysis was used with SPSS 24 to process the data. The findings demonstrated that return on equity was significantly positively impacted by the debt-to-equity ratio.

### **Firm Size and Return on Equity**

The p-value and coefficient of 0.002 and 115 shows a positive significant relationship between FS and ROE. The results agree with the findings of Sobia and Szabó (2015) who studied Leverage as A Determinant of Return on Equity Whether Firm Size Moderate Leverage –Return on Equity Relationship. The study's sample comprises 17 cement businesses that are listed on the KSE indexes of Pakistan. The years 2006 through 2011 comprise the sample period. The data utilized was taken from the State Bank of Pakistan website and was taken from the article "Balance Sheet Analysis of Joint Stock Companies Listed at Karachi Stock Exchange." This study employs the regression method to ascertain how leverage affects return on equity. The results of the study showed a significant positive relationship between return on equity and firm size.

However, research on Firm Size and Equity Return of Quoted Consumer Goods Manufacturing Firms in Nigeria was conducted by Adebayo (2022). Ex-post facto research design and content analysis were

employed in the study. Data was obtained through secondary sources, including the Statement of Accounts and Audited Annual Reports of the chosen companies. Regression modelling and panel data estimates were utilized in the study's data analysis. The study's findings demonstrated that the returns on equity of listed consumer goods manufacturing companies in Nigeria are negatively and insignificantly impacted by firm size.

## **5. Conclusion and Recommendations**

The primary objective of this study was to investigate the effect between debt financing on profitability. To achieve this objective, we used 370 firm-year observations in a panel data form for 37 manufacturing companies listed on the Nigerian Stock Exchange from 2013 to 2022. Based on the data analysis and discussions carried out, we conclude that debt financing has a significant impact on the profitability of listed manufacturing companies. The result is consistent with the Trade-Off Theory (TOT), which holds that a company's firm value can be maximized by figuring out the best combination of debt and equity. The theory proposes that a business should weigh the costs and benefits of using debt and equity as its primary sources of funding. According to the trade-off theory, a company should strive to attain the ideal balance between the benefits of debt and equity financing which can be found in an optimal capital structure. Thus, Nigerian listed manufacturing companies must weigh the benefits of debt against the dangers of bankruptcy in order to maintain the traditional benefit of leverage ratios. This suggests that in order for a company to benefit, the debt ratio must be chosen at an appropriate level.

In light of the earlier discussed, the research recommended that:

- i. The management of listed manufacturing companies in Nigeria should consider utilizing appropriate debt policies to enhance their profitability. Effective use of proper debt policies can provide growth opportunities, provided that the cost of debt is managed efficiently.
- ii. The management of manufacturing companies listed in Nigeria should remain cautious when taking on high levels of debt. It is of utmost importance to adopt adequate debt management techniques to avoid potential financial distress.

### **Conflicts of Interest**

The authors have disclosed no conflicts of interest.

### **Author's Affiliation**

<sup>1</sup>Yasar Sambo, <sup>2</sup>Dr. Lucky Onmonya

<sup>1,2</sup>Department of Accounting, Nile University of Nigeria

### **COPYRIGHT**

© 2024 The Author(s). This is an open-access article distributed under the terms of the Creative Commons Attribution 4.0 International License (CC-BY 4.0), which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited. See <http://creativecommons.org/licenses/by/4.0/>. Seybold Report is a peer-reviewed journal published by Seybold Publications.

### **HOW TO CITE THIS ARTICLE**

Sambo, Y., & Onmonya, L. (2024). Debt financing and the profitability of listed manufacturing companies in Nigeria. *Seybold Report Journal*, 19(09), 178-200. [DOI: 10.5281/zenodo.13712316](https://doi.org/10.5281/zenodo.13712316)



**REFERENCES**

- Abeywardhana, D. Y., & Magoro, K. (2017). Debt Capital and Financial Performance: A Comparative Analysis of South African and Sri Lankan Listed Companies. *Asian Journal of Finance & Accounting*, 9(2), 103. <https://doi.org/10.5296/ajfa.v9i2.11761>
- Abor, J. (2005). The effect of capital structure on profitability: an empirical analysis of listed firms in Ghana. *The Journal of Risk Finance*, 6(5), 438–445. <https://doi.org/10.1108/15265940510633505>
- Abor, J., & Biekpe, N. (2009). How do we explain the capital structure of SMEs in sub-Saharan Africa? *Journal of Economic Studies*, 36(1), 83–97. <https://doi.org/10.1108/01443580910923812>
- Adebayo, L. Q. (2022). “Firm Size and Equity Return of Quoted Consumer Goods Manufacturing Firms in Nigeria.” *World Journal of Research and Review*, 14(6), 13–13. <https://doi.org/10.31871/wjrr.14.6.13>
- Ahmed, F., & Siddiqui, D. A. (2019). Impact of Debt Financing on Performance: Evidence from Textile Sector of Pakistan. *SSRN Electronic Journal*. <https://doi.org/10.2139/ssrn.3384213>
- Akani, H. W. (2024). View of Debt Financing and Net Profit Margin of Quoted Consumer Goods Manufacturing Firms in Nigeria. *Advance Journal of Banking, Finance and Investment*, 8(1).
- Akhtar, M., Yusheng, K., Haris, M., Ain, Q. U., & Javaid, H. M. (2021). Impact of financial leverage on sustainable growth, market performance, and profitability. *Economic Change and Restructuring*, 55. <https://doi.org/10.1007/s10644-021-09321-z>
- Alhassan, I., & Mamuda, A. U. (2020). Ownership Structure and Financial Performance of Quoted Financial Firms in Nigeria. *International Journal of Accounting Research*, 5(4), 116–124. <https://doi.org/10.12816/0059063>
- Ali, A. (2020). *Current Ratio | Formula | Example | Analysis | Industry Standards*. Accounting Simplified. <https://accounting-simplified.com/financial/ratio-analysis/current/>
- Aziz, S., & Abbas, U. (2019). Effect of Debt Financing on Firm Performance: A Study on Non-Financial Sector of Pakistan. *Open Journal of Economics and Commerce*, 2(1), 8–15. <https://doi.org/10.22259/2638-549X.0201003>
- Bello, S., Pembri, S., & Vandi, V. P. (2020). Impact of capital structure on financial performance of deposit money banks in Nigeria. *International Journal of Management Social Science and Peace and Conflict Studies*, 3(4), 135–149.
- Birru, M. W. (2016). The impact of capital structure on financial performance of commercial banks in Ethiopia. *Global Journal of Management and Business Research*, 16, 44–52.

- Fernando, J. (2024, March 6). *Debt-to-Equity (D/E) Ratio Formula and How to Interpret It*. Investopedia. <https://www.investopedia.com/terms/d/debtequityratio.asp>
- Girardin, M. (2022, May 16). *What Is the Current Ratio? Formula and Definition*. Forage. <https://www.theforage.com/blog/skills/current-ratio#h-current-ratio-definition>
- Gomis, R. M., & Khatiwada, S. (2016). Debt and productivity: Evidence from firm-level data. *International Labour Office Research Department*, 5(23), 8.
- Hajisaaaid, A. M. S. A. (2020). The Effect of Capital Structure on Profitability of Basic Materials Saudi Arabia Firms. *Journal of Mathematical Finance*, 10(04), 631–647. <https://doi.org/10.4236/jmf.2020.104037>
- Hamid, M. A., Abdullah, A., & Kamaruzzaman, N. A. (2015). Capital Structure and Profitability in Family and Non-Family Firms: Malaysian Evidence. *Procedia Economics and Finance*, 31, 44–55. [https://doi.org/10.1016/s2212-5671\(15\)01130-2](https://doi.org/10.1016/s2212-5671(15)01130-2)
- Hayati, D. R., Liztiara, M., & Muchtar, S. (2022). Debt Financing and Firm Performance on Manufacturing Companies Listed on the IDX. *Jurnal Ekonomi*, 27(1), 80–93. <https://doi.org/10.24912/je.v27i1.856>
- Hayes, A. (2024, February 22). *Total Debt-to-Total Assets Ratio: Meaning, Formula, and What's Good*. Investopedia. <https://www.investopedia.com/terms/t/totaldebttotalassets.asp#toc-understanding-the-total-debt-to-total-assets-ratio>
- Heikal, M., Khaddafi, M., & Ummah, A. (2014). Influence Analysis of Return on Assets (ROA), Return on Equity (ROE), Net Profit Margin (NPM), Debt to Equity Ratio (DER), and current ratio (CR), Against Corporate Profit Growth In Automotive In Indonesia Stock Exchange. *International Journal of Academic Research in Business and Social Sciences*, 4(12). <https://doi.org/10.6007/ijarbss/v4-i12/1331>
- Hofstrand, D. (2019). *Understanding Profitability*. IOWA STATE UNIVERSITY. <https://www.extension.iastate.edu/agdm/wholefarm/html/c3-24.html>
- Horton, M. (2024, August 7). *The Difference Between Profitability and Profit*. Investopedia. <https://www.investopedia.com/ask/answers/012715/what-difference-between-profitability-and-profit.asp#toc-what-is-profitability>
- Jensen, M. C. (1986). Agency cost of free cash flow, corporate finance, and takeovers. *The American Economic Review*, 76(2), 323–329.
- Jensen, M. C., & Meckling, W. H. (1976). Theory of the firm: Managerial behavior, Agency Costs and Ownership Structure. *Journal of Financial Economics*, 3(4), 305–360. [https://doi.org/10.1016/0304-405X\(76\)90026-X](https://doi.org/10.1016/0304-405X(76)90026-X)

- Kenton, W. (2020, December 30). *Understanding the Long-Term Debt-to-Total-Assets Ratio*. Investopedia. <https://www.investopedia.com/terms/l/long-term-debt-to-total-assets-ratio.asp>
- Korz, N. (2015). Department of Tourism, hotel and restaurant business The Evolution of Capital Structure Theories and Their Classification. *Socio- Economic Problems and the State*, 12(1), 182–189.
- Lewis, R. (2024, June 19). *What is return on equity? How to calculate ROE to evaluate a company's profitability*. Business Insider. <https://www.businessinsider.com/personal-finance/investing/return-on-equity?r=US&IR=T>
- Lusy, Y., Hermanto, B., Panjaitan, T., & Widyastuti, M. (2018). Effects Of Current Ratio And Debt-To-Equity Ratio On Return On Asset And Return On Equity. *International Journal of Business and Management Invention (IJBMI) ISSN*, 7(12), 31–39.
- Mazikana, A. T. (2021). The impact of debt financing on financial performance of mining firms in Harare, Zimbabwe. *SSRN Electronic Journal*. <https://doi.org/10.2139/ssrn.3973025>
- Modigliani, F., & Miller, M. H. (1958). The Cost of Capital, Corporation Finance and the Theory of Investment. *The American Economic Review*, 48(3), 261–297.
- Modigliani, F., & Miller, M. H. (1963). Corporate Income Taxes and the Cost of Capital: A Correction. *The American Economic Review*, 53(3), 433–443.
- Mukumbi, M. C., Eugene, K. W., & Jinghong, S. (2020). Effect of Capital Structure on the Financial Performance of Non-Financial Firms Quoted at the Nairobi Securities Exchange. *Nternational Journal of Science and Business*, 4(5), 165–179. <https://doi.org/10.5281/zenodo.3787293>
- Myers, S. C., & Majluf, N. S. (1984). Corporate Financing and Investment Decisions When Firms Have Information that Investors Do Not Have. *Journal of Financial Economics*, 187–221.
- Nasution, A. E., Putri, L. P., & Putri, S. (2018). The Effect of Debt to Equity Ratio and Total Asset Turnover on Return on Equity in Automotive Companies and Components in Indonesia. *Advances in Economics, Business and Management Research (AEBMR)*, 92, 182–188.
- Ng'ang'a, D. W. (2017). *The Effect of Debt Financing on Financial Performance of Private Secondary Schools in Kajiado County*.
- Nguyen, H. T., & Nguyen, A. H. (2020). The Impact of Capital Structure on Firm Performance: Evidence from Vietnam. *The Journal of Asian Finance, Economics and Business*, 7(4), 97–105. <https://doi.org/10.13106/jafeb.2020.vol7.no4.97>

- Ni, J., Chu, L. K., & Li, Q. (2017). Capacity decisions with debt financing: The effects of agency problem. *European Journal of Operational Research*, 261(3), 1158–1169. <https://doi.org/10.1016/j.ejor.2017.02.042>
- Okewale, J. A., Mustapha, O. A., & Aina, G. O. (2020). Ownership structure and financial performance of quoted food and beverage firms in Nigeria. *KIU Journal of Social Sciences*, 6(2), 263–273.
- Opoku-Asante, K., Winful, E. C., Sharifzadeh, M., & Neubert, M. (2022). The Relationship Between Capital Structure and Financial Performance of Firms in Ghana and Nigeria. *European Journal of Business and Management Research*, 7(1), 236–244. <https://doi.org/10.24018/ejbmr.2022.7.1.1282>
- Orji, A., Nwadiolor, E. O., & Agubata, N. (2021). Effect of Debt Financing on Firms Performance in Nigeria. *Journal of Accounting and Financial Management*, 7(3), 60–72.
- Permada, D. N. R., & Sari, P. (2024). The effect of current ratio and debt to equity ratio on return on equity at PT. Timah Tbk. *Journal of Economics and Business Letters*, 4(1), 43–53. <https://doi.org/10.55942/jebvl.v4i1.272>
- Peterdy, K. (2020). *Debt to Asset Ratio*. Corporate Finance Institute. <https://corporatefinanceinstitute.com/resources/commercial-lending/debt-to-asset-ratio/>
- Phan, Q. T. (2018). Corporate debt and investment with financial constraints: Vietnamese listed firms. *Research in International Business and Finance*, 46, 268–280. <https://doi.org/10.1016/j.ribaf.2018.03.004>
- Racheal, J.-A., Chelichi, I., & Raymond, E. (2017). Leverage and Financial Performance: Evidence from Nigerian Food Production Firms. *European Journal of Research and Reflection in Management Sciences*, 5(4).
- Rahman, M. M., Kakuli, U. K., Parvin, S., & Sultana, A. (2019). Debt Financing and Firm Performance: Evidence from an Emerging South-Asian Country. *Business and Economic Research*, 10(1), 40. <https://doi.org/10.5296/ber.v10i1.15910>
- Salman, R. T., & Hassan, Y. (2016). Effects of Financial Leverage on Shareholders' Return of Deposit Money Banks in Nigeria. *Ilorin Journal of Management Sciences*, 3(1), 86–93.
- Serrasqueiro, Z., & Caetano, A. (2014). Trade-Off Theory Versus Pecking Order Theory: Capital Structure Decisions in A Peripheral Region of Portugal. *Journal of Business Economics and Management*, 16(2), 445–466. <https://doi.org/10.3846/16111699.2012.744344>
- Shuaibu, F. (2023, March 14). *Access to forex, credit facilities hindering manufacturing sector – MAN - Daily Trust*. Daily Trust. <https://dailytrust.com/access-to-forex-credit-facilities-hindering-manufacturing-sector-man/>

- Sobia, Q., & Szabó, Z. (2015). Leverage as a determinant of return on equity whether firm size moderate Leverage? return on equity relationship. *Proceedings of International Academic Conferences 2503654, International Institute of Social and Economic Sciences.*, 440–443.
- Subagyo, H. (2021). Relationships between Debt, Growth Opportunities, and Firm Value: Empirical Evidence from the Indonesia Stock Exchange. *Journal of Asian Finance*, 8(1), 813–821. <https://doi.org/10.13106/jafeb.2021.vol8.no1.813>
- Ubesie, M. (2016). The Effect of Capital Structure On The Financial Performance Of Nigerian Quoted Conglomerates. *European Journal of Accounting, Auditing and Finance Research*, 4(6), 61–69.
- Usman, M. (2019). The Impact of Capital Structure on Financial Performance of Consumer Goods Industry in Nigeria. *Open Journal of Accounting*, 08(04), 47–62. <https://doi.org/10.4236/ojacct.2019.84004>
- Vipond, T. (2024). *Profitability ratios*. Corporate Finance Institute. <https://corporatefinanceinstitute.com/resources/accounting/profitability-ratios/>
- Wambua, M. F. (2019). *Effect Of Debt Financing On Financial Performance Among Firms Listed At Nairobi Securities Exchange By Manzano Felix Wambua A Research Project Submitted In Partial Fulfilment Of The Requirements, For The Award Of Degree Of Master Of Science In Finance, School Of Business*. [Http://Erepository.Uonbi.Ac.Ke/Bitstream/Handle/11295/108691/Wambua\\_Effect%20of%20debt%20financing%20on%20financial%20performance%20among%20firms%20listed%20at%20nairobi%20securities%20exchange.Pdf?Sequence=1](Http://Erepository.Uonbi.Ac.Ke/Bitstream/Handle/11295/108691/Wambua_Effect%20of%20debt%20financing%20on%20financial%20performance%20among%20firms%20listed%20at%20nairobi%20securities%20exchange.Pdf?Sequence=1)
- Zhou, H., Geng, S., & Wang, L. Z. (2014). Relationship between Free Cash Flow and Corporate Performance Evidence from the Listed Real Estate Companies in China. *Applied Mechanics and Materials*, 556-562, 6445–6448. <https://doi.org/10.4028/www.scientific.net/amm.556-562.6445>
- Zurigat, Z. (2009). *Pecking Order Theory, Trade-Off Theory and Determinants of Capital Structure: Empirical Evidence from Jordan*.