FINANCIAL LEVERAGE AND PROFITABILITY OF LISTED MANUFACTURING FIRMS IN NIGERIA

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K E Y W O R D S	A B S T R A C T
	The study investigates financial leverage and profitability of listed manufacturing firms in the Nigeria stock exchange market from 2011 to 2022. Data for financial leverage were disaggregated into total debt to total assets, total debt to total equity and long-term debt to assets, while profit after tax and net profit margin were used as proxies for profitability of listed manufacturing firms. Secondary Data were collected from the financial statements of the companies under study. The study employed fixed panel model to analyse the data set. It was found that total debt to total assets has positive and significant effect on profit after tax, total debt to total assets has negative and insignificant effect on net profit margin, total debt to total equity has negative and insignificant effect on profit after tax, total debt to total equity has positive and insignificant effect on net profit margin and Long term debt to assets has positive and significant effect on profit after tax of selected listed manufacturing firms in Nigeria stock exchange market. The study concludes that there exist mixed findings on the effect of financial leverage on the profitability of the selected manufacturing companies under studied. The study therefore, recommends that firms should leverage on debt to equity and assets mix putting into consideration the pecking order theory, if they want to improve their profit margin.

Background to the Study

Every business entity in the whole world strives to maximize profit in order to remain in business. This goal necessitates prudent financing decisions. Many of the manufacturing firms are experiencing financial distress. Some of the firms have short down completely. This study examines financial leverage and profitability of publicly owned manufacturing firms in Nigeria.

Unquestionably, the trouble affecting business entities in Nigeria is financing; either the source entity or debt assets. Debt and equity are terms used to describe the sources of fund used by firms to fund their operations. Loans, bonds, ordinary shares, debentures, preference shares, and retained earnings are all examples of broad terms. Finance is so important that it determines whether or not a company should start up or expand its operations. Capital structure is thus one of the important variables that firms consider when determining profitability. Good and skilled managers strive for

optimal capital structure, because it relates to a firm's ability to meet the demands of multiple stakeholders. As a result, finance managers must thoroughly research their company's finance mix in order to meet the objectives. Finance managers are thus expected to select the best option that ensures or guarantees the optimal finance structure or a combination that reduces costs and increases business profit.

The extent to which firms or corporations use borrowed money in their capital structure is referred to as financial leverage. Will, (2021) defines it as the use of debt financing and borrowed capital to increase a firm's operation and profitability. The use of debt allows most businesses to survive with significant liquidity levels.

When it comes to manufacturing firms, quoted companies frequently use financial leverage to increase assets, which increases production and the company's profits. The use of borrowed money in a firm's capital structure, on the other hand, increases the risk of a financial crisis. Failure to meet the firm's financial obligations may result in financial distress or bankruptcy. As a result, before seeking external financing, most highly profitable companies use their retained earnings first.
Investing in a company with a high proportion of debt in its capital structure is risky. Any business that relies on a long-term external source of funding to run its operations will almost certainly face a significant interest payment.

In essence, effective financial leverage is important owing to its major impact on corporate profitability and the firm's survival on the Nigerian stock exchange market. In this context, Profit is the amount of money left after removing all costs associated with the business activities.

When the profit earned from the use of borrowed funds exceeds the interest paid on the borrowed funds, financial leverage is advantageous. Some companies prefer to use their equity to conduct business instead of combining it with long-term borrowing, which may become a burden in the future, due to yearly interest payments and principal repayment at maturity. However, frugality and prudence are terms that are intertwined in business because, they have direct or indirect impact on the profits of organizations.. This is why firms try to cut down costs by employing cost reduction strategies so that their operating expenses do not erode their profits completely.

Corporate financial analysts have traced the recent collapses of corporate organizations to a variety of causes, the most important of which is corporate financial managers' inability to make informed financial decisions based on optimal capital structure. Some major manufacturing firms today have used worker retrenchment as a cost-cutting strategy, resulting in astronomical increases in unemployment and a high crime rate that has rendered our society almost uninhabitable.

The low profitability recorded among corporate organizations, particularly in Nigeria's manufacturing sector, and its multiplier effects warrant investigation. Regardless of the establishment of audit committees in most public organizations, including manufacturing companies, many shareholders have lost large financial investments and their life savings as a result of finance managers' fraudulent financial

reporting and inappropriate financial mix. This has resulted in a high rate of business failures in Nigeria and around the world, necessitating an investigation.

Some studies in this area (Financial Leverage and Profitability of Stock Exchange-Listed Firms) produce contradictory results. In a study of the petroleum industry, Ali, Iza, and Razi (2012) concluded that capital structure has a significant and positive impact on the profitability of firms in the industry. Amsaveni (2009), on the other hand, collected 20 years of data on India's aluminum industries and concluded that there is a negative relationship between financial leverage and profitability. Lopez and Kwanum (2012) investigated the relationship between capital structure and the performance of Nigerian Stock Exchange-listed manufacturing firms. The study discovered no correlation between debt to equity and performance. Using various variables, this study investigated the impact of financial leverage on the profitability of listed manufacturing firms on the Nigeria exchange limited.

Quoted companies are at liberty to access external funds for their business operations, in order to increase production and business profit, yet   many manufacturing companies are declaring low profit. Most investors have lost confidence on their fund managers. Financial analysts think that the financial managers use inappropriate capital mix to run the firms. The negative effects include retrenchment of workers, high crime rate, low national gross domestic products and bankruptcy or liquidation of the affected firms.

Despite the efforts of other researchers to proffer solutions using different financial leverage measurement tools, there still exists ongoing debate on the impact of borrowed funds on the performance of manufacturing firms. In the light of the above, the study is interested in assessing the extent financial leverage asserts positive or negative effect on the profitability of the captured firms.

Objectives of the Study

The main objective of this study is to investigate the financial leverage and profitability of listed manufacturing firms in the Nigerian stock exchange market.

The specific objectives are to;

i.   evaluate the effect between Total Debt to Total Asset [TDTA] and Profit After Tax [PAT] of listed Manufacturing firms in the Nigeria stock exchange market (Nigeria Exchange Limited);

ii.   evaluate the relationship between Total Debt to Total Asset [TDTA] and Net Profit Margin [NPM] of listed Manufacturing firms in the Nigeria stock exchange market;

iii. Examine the effect between Total Debt to Equity [TDE] and Profit After Tax [PAT] of listed Manufacturing firms in the Nigeria stock exchange market;

iv.   Examine the relationship between Total Debt to Equity [TDE] and Net Profit Margin [NPM] of listed Manufacturing firms in the Nigeria stock exchange market;

v.   Ascertain the effect of Long-term Debt to Total Assets [LDTA] and Profit After Tax [PAT] of listed Manufacturing firms in the Nigeria stock exchange market and

vi.   Ascertain the relationship of Long-term debt to Total Assets and Net Profit Margin of listed Manufacturing firms in the Nigeria stock exchange market.

Research questions
1.   What is the effect between Total Debt to Total Assets and Profit After Tax of listed Manufacturing firms in the Nigeria stock exchange market?
2.   What is the relationship between the Total Debt to Total Asset and Net Profit Margin of listed Manufacturing firms in the Nigeria stock exchange market?
3.   To what extent does Total Debt to Equity affect Profit After Tax of listed Manufacturing firms in the Nigeria stock exchange market?
4.   To what extent does Total Debt to Equity affect the Net Profit Margin of listed Manufacturing firms in the Nigeria stock exchange market?
5.   What is the effect between Long-term debt to total assets and Profit After Tax of listed Manufacturing firms in the Nigeria stock exchange market?
6.   What is the relationship between Long-term debt to total assets and the Net Profit Margin of listed Manufacturing firms in the Nigeria stock exchange market?

Research Hypotheses
H_{01}:   There is no significant effect between Total Debt to Total Asset and Profit After Tax of listed Manufacturing firms in the Nigeria stock exchange market.
H_{02}:   There is no significant relationship between the Total Debt to Total Asset and Net Profit Margin of listed Manufacturing firms in the Nigeria stock exchange market.
H_{03}:   There is no significant effect between Total Debt to Equity and Profit After Tax of listed Manufacturing firms in the Nigeria stock exchange market.
H_{04}:   There is no significant relationship between the Total Debt to Equity and Net Profit Margin of listed Manufacturing firms in the Nigeria stock exchange market.
H_{05}:   There is no significant effect between Long-term debt to total assets and Profit After Tax of listed Manufacturing firms in the Nigeria stock exchange market.
H_{06}:   There is no significant relationship between Long-term debt to total assets and the Net Profit Margin of listed Manufacturing firms in the Nigeria stock exchange market.

Review of related literature
Conceptual Review
Financial leverage is the degree to which firms make use of their borrowed money (debt financing) to increase profitability. It is measured by Total liabilities divided by shareholders Equity.

Financial leverage, according to Naveed Zulfquar and Ishfad (2010), is the relationship between various types of finance such as bonds, debentures, bank and trade credits, commercial papers, preference share capital, and equity capital. Financial leverage is also defined as the relationship between the equity-to-debt ratio. It is the
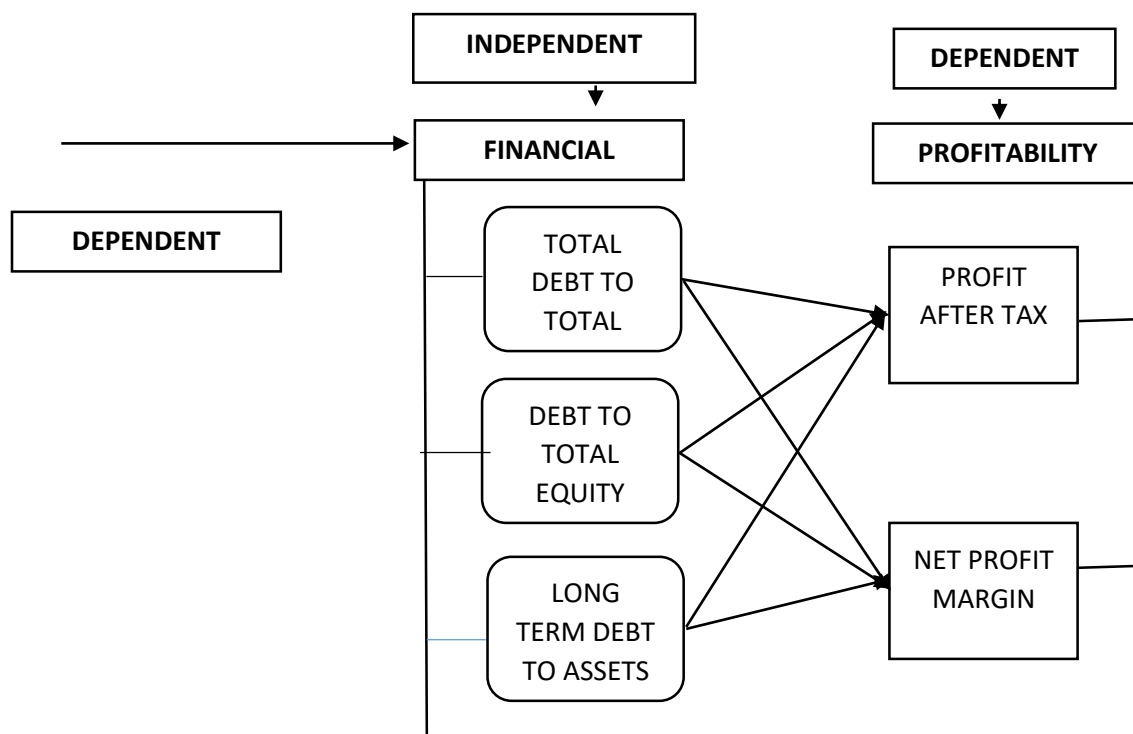
use of debt to purchase more assets in order to increase the return on equity. More specifically, it refers to the extent to which corporations use borrowed funds in their capital structure. According to Dada and Ghazali (2016), capital structure depicts a system in which equity and debt are used to fund the firm's activities in order to maximize the firm's returns given the level of risk. Ezechukwu and Amahalu (2017) on their part stated that 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.

Salawu (2009) opined that capital structure is the mixture of diverse securities utilized by a company in financing its profitable ventures. Firms use leverage as a source of funding when there is a need to expand the firm's assets base to generate more profit.

As a result, financial leverage cannot be separated from capital structure. What the above definitions of financial leverage and capital structure have in common is that they reflect each component of finance that a firm uses in financing its operations, from equity to debt (borrowing). The presence of debt in a company's capital structure is simply referred to as financial leverage. The goal of applying financial leverage to capital is to maximize profit. Financial leverage is typically used to maximize shareholder wealth by increasing business profit. Lopez and Kwanum (2012), on the other hand, investigated the relationship between capital structure and performance of manufacturing firms listed on the Nigerian Stock Exchange. The study discovered no correlation between debt to equity and performance. Rasa and Jurgita (2012) discovered a negative relationship between total debt to equity and financial performance in their study on the effect of corporate governance decisions on the capital structure of Lithuanian food and beverage companies from 2005 to 2010.

Many businesses struggle with deciding between equity and debt when it comes to funding long-term investment opportunities. The amount of debt that can be financed depends on the interest rate, the cost of financial distress, income taxes, market imperfections, unpaid taxes, corporate income, and so on. When interest rates fall, the firm's desire will rise. An increase in leverage will result in an increase in financial distress. An increase in the firm's leverage will make the firm's stock unappealing to investors, as will an increase in financial distress. Firms may struggle to meet a required service obligation, which could result in not only administrative and legal costs, but also bankruptcy. Leverage depicts the sensitivity of equity ownership to changes in an entity's fundamental value. Notably, in capital structure works, the leverage ratio can be an independent, controlling, and dependent variable. High leverage reduces the agency costs of outside equity and increases corporate worth by limiting or encouraging managers to meet shareholder demands (Berger and Di Patti, 2006). However, such an incentive will benefit shareholders at the expense of debt holders. If financial leverage is not used wisely, management may increase agency problems and costs rather than increase profitability.

Conceptual Framework

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                ▼                                   ▼
         ┌──────────────┐                    ┌──────────────┐
────────▶│  FINANCIAL   │                    │ PROFITABILITY│
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| DEPENDENT |

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   ┌─────────────┐                    ┌─────────────┐
   │   TOTAL     │                    │   PROFIT    │
   │  DEBT TO    │                    │  AFTER TAX  │
   │   TOTAL     │                    │             │
   └─────────────┘                    └─────────────┘
   ┌─────────────┐
   │  DEBT TO    │
   │   TOTAL     │
   │   EQUITY    │                    ┌─────────────┐
   └─────────────┘                    │ NET PROFIT  │
   ┌─────────────┐                    │   MARGIN    │
   │   LONG      │                    │             │
   │ TERM DEBT   │                    └─────────────┘
   │  TO ASSETS  │
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A representation of the relationship between financial leverage and profitability of a firm.

Debt to Assets Ratio

The debt to asset ratio is a leverage ratio that calculates the percentage of a company's assets that are financed by debt. It demonstrates how much of the company is owned by creditors. It depicts a company's financial health, growth, and profitability over time. As a result, it is one of the variables in this study. It reveals information about the capital structure of a company. Debt to assets ratios are commonly used by investors and financial analysts to determine whether a company has sufficient funding to meet its debt obligations on time. It is also a good indicator of whether a company can adequately pay return on investment. The debt-to-asset ratio measures a firm's financial leverage. It is calculated as follows:

<u>**Total Liabilities**</u>
Total Asset   that is debt/assets

In a company's balance sheet, total liabilities (Debt) are made up of short-term debt plus long-term debt, whereas total assets may include current and non-current assets. Sometimes the analyst will only consider assets like Plant, Propertyand Equipment (PPE). Short-term liabilities such as employee salaries and long-term liabilities such as pension plans are not classified as debt in corporate finance because they are an inherent part of business operations.

If the debt-to-asset ratio is less than one (1), the company is financially sound. It denotes that the company has more assets than debt.

If the total debt-to-asset ratio equals one (=1), the firm has the same amount of assets as liabilities. A situation like this indicates that the company is highly leveraged. Any further increase in debt reduces the company's financial flexibility because debt exceeds collateral (assets).

A debt-to-assets ratio greater than one (>1) indicates that the company's liabilities outnumber its assets. It indicates that the company is on the verge of bankruptcy and may be unable to meet its financial obligations. Investing in a company with a high degree of leverage is a huge risk.

Debt to Equity (D/E) Ratio

The debt-to-equity ratio compares a company's total liabilities to its shareholders' equity. It can be used to determine the amount of leverage a company employs in its capital structure or business operations. All debts, including current money, are compared to all equity in the ratio. It shows the amount of money provided by the company's creditors and owner.

A high debt-to-equity ratio typically indicates that the company has been funding its expansion and growth with borrowed funds.
When this occurs, it indicates that additional interest expenses may result in volatile earnings. There is a risk of default or business failure if interest expenses are not well managed.

When a company's debt-to-equity ratio exceeds, an investor considers it a risky investment. However, some businesses require a larger capital outlay or expenditure (CAPEX), such as those in the manufacturing and utility industries, which require more loans to be secured than other types of businesses.

Formula of Debt to equity ratio   =   **Total shareholder's equity**
                                         Total liabilities

It is better to compare and evaluate business leverage ratios against companies in a similar industry and their past performance to have a better understanding of the gathered data as a whole than to compare with firms in a different industry or sector.

The Equity Multiplier

This is a leverage ratio that is similar to the debt to equity ratio, but it is calculated differently. Instead of debts to equity, the numerator is business assets. The equity multiplier is a business indicator that measures the proportion of a company's assets that are financed by equity rather than debt.
Total Assets divided by Total Shareholder's Equity yields the Equity Multiplier.

Profit after tax

Profit after tax (PAT) is the net profit available to shareholders after the business unit has paid all expenses and taxes. The business unit can be of any type, such

as private limited company, public limited company, government-owned company, privately-owned company, and so on.

Taxation is an essential component of any ongoing business. After deducting all operating and non-operating expenses, loan interest, and so on, the business is left with several profits, known as profit before tax or PBT. The tax is then calculated based on the available profit. Finally, after deducting the taxation amount, the business derives its net profit or profit after tax (PAT).

Profit Margin

Profit Margin is a ratio that assesses a company's ability to generate net profits at a given level of sales. This ratio enables users to interpret the company's ability to keep costs low for a specified period of time. Profit Margin is calculated as follows:

(Net Income: Sales) x 100% = Profit Margin

When this ratio approaches 100%, we can say that the company has a relatively high ability to collect net income.

Net Profit Margin

Profit margin, according to Wikipedia, is a financial ratio that measures the percentage of profit earned by a company in relation to its revenue. It indicates how much profit the company makes for every dollar of revenue generated when expressed as a percentage. Profit margin is significant because it provides a comprehensive picture of a company's or industry's operating efficiency. All margin changes are useful indicators for assessing a company's growth potential, investment viability, and financial stability in comparison to its competitors. Maintaining a healthy profit margin helps to ensure a company's financial success, which improves its ability to obtain loans?

Long Term Debt Financing

Long-term debt is money owed to lenders for more than a year as of the current balance sheet date. According to Ebaid (2009), there is no significant relationship between long-term debt and return on assets. Long-term debts are the most preferred sources of debt financing among well-established corporate institutions, owing to their asset base, and collateral is a requirement requested by many deposit-taking financial institutions. According to a European Commission report (2008), large financial institutions have significantly reduced lending to SMEs, limiting their potential for growth and financial performance. Pelham (2000) contended that long-term debts provided small firms with a competitive advantage over large firms. According to the findings, there is a direct positive and significant relationship between long-term loans and small business financial performance. Long-term debt was found to be positively related to growth/share/sales effectiveness and gross profit in small and medium-sized manufacturing firms. Long-term debt behavior is an important area of study. Long-term finance is associated with higher productivity, according to Okegbe, Eneh, and Amahalu (2019). According to Guo, Yang, and Zhang (2020), changes in leverage are positively related to changes in stock returns. Sutomo (2020) discovered that firms

with greater asset diversification and a higher fixed asset ratio tend to use more long-term debt, whereas firms in regulated industries do not.   However, the prediction is tentative due to a lack of prior research and empirical evidence in this area, particularly on the use of long-term debt financing.

Equity Financing

Equity financing is money obtained from small business owners or other investors. Equity capital, according to Kisgen (2006), is the mode that allows equity holders to exert influence and continuously monitor managerial decisions through the board of directors. It is also likely to increase the value of equity holders and thus firm performance. Booth (2002) contends that firms that use equity finance can improve their performance because they have direct control, and because all equity holders are the residual claimants, they must ensure that resources are allocated efficiently in order to maximize shareholder wealth. Boateng and Jones (2003) found that the use of equity capital is positively related to firm financial performance, lending credence to Booth's arguments. There is no legal requirement to repay the funds obtained through equity financing. Companies are free to keep their profits instead of paying dividends to shareholders.

Profitability: Profit is defined as a monetary gain. It is a cash flow that is positive. It is the remainder of revenue generated by business activities after expenses. Profitability is one of the primary goals of business owners. Profitability is a measure of a company's profit after deducting its expenses, and it aids in determining a company's success or failure. Profitability is a company's ability to use its resources to generate revenue that exceeds its expenses. Organizations with efficient and high-quality management teams will profit more as a percentage of their expenses than less efficient organizations with the same expenses. The purpose of incorporating financial leverage into a company's capital structure is to increase profitability in its business operations. In this work, we are going to look at the effect of financial leverage on a manufacturing firm's profitability by analyzing key metrics to determine whether the companies are healthy and their profit sustainability over time.

Theoretical Review

The study is anchored on the pecking order theory . The goal of this research is not to create new theories about the subject, but rather to test and provide support for the existing theories mentioned above using a deductive approach.
Financial leverage is not a novel concept. It has been researched by several authors. As a result, employing an inductive approach is unnecessary. An inductive approach would prompt the researcher to develop entirely new theories to explain the findings.
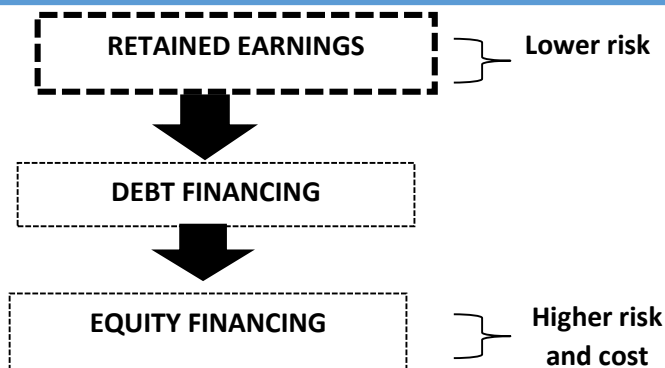
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│     RETAINED EARNINGS      ┆──┐ Lower risk
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┆      EQUITY FINANCING      ┆──┐ Higher risk
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Figure 2 Pecking order theory

Pecking Order Theory

According to this theory, firms prefer to finance new investments internally first, then with debt, and finally with new equity as a last resort. As a result, there is a negative relationship between leverage and performance. Retained earnings financing (internal financing) comes directly from the company and reduces information asymmetry in the context of the Pecking order theory. Internal financing, as opposed to external financing such as debt or equity financing, where the company must pay fees to obtain external financing, is the cheapest and most convenient source of financing. When a company finances an investment opportunity with external financing (debt or equity), a higher return is demanded because creditors and investors know less about the company than managers. Managers prefer debt to equity when it comes to external financing. The cost of debt is less than the cost of equity. The pecking order theory relates to a company's capital structure, in that, it helps to explain why companies prefer to finance investment with internal financing first, debt second, and equity last.

Because of information asymmetry, the pecking order theory explains that equity financing is the most expensive and should only be used as a last resort to obtain financing. It is useful to consider the seniority of claims to assets when applying the pecking order theory. Debt holders require a lower return than stockholders. This is due to the fact that they have a stronger claim to assets (in the event of bankruptcy). As a result, when it comes to financing options, the cheapest is retained earnings, the second is debt, and the third is equity. According to the pecking order theory, financial leverage is a symptom of a company's poor financial performance and inability to generate enough capital to sustain business operations. Finance managers therefore ought to be cost-conscious in accessing financial leverage hence the three steps ranking.

Four Factors Affecting the Level of Financial Leverage

The level of financial leverage is influenced by four major factors: firm size, tangible assets, profitability, and market netbook.

i.   **Size:** Large corporations tend to use financial leverage, which carries a lower risk of default and bankruptcy. This lends credence to the trade-off theory. Furthermore, as insiders, large company decision makers have less information

that external investors miss (less asymmetric information), making external investors more willing to invest money. This reasoning supports the pecking order theory.

ii. **Tangible Assets:** If the company has a lot of fixed assets in proportion to total assets, financial leverage can be used. This is the trade-off theory.

iii. **Profitability**- Highly profitable businesses use less financial leverage and retain more earnings (pecking order theory). The ratio of earnings before interest and tax to total assets is used to calculate profitability. TOTAL ASSETS: EBIT

iv. **Market Net Book**- this is a measurement used to forecast company growth and is related to financial performance (pecking order theory).

Empirical Review

The entire review of the literature with authors, objectives, methodology, and findings are stated as follows:

Jim, Xiaochen and Chien (2021) investigated on the relationship between long-term debt financing and financing deficit of Chinese-listed firms from 2003 to 2015. They used Quasi experimental design. The study employed Regression analysis. Variable of long-term debt ratio, financing deficit were used. The regression analysis documented a positive relationship between financing deficit and changes in the long-term debt ratio.

Senan, Ahmad, Anagreh, Tabash and Al-Homaidi, (2021) examine the determinants of financial performance, firm liquidity and leverage ratio of Indian listed firms of Indian listed firms on the Bombay Stock Exchange. Quasi experimental design was used. The study used both static models (pooled, fixed and random effects) and the Generalized Moment Method (GMM). It is revealed that the current ratio and the quick ratio have a significant impact on the financial leverage of Indian listed firms.

Rafiuddin and Rafiqul (2020) examine firm level characteristics and firm performance (or profitability) of service sector firms listed in the Australian Stock Exchange (ASX). Quasi experimental design was used. Using a panel regression approach (2009–2019). return on assets, return on equity, operating margin ratio and return on capital employed were used. The analysis of data revealed a significant association between return on equity and leverage levels.

Ali (2020) investigated on the effect of three types of leverage, operating leverage, financial leverage, and combined leverage, on the financial performance of food and fertilizer sector firms listed on the Pakistan Stock Exchange. Ex-post facto research design and regression analysis was employed. The study found that the degree of financial leverage and combined leverage have no significant impact on financial performance as measured by return on assets, but the degree of operating leverage has a significant negative impact on return on assets. Firm size has no bearing on financial performance as measured by Return on Assets

Enekwe, Agu, and Eziedo (2014) investigate the effect of financial leverage on financial performance in 73 listed pharmaceutical firms in Nigeria. Quasi-experimental design was used. The findings revealed a negative relationship between debt ratio and debt-equity ratio (financial leverage) and return on assets.

Nwangi, Makau, and Kosimbei (2014) study the impact of capital structure on non-financial company performance on the Nairobi Securities Exchange. The study employed the use of Expo facto research design. panel data and Feasible Generalised Least Squares regression was used. Financial leverage was found to have a statistically significant negative relationship with performance as measured by return on assets (ROA) and return on equity (ROE).

Senan, Ahmad, Anagreh , Tabash and Al-Homaidi, (2021) examined the determinants of financial performance, firm liquidity and leverage ratio of Indian listed firms of Indian listed firms on the Bombay Stock Exchange. The study employed the use of Expo facto research design. The study used both static models (pooled, fixed and random effects) and the Generalized Moment Method (GMM), 2007 to 2018. It is revealed that the current ratio and the quick ratio have a significant impact on the financial leverage of Indian listed firms.

Ibrahim (2009) examined the impact of debt (capital structure) on the performance of listed companies in Egypt. The study employed the use of Expo facto research design. Data tested via multiple regression model 1997-2005. The results exhibited that capital structure shows a weak-to-no impact on performance

Saeedi and Mamoodi (2011) examined the relationship between capital structure and performance of listed firms in the Tehran Stock Exchange1995-2011. The study employed Expo facto research design. panel analysis was employed. The findings specify that financial leverage might affect different measures of performance in diverse means

Abdul (2012) Determine the relationship between capital structure decision and the performance of firms in Pakistan 2003-2009. Pooled Ordinary Least regression was used. Financial leverage proxied by short term debt to total assets and total debt to total assets has a significantly negative relationship with the firm performance proxied by Return on Assets (ROA), Gross Profit Margin (GM) and Tobin's The relationship between financial leverage and firm performance measured by the return on equity (ROE) is negative but insignificant. Asset size has an insignificant relationship with the firm performance measured by ROA and GM but negative and significant relationship exist with Tobins Q

Ralu ca (2014) examined Capital structure and corporate performance of listed Romanian companies 2010-2012. The study used Expo facto research design. Regression analysis was employed to analyze data collected, The results indicate that firm's performance, which is measured by ROA, ROE, RCA and MBR is significantly influenced by the degree of capital structure.

Nwangi, Makau and kosimbei (2014) investigated the relationship between capital structure on the performance of nonfinancial companies listed in the Nairobi

Securities Exchange. The study employed Quasi-experimental research and data analyzed via feasible generalized least Square. Financial leverage had a statistically significant negative association with performance as measured by return on assets (ROA) and return on equity (ROE).

Margaritis and Psillaki (2010) examined the relationship between leverage and firm's performance in Nigeria 1998 to 2009. Quasi-experimental was employed. The study found a significant positive relation between leverage and firm's performance.

Kannadhasan (2014) examined the connection amid leverage and value of pharmaceuticals companies in India 2000-2012. panel regression. The findings show a positive and significant relationship between financial leverage and performance of a firm.

Salim and Yadav (2012) explored the association amid capital structure and organizations financial performance 1995-2011. Ex-Post Facto method was used. Panel data methodology. There is a positive association between growth and performance for all the sectors. Tobin's Q. reveals that there are significantly positive relationship between short term debt (STD) and long term debt (LTD). It also reports that total debt (TD) has significant negative relationship with the performance of the firm.

Magara (2012) examined capital structure and its determinants at the Nairobi Securities Exchange 2007 to 2011. Ex-Post Facto. there exists a positive and significant association between firm size, tangibility and growth rate and the degree of leverage of the firm

Javed and Akhtar (2012) examined capital structure and financial performance in Pakistan. Ex-Post Facto was used and Correlation Regression Test was adopted. The findings depict a positive link between the Leverage, financial performance and Growth, Size of the firms.

Toraman (2013) Investigated the effects of capital structure decisions on firms' profitability in manufacturing sector Turkey. Quasi-experimental was employed. Regression analysis was employed. Findings displayed that short-term liabilities to total assets and long term liabilities to total assets have a negative association with ROA as performance indicator. There is positive relationship between operating income to financial expenditures and profitability.

Ahmed, Salmon, and Shams (2015) study the impact of financial leverage on a firm's profitability in Pakistan's cement sector. Quasi-experimental was employed. Regression analysis was employed. Financial leverage has a significant inverse impact on profitability.

Nwachukwu and Akpeghughu (2016) The relationship between capital structure and firm performance in Nigeria's banking industry. Quasi-Experimental research design was used. Regression analysis was employed. there is a positive and significant relationship between equity capital and return on investment, as well as a negative and significant relationship between debt capital and return on investment.

Adesina, Nwidobie, and Adesina (2015) The impact of capital structure on deposit money bank performance in Nigeria. Ordinary least square method. capital

structure of Nigerian listed banks has a significant positive relationship with their financial performance. In 2005 and 2011.

Iheanyi, Sotonye, and Ejiodamen (2016) The impact of capital structure on deposit money bank performance in Nigeria Ex-Post Facto and Ordinary least square method was used. The study found that highly geared capital structure outperforms a lowly geared capital structure in terms of deposit money performance.

Oyedokun, Olatunji, and Sanyaolu (2018) examined the impact of capital structure on the financial performance of Nigerian manufacturing firms. Ex-Post Facto and Descriptive statistics and regression were used. The study found that Capital Structure has Both Statistically Significant And Non-Significant Effects On Performance Variables.

Adenugba, Ige, and Kesinro (2016) Studied the relationship between financial leverage and firm value on the Nigerian stock exchange between 2007 and 2012. Quasi Experimental research design and value Standard least squares method was employed. The research found a link between financial leverage and a company's values.

Ulla (2019) Studied the effect of financial leverage on the profitability of Pakistani fertilizer companies. Quasi Experimental research design and Regression analysis was employed. The concludes that leverage has a significant negative impact on the profitability of Pakistani fertilizer companies

Research Gap

Previous researchers are yet to reach a consensus on the relationship between financial leverage and listed firm profitability. As a result, the purpose of this work is to demonstrate how financial leverage affects the profitability of manufacturing firms listed in Nigeria. A review of some studies of Nigerian listed firms revealed some flaws in their study in the following areas;

Variable gap

This study differs in variable employed as revealed in the work of Senan, Ahmad, Anagreh, Tabash and Al-Homaidi, (2021) who studied the determinants of financial performance, firm liquidity and leverage ratio of Indian listed firms. They used current ratio and quick ratio as predictors of financial leverage while in this study, we introduced Total Debt to Total Assets, Total Debt to Total Equity and Long Time Debt to Total Assets as explanatory variables

Methodology gap

This study differs in methodology used as revealed in the work of Ulla (2019) who study the effect of financial leverage on the profitability of Pakistani fertilizer companies. The study used regression analysis as against panel analysis used in our study.

Geographical and periodic scope

The geographical scope of this study is Nigeria covering the period of 2011 to 2022 as against majority of the work covered in this study. The Nigeria context of the study reveals the actual effect of financial leverage on the profitability of firms in Nigeria.

Methodology

This study used quasi-experimental design. According to Amaefule, Onyekpere, and Onyekperem (2017), a quasi-experimental design takes several measures so that the relationship between the dependent and independent variables over a given period can be measured. This informs the design of this study because the explanation fits the core objective of this study, which is to evaluate the effects of financial leverage on the profitability of listed firms in the Nigeria exchange group.

Data were obtained from the published financial statements of the listed firms in our study, which spanned the years 2011 to 2022.

Method of Data Analysis

The Panel analysis estimation technique (fixed effect) is used in this study to determine the magnitude and significance of the parameters specified in the model. Because of the uniqueness of the data collected, this model was chosen.

Model Specification

To estimate the parameters of econometric relationships from statistical observations, various economic methods can be used. The panel analysis method was used. The statistical data were analyzed using tables, which were used to run a regression or model to determine the relationship that exists between dependent and independent variables. The regression analysis results were used to test the formulated hypothesis, which we either accepted or rejected. Explanatory variables include debt to total assets, debt to total equity, and long term debt to total assets.

Model One
Functional model
PAT   = F (TDTA, TDTE, TLTD) ……………………………...………………1
Linear model
PAT   = b0 + bTDTA + b TDTE + bTLTD + et…………………….…… ……2

Model Two
Functional model
NPM   = F (TDTA, TDTE, LTDA) ……………………………….…………..…3
Linear model
NPM   = b0 + bTDTA + b TDTE + bTLTD + et ………………….…… ……4
Where;
NPM   =   Net Profit Margin
PAT   =   Profit After Tax

Used as proxy for profitability
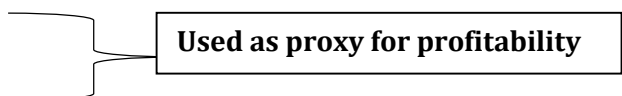
TDTA   =   Total Debt to Total Assets
TDTE   =   Total Debt to Total Equity
LTDA   =   Long Time Debt to Assets
et   =   Error-term

> **Used as proxy for financial leverage**

The above models were modified from the work of Nwangi and Kosimbei (2014). They used ROA & ROE to measure profitability while debt ratio was used to proxy financial leverage; ROA & ROE= f (DEBT RATIOS)

Data Presentation

Data collected for this study include data from the following manufacturing companies Cadbury (Nigeria) Plc, Dangote Cement Plc, Dangote Sugar Refinery Plc, Flour Mills Plc, Guinness Nig. Plc, Livestock Feed Plc, Nestle Nigeria Plc, Nigeria Breweries, Oando Plc. The data captured PAT and NPM as dependent variable (Abubakar &Garba, 2019), regressed on financial leverage. As explanatory variables the proxies for the data set are as follows;

Financial Leverage is measured by TDTA= Total Debt to Total Asset (Kariyawasam, 2019), TDTE= Total Debt to Total Equity (Fali et al., 2019. And Long Term Debt to Assets. See Appendix 1 for the detailed data set.

Data Analysis

Data analysis in this study was carried out using Panel analysis estimate as was expressed in the model stated in section 3 of this work. The choice of the use of fixed or random panel estimation is subject to the result of the Hausman Test.

Hausman Test for model one and two

Correlated Random Effects - Hausman Test
Equation: Untitled
Test cross-section random effects

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	24.937352	3	0.0000

Correlated Random Effects - Hausman Test
Equation: Untitled
Test cross-section random effects

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	19.205295	3	0.0002

From the above result, the p-value of the Hausman test Summary was obtained as 0.0000 and 0.0002 for models one and two. Since the p-value of the Hausman test summary is less than 0.05, we reject the null hypothesis that random panel analysis is more suitable for the estimate and accept the alternative hypothesis that fixed effect is suitable. Hence the appropriate model for the study is panel analysis fixed effect.

Presentation of result model specific
Panel model estimate (fixed effect model 1)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.392593	6.927340	-0.056673	0.9549
TDTA	0.320292	0.121228	2.642061	0.0098
TDTE	-0.106986	0.764645	-0.139916	0.8891
LDTA	2.177406	0.818007	2.661844	0.0093

Source: EViews result output 2023

Relationship between total debt to total assets and profit after tax
The result in table 4.3.1 reveals that the coefficient of total debt to total assets is positive with a value of 0.320292. The positive values of TDTA indicate that a positive effect exists between the variable and profit after tax of the selected companies. This implies that a percentage increase in the slope of total debt to the total asset will result in a corresponding increase in the selected companies' profit after tax all this being equal.

Relationship between total debt to total equity and profit after tax
The result in table 4.3.1 reveals the coefficient of total debt to total equity is negative with a value of -0.106986. The negative values of TDTE indicate that a negative effect exists between the variable and profit after tax of the selected companies. These imply that a percentage increase in the slope of TDTE will result in a corresponding decrease in profit after tax of the selected companies to the tone of -0.106986.

Relationship between long-term debt to total assets and profit after tax
Table 4.3.1 reveals that the coefficient of long-term debt to total assets is positive with a value of 2.177406. The positive values of long-term debt to total assets indicate that a positive effect exists between the variable and profit after tax of the selected companies. This implies that a percentage increase in the slope of long-term debt to total assets will result in a corresponding increase in the selected companies' profit after tax all things being equal.

Panel model estimate (fixed effect model 2)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	29.16655	15.99656	1.823301	0.0719

TDTA	-0.035237	0.308585	-0.114190	0.9094
TDTE	0.529325	1.736300	0.304858	0.7612
LDTA	1.206451	1.872849	0.644180	0.5212

Source: EViews result output 2023

Relationship between total debt to total assets and Net Profit Margin

The result in table 4.3.2 reveals that the coefficient of total debt to total assets is negative with a value of -0.035237. The negative values of TDTA indicate that a negative and inverse effect exists between the variable and net profit margin of the selected companies. This implies that a percentage increase in the slope of total debt to the total asset will result in a corresponding decrease in the selected company's net profit margin all this being equal.

Relationship between total debt to total equity and Net Profit Margin

The result in table 4.3.2 reveals the coefficient of total debt to total equity is positive with a value of 0.529325. The positive value of TDTE indicates a positive effect exists between the variable and the Net Profit Margin of the selected companies. These imply that a percentage increase in the slope of TDTE will result in a corresponding increase in the Net Profit Margin of the selected companies to the tone of 0.529325.

Relationship between long-term debt to total assets and Net Profit Margin

Table 4.3.2 reveals that the coefficient of long-term debt to total assets is positive with a value of 1.206451. The positive values of long-term debt to total assets indicate a positive effect exists between the variable and the Net Profit Margin of the selected companies. This implies that a percentage increase in the slope of long-term debt to total assets will result in a corresponding increase in the selected companies Net Profit Margin all things being equal.

Test of Hypotheses

To ascertain the significance of these results, the t-statistics results of each of the independent variables are considered; these are discussed under the test of hypotheses.

Test of Hypothesis 1

H_{01}:   There is no significant effect between total debt to total assets and profit after tax.

In testing this first hypothesis of the study, the regression result in Table 4.2 was used. From the result, the p-value (t-stat probability) of the first independent variable total debt to total assets was obtained as 0.0098; which is less than the significant level of 0.05 (5%) i.e. $P < 0.05$. This result indicates that a significant effect exists. Therefore, we reject the null hypothesis which states that there is no significant effect between total debt to total assets and profit after tax.

Test of Hypothesis 2

H_{02}:   There is no significant effect between total debt to total assets and net profit margin.

In testing the second hypothesis of the study, the regression result in Table 4.3 was used. From the result, the p-value (t-stat probability) of total debt to total assets was obtained as 0.9094; which is greater than the significant level of 0.05 (5%) i.e. P > 0.05. This result indicates that an insignificant effect exists. Therefore, we accept the null hypothesis which states that There is no significant effect between total debt to total assets and net profit margin.

Test of Hypothesis 3

H_{03}: There is no significant relationship between Total Debt to Equity and Profit After Tax of listed Manufacturing firms in the Nigeria stock exchange market.

In testing the third hypothesis of the study, the regression result in Table 4.2 was used. From the result, the p-value (t-stat probability) of Total Debt to Equity was obtained as 0.8891; which is greater than the significant level of 0.05 (5%) i.e. P > 0.05. This result indicates that an insignificant effect exists. Therefore, we accept the null hypothesis which states that there is no significant effect between Total Debt to Equity and profit after tax of the selected listed Manufacturing firms in the Nigeria stock exchange market.

Test of Hypothesis 4

H_{40}: There is no significant relationship between the Total Debt to Equity and Net Profit Margin of listed Manufacturing firms in the Nigeria stock exchange market.

In testing the fourth hypothesis of the study, the regression result in Table 4.3 was used. From the result, the p-value (t-stat probability) of Total Debt to Equity was obtained as 0.7612; which is greater than the significant level of 0.05 (5%) i.e. P > 0.05. This result indicates that an insignificant effect exists. Therefore, we accept the null hypothesis which states that there is no significant effect between Total Debt to Equity and net profit margin of the selected listed Manufacturing firms in the Nigeria stock exchange market

Test of Hypothesis 5

H_{05}:   There is no significant relationship between Long-term debt to total assets and Profit After Tax of listed Manufacturing firms in the Nigeria stock exchange market.

In testing the fifth hypothesis of the study, the regression result in Table 4.2 was used. From the result, the p-value (t-stat probability) of Long-term debt to total assets was obtained as 0.0093; which is less than the significant level of 0.05 (5%) i.e. P < 0.05. This result indicates that a significant effect exists. Therefore, we reject the null hypothesis which states that there is no significant effect between Long-term debt to total assets and Profit After Tax of the selected listed Manufacturing firms in the Nigeria stock exchange market

Test of Hypothesis 6

H_{06}:   There is no significant relationship between Long-term debt to total assets and the Net Profit Margin of listed Manufacturing firms in the Nigeria stock exchange market.

In testing the fourth hypothesis of the study, the regression result in Table 4.3 was used. From the result, the p-value (t-stat probability) of Long-term debt to total assets was obtained as 0.5212; which is greater than the significant level of 0.05 (5%) i.e. P > 0.05. This result indicates that an insignificant effect exists. Therefore, we accept the null hypothesis which states that there is no significant effect between Long-term debt to total assets and net profit margin of the selected listed Manufacturing firms in the Nigeria stock exchange market

Discussion of Findings
The findings from the analysis and test statistics are discussed in line with the empirical review carried out in the second chapter of this study. Discussion of the findings is as follows:

1.   Concerning the first objective and the first hypothesis of this study, we discovered that the debt-to-assets ratio has a significant positive effect on the profit after tax of the captured companies. This finding is in line with the work of Kannadhasan (2014) who examined the connection between leverage and value of pharmaceutical companies in India between 2000-2012 using panel regression. His findings show a positive and significant relationship between financial leverage and the performance of a firm. The result also supports the work of Salim and Yadav (2012) who studied the relationship between capital structure and organizations' financial performance covering 1995 to 2011. Panel Data Methodology was used for the analysis of data. The result was that there is a positive association between growth and performance for all the sectors.

2.   Concerning the second objective and hypothesis of this study, we discovered that total debt to total assets has an insignificant negative effect on the net profit margin of the nine selected manufacturing companies. This finding is against the finding of Adenugba, Ige, and Kesinro (2016) who studied the relationship between financial leverage and firms value using 5 selected firms in Nigeria. Their work revealed that financial leverage asserts a positive and significant effect on the value and profitability of manufacturing companies.

3.   Concerning the third objective and hypothesis of this study, we discovered that total equity debt has an insignificant negative effect on the profit after tax of the captured manufacturing companies. This finding disagrees with the work of Nwachukwu, and Akpeghughu (2016) who examined the relationship between capital structure and firms' performance within banking industries in Nigeria. Regression analysis was used to analyze the data collected for that research work. In their findings, there exists a positive and significant relationship between equity capital and a negative and significant relationship between debt capital and return on investment.

4. For the fourth objective and hypothesis of this study, we discovered that total equity debt has a positive and insignificant effect on the net profit margin of the captured manufacturing companies. This finding disagrees with the work of Kamran, Rose, Ullah, and Matiullah (2016) who investigated the impact of financial leverage on a firm's profitability by taking a sample of 24 firms in the chemical sector that are registered in the Pakistan Stock Exchange and data were collected from annual reports of the firms for the year 2010 to 2015. The result indicated that a Negative and significant relationship exists between debt ratio with firm profitability, which shows that, if a firm increases its debt level then the firm's profitability level will decrease.

5. With respect to the fifth objective and hypothesis of this study, we discovered that long-term debt to assets has a significant positive effect on the profit after tax of the captured companies. This finding disagrees with the work of Yunus, and Sukriye (2013) who investigated the effects of capital structure decisions on firms' profitability in the manufacturing sector in Turkey in 2005 and 2011. Regression methodology was used. The findings displayed that short-term liabilities to total assets and long-term liabilities to total assets have a negative association with ROA as a performance indicator. However, it agrees with the work of Kannadhasan (2011) who examined the connection between leverage and value of pharmaceutical companies in India from 2000-2012 using panel regression. his findings show a positive and significant relationship between financial leverage and the performance of a firm. This also alines with the work of Salim and Yadav (2012) who studied the relationship between capital structure and organizations' financial performance covering 1995 to 2011. Panel Data Methodology was used for the analysis of data. The result was that there is a positive association between growth and performance for all the sectors.

6. With respect to the sixth objective and hypothesis of this study, we discovered that long-term debt to assets has an insignificant positive effect on the net profit margin of the captured manufacturing companies. The findings agree with the work of Kannadhasan (2011) who examined the connection between leverage and value of pharmaceutical companies in India from 2000-2012 using panel regression. his findings show a positive relationship between financial leverage and the performance of a firm. This implies that a percentage increase in the slope of long-term debt to assets will result in a corresponding increase in the profit margin of the selected manufacturing companies under coverage.

Summary of findings

This study examines the financial leverage and profitability of listed manufacturing firms in Nigeria's stock exchange market for the period 2011- 2022. TDTA, TDTE, and LTDA were used as proxies for firms financial leverage, while profit after tax and net profit margin were used as a proxies for the profitability of listed

manufacturing firms. Data were sourced from the annual reports of the companies selected for 12 years. Panel data technique was used as method of analysis. F-test and Hausman test were conducted to select the best model among the panel estimators. The study came up with the following findings;

1. Total debt to total assets has a positive and significant effect on profit after tax of selected listed manufacturing firms in Nigeria.
2. Total debt to total assets has a negative and insignificant effect on the net profit margin of selected listed manufacturing firms in the Nigeria.
3. Total debt to total equity has a negative and insignificant effect on profit after tax of selected listed manufacturing firms in the Nigeria.
4. Total debt to total equity has a positive and insignificant effect on the net profit margin of selected listed manufacturing firms in the Nigeria stock exchange market.
5. Long-term debt to assets has a positive and significant effect on profit after tax of selected listed manufacturing firms in the Nigeria.
6. Long-term debt to assets had a positive and insignificant effect on the net profit margin of selected listed manufacturing firms in the Nigeria.

Based on the findings of the study, the following conclusions are drawn.

Conclusion

The study concludes that there exist mixed findings on the effect of financial leverage and the profitability of the selected manufacturing companies that were studied. However, the combined effects of the financial leverage indicators show a significant effect on the profitability of the listed manufacturing companies.

Limitations

This work is limited to a sample of Nigerian manufacturing firms similar to those that were included in this research.

Recommendation

1. Firms should adopt a debt-equity mix, if foreign investors will be allowed to participate in mix debt structure of the company, because it has been found to improve the returns to shareholders.

2. Firms in the Nigeria Stock Exchange should increase equity to a level that will enable them to achieve a stable and constant debt-equity mix.

3. Equity should be increased through bonus issues, increases in retained earnings, and right issues.

4. In addition, firms should strategize to improve their sales level or turnover and also reduce unnecessary operational costs to enable the companies service the debt structure appropriately, because it has been proven that the firm debt to turnover is drastically reducing the shareholder's returns.

Contribution to knowledge

The financial controllers and decision-makers of business organizations will find this work useful while constituting an appropriate capital structure mix for their firms.

The finding of this study serves as a reliable source for policy-making, since the information and data collected are genuine.
The study serves as a guide to investors in taking appropriate investment decisions for higher returns on their investments.

The study contributes to knowledge for both the researcher and the readers of this research work on the effect of financial leverage on the profitability of business organizations.

Findings from this study are expected to provide insights that could help discourage the abuse of accessing financial leverage that erodes a firm's profit.

Suggestion for Further Research

The researcher is of the opinion that more research can be done in the area of financial leverage and profitability of the Nigerian manufacturing firms using different variables. Future study should investigate generalization of the findings beyond the Nigerian manufacturing firms using similar variables.

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