# Financing Decisions and Financial Stability: Moderating Effect of Firm Size of Listed Industrial Goods Firms in Nigeria

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## ABSTRACT

The ability to make savvy financing decisions is now a key differentiator for corporate firms seeking to outpace competition and achieve sustainable growth. In view of this, this study examined the moderating effect of firm size on the nexus between financing decisions and financial stability of listed industrial goods firms in Nigeria. The study employed Altman's Z-score in evaluating the financial stability of listed industrial goods firms in Nigeria and a combination of debt-equity ratio, interest coverage ratio, and total debt ratio as key predictors. Altman's Z-score assisted in gauging firms' financial stability over the research period. Additionally, the natural logarithm of total assets was integrated into the analysis to further refine the predictive model and to achieve the study objectives. The study adopted an *ex-post facto* research design and utilized a panel data of one hundred and fifty (150) pooled observations gathered across a sample of ten (10) listed industrial goods firms in Nigeria over a period of fifteen (15) years (2009-2023). The study employed descriptive statistics tools, Pearson correlation analysis and Fixed effects regression technique via Eviews 10.0 statistical package in analyzing the data. The study findings revealed that with the moderating effect of firm size, debt equity ratio has an insignificant negative relationship {(Coeff. = -0.000247 (0.6571)} with financial stability of listed industrial goods firms in Nigeria while interest coverage ratio has a significant positive relationship {Coeff. = 2.322405 (0.0173)} with financial stability of listed industrial goods firms in Nigeria. It also revealed that total-debt ratio has an insignificant negative relationship {Coeff. = -0.002365 (0.4236)} with financial stability of listed industrial goods firms in Nigeria. It was thus concluded that firm size has a significant moderating effect on the relationship between financing decisions and financial stability of listed industrial goods firms in Nigeria. The study recommended, amongst others, that firms should consider their size when making financing decisions and adjust their strategies accordingly for enhanced financial stability, growth prospects, and overall success.

**Keywords:** Financing decisions, Debt-equity ratio, interest coverage ratio, total debt ratio, financial stability, Altman's Z-score

## INTRODUCTION

In today's fiercely competitive and interconnected global marketplace, financing decisions have become a make-or-break factor for businesses seeking to stay ahead of the curve and maintain a competitive edge. The industrial goods sector of Nigeria's economy, is no exception, as it drives growth, fuels innovation, and creates employment opportunities. Financing decisions are critical choices made by firms to optimize their capital structure, manage risk, and drive growth. These decisions involve selecting the right mix of debt and equity, choosing between short-term and long-term financing options, and determining the optimal level of leverage. According to Samuel and Yahaya (2024), poor financing decisions are a ticking time bomb, poised to unleash a devastating impact on businesses, sending them spiraling into an abyss of financial chaos and long-term stagnation. This, by implication leads to insufficient equity base, high debt levels, imbalanced debt-to-equity ratio, and excessive short-term debt,

resulting in increased financial risk, potential default, and liquidity crises as opined by Brealey et al. (2020). These consequences include higher likelihood of default, bankruptcy, or financial distress (Altman, 1984), downgrade in credit rating (Kisgen, 2006), increased cost of debt and equity (Ross et al., 2019), reduced profitability, and reduced share price, dividend payments, and overall returns. As such, firms need to maintain an optimal capital structure to ensure financial flexibility, reduce risk, and maximize financial stability. However, achieving an optimal capital structure is challenging, and companies must balance debt and equity to respond to changing market conditions, fund new projects, and maintain control over their operations as argued by Modigliani and Miller (1958).

Effective financing decisions enhances a firm's financial flexibility, reduce costs, and increase shareholder value, while poor decisions lead to financial distress, reduced competitiveness, and decreased profitability (Graham & Harvey, 2017; Kayo & Kimura, 2019). Debt equity ratio, interest coverage ratio, total debt ratio, and firm size are crucial indicators of a firm's financing decisions. A high debt equity ratio signals excessive reliance on debt financing, increasing the risk of default and financial distress (Kisgen, 2006), while a low ratio indicates missed opportunities for leverage (Myers & Majluf, 1984). A strong interest coverage ratio ensures a firm meets its interest obligations, maintaining liquidity and reducing the risk of bankruptcy (Altman, 1984), whereas a weak ratio raises concerns about a firm's ability to service its debt (Brealey et al., 2020). The total debt ratio provides a comprehensive view of a firm's indebtedness, with high ratios indicating potential vulnerability to financial shocks and reduced flexibility (Modigliani & Miller, 1958). Larger firms enjoy greater access to capital markets, economies of scale, and risk management capabilities (Okeahalam, 2006), whereas smaller firms face higher costs of capital, reduced bargaining power, and increased vulnerability to external shocks (Subhani et al., 2022). These parameters are essential for firms in making informed decisions on financing, risk management, and growth strategies, ultimately impacting a firm's financial stability, competitiveness, and long-term success (Mwangi & Simiyu, 2024; Samuel & Yahaya, 2024; Vengesai, 2023; Setianti & Haryono, 2023; Subhani et al., 2022; Ofulue et al., 2022; Akayi et al., 2021).

Trade-off theory posits that firms balance the benefits of debt financing, such as tax shields and increased financial leverage, against the costs, including financial distress and bankruptcy risks (Musa & Kong, 2019; Kenn-Ndubisi et al., 2019; Akpochi et al., 2020; Ofulue et al., 2022; Akayi et al., 2021; Hassan & Adegbie, 2021). In the context of this study, financing decisions involve a delicate trade-off between debt and equity financing to achieve financial stability. Debt financing provides necessary capital for expansion and growth, but excessive leverage often increases the risk of financial distress. On the other hand, equity financing reduces financial risk but tend to dilute ownership and control. Invariably, the Pecking Order Theory provides a nuanced understanding of the interplay between firm size, financing decisions, and financial stability. This theory argues that by prioritizing internal financing, firms can reduce their reliance on external sources, minimizing information asymmetry issues and maintaining financial stability (Mwangi & Simiyu, 2024; Vengesai, 2023; Setianti & Haryono, 2023; Subhani et al, 2022; Ofulue et al., 2022; Akayi et al., 2021)

Extant studies on financial leverage and its impact on firm performance and financial stability has yielded inconsistent findings, with some studies revealing a positive correlation (Mwangi & Simiyu, 2024; Akayi et al., 2021) and others showing a negative relationship (Musa & Kong, 2019; Kenn-Ndubisi et al., 2019). Additionally, the effect of financial leverage on firm value is debated, with some studies finding a significant impact (Akpochi et al., 2020) and others detecting no significant relationship (Umar & Abdul Qudus, 2020). While financial leverage is recognized as a crucial factor in understanding firm liquidity (Senan et al., 2021; Okeke et al., 2021) and financing decisions (Subhani et al., 2022), a notable gap exists in the literature regarding the moderating effect of firm size on the relationship between financing decisions and financial stability. Only a few studies have explored this moderating effect (Vengesai, 2023; Setianti & Haryono, 2023), highlighting the need for further research to examine how firm size influences the impact of financial leverage on financial stability and to investigate differences in financing decisions and financial stability across firms of varying sizes. These inconclusive results and lack of consensus gave rise to a gap in literature which this study tends to fill. Although several variables have been widely studied, the empirical evidence of financing decisions and financial stability with reference to firm size in the post-recession era in Nigeria is lacking. The uniqueness of this study over other extant studies is the introduction of moderating effect of firm size. To the best of our knowledge, there is no indigenous study that has combined these variables, using firm size as a moderating variable. In addition, most of the extant studies covered between two to six years, but this current research extended the period to fifteen

years spanning from 2009 to 2023. Given the gap poised by the extant empirical studies, this study sought to fill the existing research gap by ascertaining the moderating effect firm size on the nexus between financing decisions and financial stability of listed industrial goods firms in Nigeria. The specific objectives of the study were to:

1. Determine the moderating effect of firm size on the relationship between debt-equity ratio and financial stability of listed industrial goods firms in Nigeria.

2. Ascertain the moderating effect of firm size on the relationship between interest coverage ratio and financial stability of listed industrial goods firms in Nigeria.

3. Assess the moderating effect of firm size on the relationship between total debt ratio and financial stability of listed industrial goods firms in Nigeria.

This study is significant as it contributes to the existing literature on financing decisions and financial stability, providing country-specific insights into the Nigerian industrial goods sector, which will offer practical implications for firms, policymakers, and stakeholders. The study will enable informed decisions on financing strategies and risk management practices, achieving financial stability, and inform policy decisions promoting industrialization and economic growth in Nigeria, while providing guidance for investors and stakeholders on the financial health of listed industrial goods firms. Ultimately, it sets a benchmark for future studies on financing decisions and financial stability in emerging markets, particularly in Africa, where the findings will be highly relevant and applicable due to shared economic and financial challenges.

# LITERATURE REVIEW

## Conceptual framework

### Financing decisions

Financing decisions play a vital role in corporate finance, as they involve strategically allocating a firm's capital structure between debt and equity to optimize funding for operational expenses and investment opportunities. These decisions have a direct impact on a firm's capital structure, financial risk, and ultimately, its overall financial health and stability (Ross et al., 2019). According to the trade-off theory, firms balance the benefits of debt financing, such as tax shields and increased financial leverage, against the costs, including financial distress and bankruptcy risks (Kraus & Litzenberger, 1973). The financing decisions of firms are influenced by various factors, including their industry, size, growth opportunities, and asset structure (Frank & Goyal, 2009). For instance, firms in industries with high growth opportunities may prefer equity financing to avoid the risk of debt financing, while firms with high levels of tangible assets may prefer debt financing due to the reduced risk of asset expropriation (Myers & Majluf, 1984). Additionally, firm size and age also influence financing decisions, with larger and more established firms having greater access to capital markets and a lower cost of capital. The financing decisions of firms can have significant consequences for their financial stability and performance. For example, excessive reliance on debt financing can increase the risk of financial distress and bankruptcy, while a lack of debt financing can limit a firm's ability to invest in growth opportunities (Graham & Harvey, 2017). Therefore, firms must carefully consider their financing decisions to ensure that they achieve an optimal capital structure that balances financial risk and return. By doing so, firms tend to maximize their financial stability and performance, and ultimately, create value for their shareholders.

### Debt-equity ratio

The debt-to-equity ratio is a fundamental concept in corporate finance that measures a firm's leverage and financial risk. It is calculated by dividing a firm's total debt by its total shareholder equity (Brigham & Ehrhardt, 2020). A higher debt-to-equity ratio indicates that a firm is using more debt financing and is therefore more leveraged, which can increase financial risk and the risk of default (Akayi et al., 2021). Conversely, a lower debt-to-equity ratio indicates that a firm is using more equity financing and is therefore less leveraged, which can reduce financial risk and increase financial stability. Firms with high debt-to-equity ratios are more likely to

experience a decline in stock price and an increase in cost of capital (Guedes et al., 2019). On the other hand, firms with low debt-to-equity ratios are more likely to experience an increase in stock price and a decrease in cost of capital. The optimal debt-to-equity ratio varies depending on the industry, firm size, and growth opportunities (Frank & Goyal, 2009). Firms in industries with high growth opportunities may prefer a higher debt-to-equity ratio to finance their growth, while firms in industries with low growth opportunities may prefer a lower debt-to-equity ratio to reduce financial risk (Myers & Majluf, 1984). Additionally, firms with high levels of tangible assets may prefer a higher debt-to-equity ratio due to the reduced risk of asset expropriation (Harris & Raviv, 1991). Extant studies that adopted debt-equity ratio include Kenn-Ndubisi et al. (2019), Musa and Kong (2019), Ofulue et al. (2022), and Akayi et al. (2021). These studies found mixed results, with some indicating a negative relationship between debt-equity ratio and financial performance, while others found a positive or insignificant relationship. For instance, Kenn-Ndubisi et al. (2019) found a negative relationship, while Akayi et al. (2021) found a positive relationship. Musa and Kong (2019) found an insignificant positive association, and Ofulue et al. (2022) found a significant negative relationship. These varying findings suggest that the impact of debt-equity ratio on financial performance may depend on contextual factors, such as industry, firm size, and economic conditions.

**Interest cover ratio**

Interest coverage ratio is often used to assess a firm's ability to meet its interest expenses on outstanding debt (Bhojraj & Sengupta, 2003). It is calculated by dividing a firm's earnings before interest and taxes (EBIT) by its interest expenses (EBIT/Interest Expenses). A higher interest coverage ratio indicates that a firm has sufficient earnings to cover its interest expenses, reducing the risk of default and financial distress (Graham & Harvey, 2017). Conversely, a lower interest coverage ratio suggests that a firm may struggle to meet its interest expenses, increasing the risk of default and financial distress. Several studies have highlighted the importance of the interest coverage ratio in assessing a firm's financial health and risk (Kayo & Kimura, 2019). Firms with high interest coverage ratios are more likely to experience a lower cost of capital and a higher credit rating (Ofulue et al. (2022). Additionally, firms with high interest coverage ratios are more likely to engage in debt financing and invest in growth opportunities (Frank & Goyal, 2009). On the other hand, firms with low interest coverage ratios are more likely to experience financial distress and default (Musa and Kong (2019). The interest coverage ratio can vary significantly across industries and firms, depending on factors such as firm size, growth opportunities, and capital structure (Myers & Majluf, 1984). According to Akpan et al., (2024), firms in industries with high growth opportunities may have lower interest coverage ratios due to increased debt financing, while firms in industries with low growth opportunities may have higher interest coverage ratios due to reduced debt financing and by analyzing interest coverage ratio, investors and creditors can gain valuable insights into a firm's financial health and risk, enabling informed investment and lending decisions.

**Total debt ratio**

The total debt ratio is a comprehensive measure of a firm's indebtedness, calculated by dividing total debt by total assets (Brigham & Ehrhardt, 2020). This ratio provides insight into a firm's overall leverage and financial risk, as high levels of debt can increase the risk of default and financial distress (Kenn-Ndubisi et al., 2019). The total debt ratio varies significantly across industries and firms, depending on factors such as firm size, growth opportunities, and capital structure (Myers & Majluf, 1984). Firms in industries with high growth opportunities may have higher total debt ratios due to increased debt financing, while firms in industries with low growth opportunities may have lower total debt ratios due to reduced debt financing as put forward by Akpan et al., (2024). Additionally, firms with high levels of tangible assets may have higher total debt ratios due to the reduced risk of asset expropriation (Guedes et al., 2019). By analyzing the total debt ratio, investors and creditors gain valuable insights into a firm's financial health and risk. Several studies have highlighted the importance of the total debt ratio in assessing a firm's financial performance and risk (Kayo & Kimura, 2019). Firms with high total debt ratios are more likely to experience a decline in stock price and an increase in cost of capital (Guedes et al., 2019). Conversely, firms with low total debt ratios are more likely to experience an increase in stock price and a decrease in cost of capital (Frank & Goyal, 2009). Akpochi et al. (2020), Musa and Kong (2019), and Kenn-Ndubisi et al. (2019) documented mixed results, with Akpochi et al. finding a positive and significant effect of debt to total asset on shareholder returns, Musa and Kong (2019) finding a significantly negative association between leverage and financial performance, and Kenn-Ndubisi et al. (2019) revealing mixed results

with some variables having a negative influence on financial performance while others had no significant impact.

**Financial stability**

According to Yasir and Harjan (2020), the financial stability of any company is an essential prerequisite for facing financial crises and implementing the companies 'development strategy. It also generates sustainability for investments that provide financial security for companies. As the company is financially stable when two conditions are met, which are the first condition: the company's solvency is the description of the company's financial condition, through which payment is made in a timely manner. To ensure solvency, cash flow must be effectively guaranteed. The second condition: to achieve financial stability is the availability of financial resources to develop the company and finance investments in the long term (Omaliko, Mordi & Uzodimma). Firm stability is the ability of companies to sustain the level of production and operation in the nearest future. Firm stability strategy focuses on maintaining its present product and market in order to guarantee future performance and avoid risk. Firm stability deals with the ability of a company to withstand temporary economic challenges. Such as a decrease in sales, lack of capital or loss of a key staff or customer. The stability plans of business include the investment in assets with present and future value. Assets like human resource, noncurrent assets and long-term financial security. (Dun & Bradstreets, 2011). Financial stability is a crucial aspect of a firm's overall health, and one measure of financial stability is Altman's Z-score (Altman, 1968). The Z-score is a statistical model that combines five financial ratios to predict the likelihood of bankruptcy. A higher Z-score indicates a higher degree of financial stability, while a lower Z-score indicates a higher risk of bankruptcy (Bharath & Shumway, 2008). Recent studies have confirmed the accuracy of the Z-score in predicting financial distress (Kayo & Kimura, 2019).

**Firm size**

Firm size, as measured by total assets, is a significant factor in corporate finance, as it can impact a firm's financial performance, risk, and overall success (Graham & Harvey, 2017). Firms with larger total assets tend to have greater resources, economies of scale, and market power, which can lead to increased profitability and financial stability (Frank & Goyal, 2009). Conversely, firms with smaller total assets face greater challenges in accessing capital, managing risk, and achieving economies of scale (Bharath & Shumway, 2008). Total assets comprise of both non-current and current assets and majority of non-current assets of industrial goods firms are items of property, plant and equipment. IAS 16 provides a comprehensive framework for the recognition, measurement, and disclosure of PPE, which is mandatory for Nigerian companies as stressed by Aluya and John (2024). Recent studies have shown that firm size, as measured by total assets, is a significant determinant of financial performance, with larger firms tend to outperform smaller firms in terms of profitability and stock returns (Kayo & Kimura, 2019). Additionally, firms with larger total assets tend to have greater financial flexibility, which enables them to invest in growth opportunities, manage risk, and weather financial shocks (Guedes et al., 2019). However, larger firms also have greater access to capital markets, which can reduce their reliance on debt financing and improve their financial stability (Graham & Harvey, 2017). Understanding the impact of firm size is germane as it will enable firms make informed decisions about their growth strategies, risk management practices, and capital structure as well as drive business success and sustainability

**Firm size, financing decisions and financial stability**

The interplay between firm size, financing decisions, and firm stability is a complex and multifaceted topic that has been explored in various studies, yet, inconclusive. Firm size, as measured by total assets, has been found to have a significant impact on financing decisions and financial sustainability (Mwangi & Simiyu, 2024). Larger firms tend to have greater financial flexibility and access to capital markets, which reduces their reliance on debt financing and improve their financial stability (Graham & Harvey, 2017). Financing decisions, including the use of debt and equity, also impact firm stability. Studies have found that financial leverage have both positive and negative effects on firm performance and stability (Musa & Kong, 2019; Kenn-Ndubisi et al., 2019). While debt financing can provide necessary capital for growth and investment, excessive debt increases the risk of financial distress and negatively impact firm stability (Akpochi et al., 2020). Larger firms are more resilient to financial shocks and better equipped to manage debt, while smaller firms are more vulnerable to financial distress (Bharath & Shumway, 2008). Additionally, firm size can impact the availability of financing options, with larger firms

having greater access to capital markets and smaller firms relying more on alternative sources of financing (Frank & Goyal, 2009). Extant studies by Mwangi and Simiyu (2024), Samuel and Yahaya (2024), Vengesai (2023), Setianti and Haryono (2023), Subhani et al. (2022), Ofulue et al. (2022), Akayi et al. (2021), Hassan and Adegbie (2021), and Jim et al. (2021) collectively highlight the importance of considering firm size, financing decisions, and firm stability in understanding corporate finance and financial management practices.

## Theoretical framework

Financing decisions are quite complex processes and existing theories only explain certain facets of its diversity and complexity. The theories reviewed were Pecking order theory and Trade-off theory. This study however anchored on Pecking order theory.

## Pecking order theory by Donaldson (1961)

The Pecking Order Theory, proposed by Donaldson (1961), suggests that firms prioritize internal financing over external sources, with a preference for debt over equity. This hierarchy is driven by the concept of asymmetric information, where internal financing is least affected by adverse selection problems. Firms prefer to use retained earnings to finance new investments, followed by debt, and lastly, equity. This theory explains the interplay between firm size, financing decisions, and financial stability by suggesting that larger firms, with greater internal resources, are more likely to rely on internal financing, reducing their reliance on external sources and minimizing information asymmetry issues. As firms grow in size, their financing decisions become more complex, and the Pecking Order Theory provides a framework for understanding these decisions (Donaldson, 1961). Larger firms, with greater financial stability, are more likely to prioritize internal financing, reducing their debt ratio and reliance on external equity (Myers & Majluf, 1984). This approach minimizes the adverse selection problem, where investors perceive equity issuance as a sign of overvaluation (Ross, 1977). In contrast, smaller firms, with limited internal resources, may be forced to rely more heavily on external financing, increasing their debt ratio and exposure to information asymmetry issues (Baker & Wurgler, 2002). By following the pecking order hierarchy, firms can optimize their financing decisions, balancing the need for external capital with the need to minimize information asymmetry risks.

According to Oti et al., (2017) the Pecking Order Theory provides a nuanced understanding of the interplay between firm size, financing decisions, and financial stability. The theory holds that by prioritizing internal financing, firms can reduce their reliance on external sources, minimizing information asymmetry issues and maintaining financial stability. As firms grow in size, their ability to rely on internal financing increases, reducing their debt ratio and exposure to external risks. Conversely, smaller firms, with limited internal resources, must carefully balance their financing decisions, navigating the trade-offs between debt and equity issuance. The Pecking Order Theory argues that firms can make informed financing decisions, optimizing their capital structure and maintaining financial stability all levels. Mwangi and Simiyu (2024), Vengesai (2023), Setianti and Haryono (2023), Subhani et al. (2022), Ofulue et al. (2022), Akayi et al. (2021), Hassan and Adegbie (2021), Musa and Kong (2019), and Kenn-Ndubisi et al. (2019) adopted pecking order theory to examine the impact of financial leverage on firm performance and stability thus providing insights into how firms prioritize financing sources and manage debt to achieve optimal capital structure.

Critics argue that this theory oversimplifies financing decisions, neglecting factors like agency costs (Jensen & Meckling, 1976), signaling effects (Ross, 1977), and market timing (Baker & Wurgler, 2002). Additionally, the theory's assumption that firms prioritize internal financing may not hold for all firms, particularly those with high growth opportunities or limited access to internal funds (Myers & Majluf, 1984). Despite these critiques, the Pecking Order Theory remains a widely-used framework for understanding financing decisions, particularly in the context of firm size and financial stability.

## The Trade-off theory by Kraus and Litzenberger (1973)

The Trade-off Theory, proposed by Kraus and Litzenberger (1973), suggests that firms can maximize their value by achieving an optimal level of capital structure, where the benefits of debt (tax savings) equal the costs of debt (bankruptcy costs). This theory supports the use of leverage in capital structure, assuming that debt provides

benefits such as tax shields, which minimize expected tax bills and maximize after-tax cash flows (Oti et al., 2017). The optimal level of leverage is achieved by balancing the benefits of interest payments against the costs of debt. The Trade-off Theory predicts a cost-benefit analysis of debt financing to achieve an optimal capital structure, where the target debt ratio is obtained by establishing a trade-off between tax benefits and financial distress costs (Kraus & Litzenberger, 1973). In contrast to the Pecking Order Theory, the Trade-off Theory expects a positive relationship between debt and firm stability until the optimal point, where the cost of financial distress equals the benefits earned from tax savings (Myers & Majluf, 1984). This theory suggests that firms should consider the trade-off between tax shields and financial distress costs when making financing decisions (Ross, 1977).

These theories have competing predictions regarding the effect of leverage on firm variables such as profitability, stability, liquidity, firm size, growth, and past dividend (Graham & Harvey, 2001). For example, the Pecking Order Theory expects long-term debt to negatively affect firm stability (Myers & Majluf, 1984), while the Trade-off Theory expects a positive impact (Aluya & John, 2024; Kraus & Litzenberger, 1973). Larger firms, with greater financial resources, are more likely to achieve an optimal capital structure, balancing the benefits of debt against the costs (MacKay & Phillips, 2005). Smaller firms, with limited resources, may face greater challenges in achieving an optimal capital structure, increasing their reliance on debt financing and exposure to financial distress risks (Oti et al., 2017). The studies by Musa and Kong (2019), Kenn-Ndubisi et al. (2019), Akpochi et al. (2020), Ofulue et al. (2022), Akayi et al. (2021), and Hassan and Adegbie (2021) employed trade-off theory to investigate how financing decisions influence firm performance, value, and profitability, weighing the advantages of borrowing against the potential drawbacks to determine the ideal balance of debt and equity.

The Trade-off Theory has been criticized for its static nature (Graham & Harvey, 2001), overemphasis on tax benefits (Ross, 1977), failure to account for asymmetric information (Jensen & Meckling, 1976), neglect of industry-specific factors (MacKay & Phillips, 2005), and failure to consider macroeconomic conditions (Cook & Easterwood, 1994). Additionally, it has been argued that the theory over relies on debt (Oti et al., 2017), neglects signaling effects and agency costs (Ross, 1977), and assumes a simplistic cost-benefit analysis of debt financing.

**Empirical review**

Mwangi and Simiyu (2024) utilized a descriptive cross-sectional research design to explore the financial management practices and their impact on the financial sustainability of mission hospitals in Kiambu County, Kenya. Data collected on various financial indicators and management practices were analyzed using the Statistical Package for the Social Sciences (SPSS) version 22. Descriptive statistics such as mean and standard deviation were computed to summarize the financial management practices observed in the hospitals. Inferential analyses, including Pearson correlation and multiple linear regression, were conducted to assess relationships between variables and determine the predictors influencing the financial sustainability of the hospitals. Significant positive relationships were found between financial sustainability and financial planning and control practices ($\beta1 = 0.241$, $p = 0.003$), financing and funding practices ($\beta2 = 0.231$, $p = 0.002$), and working capital management practices ($\beta3 = 0.332$, $p = 0.000$). Financial management practices explained 39.2% of the variation in financial sustainability. Health sector regulations significantly moderated the relationship between financial planning and control practices and financial sustainability ($\beta4a = -0.215$, $p = 0.035$), but had no significant moderating effect on financing or working capital management practices.

Samuel and Yahaya (2024) examined the effects of corporate governance determinants on the capital structure of 154 publicly listed companies in Nigeria, for the 2014-2023 financial years. Using an Ordinary Least Squares multiple regression model, they found that institutional shareholding, foreign shareholding, board independence, and board female gender diversity had significant effects on capital structure. However, in contrast, audit committee independence, risk committee independence, audit quality, firm size, profitability, and listing age failed to show statistical significance on capital structure. Future studies in this area may have widened the number of years covered and/or added other similar countries' listed companies to increase the number of observations.

Vengesai (2023) examined the practical impact of derivatives usage on the underlying firm's financing policy

and stability. The paper used data from South African listed non-financial firms for the period 2000 to 2019. The study employed a dynamic panel model estimated with System Generalised Methods of Moments (GMM). The initial analysis showed that derivatives use reduced the cost of capital and increased firm stability. However, further in-depth analysis provided evidence that extensive use of derivatives increased firms' capital costs and negatively impacted financial stability. These findings implied that the risk embedded in derivatives' speculation dominated their risk management function. The results were subjected to numerous controls for robustness, including financial leverage, firm size, cash flows, and asset tangibility.

Setianti and Haryono (2023) analyzed the effect of product market competition, financial leverage, and risk of financing on the stability of Islamic banks in Indonesia from 2018 to 2022. The sampling technique used was Islamic banks listed on the Indonesia Stock Exchange. The source of data was obtained from the annual reports of each bank. The analytical method used was panel regression analysis with Eviews 10 software, with the Common Effect Model (CEM) model being the best model. The variables used consisted of product market competition (PCM), financial leverage (DER proxy), and financing risk (NPF proxy) on banking stability (proximate Natural Logarithm Z-Score). The results of this study found that product market competition did not affect bank stability. Meanwhile, financial leverage and financing risk had a negative effect on the stability of Islamic banks in Indonesia. From the results of this study, it was hoped that competition for Islamic banks in Indonesia could always run normally as it did at that time. In addition, the financial leverage and financing risks of Islamic banks had a negative impact on banking stability.

Subhani, Wei, Ahmed, and Farooq (2022) explored the participation of firm reputation in firm financing specifically in a Pakistani non-financial sector dataset. They employed a fixed effects model (FEM) to estimate the regression among the variables. Their findings signified the impact of firm reputation on firm financing decisions. The statistical figures unveiled that the price-earnings (P/E) ratio affiliated positively and significantly with firm financial leverage because an increment in the price-earnings (P/E) ratio increased stability and confidence in the firms. However, people trusted old and reputed firms, which revealed a negative association between firm age and firm financial leverage. Moreover, the firm's age linked negatively and significantly with trade credit because older firms did not desire to use trade credit due to their good reputation. This assisted business corporations in getting equity and debt financing easily. Asset tangibility had a positive and significant impact on trade-credit because tangible assets worked as loan collateral to get trade-credit. The study revealed the importance of firm reputation in firm financing decisions and gave financing policy to finance managers that they could use reputation as an instrument of financing.

Ofulue, Ezeagba, Amahalu and Obi (2022) analyzed the relationship between financial leverage and financial performance of quoted industrial goods firms in Nigeria for a thirteen (13) year period covering from 2008-2020. It concluded that Short-term debt ratio significantly and positively relates with the cash value-added while Debt-equity Ratio and Long-term debt ratio have a significant negative relationship. In the same vein, Akayi, Nwadialor and Agubata (2021) examined the effect of debt-equity financing on firm’s performance in Nigeria using a sample of 26 firms randomly selected from oil and gas, Health care and ICT sectors of the Nigerian stock exchange for the period from year 2013 to 2020. Ordinary least square regression model was however used and the findings of the study revealed that Debt financing has significant and positive effect on firm performance in Nigeria at 5% level of significance. It was however recommended that firms should try to finance their investment activities with debt and equity to consider either debt or equity as a last option.

Hassan and Adegbie (2021) examined the effect of financial leverage on cash flow in Nigerian manufacturing firms, finding a significant positive relationship. Similarly, Jim, Xiaochen, and Chien (2021) investigated the relationship between long-term debt financing and financing deficit in Chinese-listed firms, documenting a positive relationship between financing deficit and changes in long-term debt ratio. Additionally, Odum, Chinwe, and Ofolue (2021) analyzed the effect of financial leverage on financial performance in Nigerian industrial goods firms, finding that short-term debt ratio positively relates to cash value-added, while debt-equity ratio and long-term debt ratio have a negative relationship. These studies collectively highlight the importance of financial leverage in understanding firm performance and financing decisions.

Akpochi, Lasisi and Musa (2020) examined the relationship between firm debt structure and shareholders’ returns of quoted multinational firms in Nigeria. Secondary data were extracted from the annual reports of six

(6) most active quoted multinationals firms on the Nigerian Stock Exchange for the period 2006 to 2018. After running the OLS regression, a robustness test was conducted for validity of statistical inferences. A multiple regression was employed using PCSE regression model and FGLS regression model respectively for model one and two. The study documents that debt to total asset has a positive and significant effect on shareholder returns while debt to equity and debt to turnover have negative and significant effect on shareholders returns though foreign director has no significant impact of shareholder returns. The study recommended that board of directors of the study firms should ensure that listed multinationals firms in Nigeria should appoint foreigner in their board composition so that the interest of various shareholder's would be fully protected by avoiding unnecessary debt and proper management of the company debt file and sales improve upon their turnover and reduction of unnecessary cost.

Senan et al. (2021) investigated the determinants of financial performance, firm liquidity, and leverage ratio of Indian listed firms on the Bombay Stock Exchange, finding that the current ratio and quick ratio have a significant impact on financial leverage. Similarly, Okeke et al. (2021) analyzed the effect of leverage on the cash ratio of Nigerian conglomerates, discovering a significant negative influence of leverage on the cash ratio. Both studies highlight the importance of financial leverage in understanding firm liquidity and financial performance, with the Indian study focusing on a broader range of firms and the Nigerian study concentrating on conglomerates.

Musa and Kong (2019) studied the relationship between financial leverage and the financial performance of non-financial firms listed on the Ghana Stock Exchange (GSE). Panel data extracted from the audited and published annual reports of 15 non-financial firms for the period of 2008 to 2017. The descriptive and inferential techniques of data analysis were employed for the study. From the study's Pearson Moment Correlation Coefficient output, leverage had a significantly negative association with the firms' financial performance as measured by ROA. However, an insignificantly positive association between leverage and the firms' ROE and ROCE was also established. Based on the findings the study recommended that, since there was a significantly negative association between leverage and the firms' financial performance, firms should be careful about the amount of debt they undertake to finance their operations, as this may adversely affect their final bottom line.

Other studies such as by Umar and Abdul Qudus (2020), Rafiuddin and Rafiqul (2020), Ezejiofor et al. (2019), Jones and Edwin (2019), Zaidi, et al. (2019), Pandey and Sahu (2019), Adeyemi, et al. (2017), Echkoba and Ananwude (2016), Adenugba et al. (2016), Singh and Bansal (2016), Banafa, et al. (2015), and Utkarsh, et al. (2015) collectively provide insights into the effects of financial leverage on firm value, financial performance, and profitability, using different samples and methodologies. The findings of these studies suggest that financial leverage has a significant impact on firm performance, value, and profitability, although the direction and magnitude of this impact vary across studies. Some studies found a positive relationship between financial leverage and firm performance, while others found a negative relationship. Additionally, some studies found that financial leverage has a significant impact on firm value, while others found no significant relationship.

**Summary of literature review and gap in literature**

The literature review examines the relationship between financing decisions particularly financial leverage and firm performance, and financial stability. The studies analyzed show mixed results, with some documenting a positive relationship between financial leverage and firm performance (Mwangi & Simiyu, 2024; Akayi et al., 2021), while others found a negative relationship (Musa & Kong, 2019; Kenn-Ndubisi et al., 2019). Additionally, some studies find that financial leverage has a significant impact on firm value (Akpochi et al., 2020), while others found no significant relationship (Umar & Abdul Qudus, 2020). These studies also highlight the importance of financial leverage in understanding firm liquidity (Senan et al., 2021; Okeke et al., 2021) and financing decisions (Subhani et al., 2022). Despite the extensive research on financing decisions, firm performance, and financial stability, there is a gap in the literature regarding the moderating effect of firm size on the nexus between these two variables. Few studies have explicitly considered the role of firm size (for instance, Vengesai, 2023; Setianti & Haryono, 2023) but not in the context of financial stability. This however justifies the need for this present study. This will provide a more comprehensive understanding of the complex interplay between firm size, financing decisions and financial stability.

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# METHODOLOGY

This study employed an *ex-post facto* design, leveraging its retrospective approach to minimize bias, reduce costs, and maximize efficiency. The study utilized a panel data of one hundred and fifty (150) pooled observations gathered from ten (10) out of the thirteen (13) industrial goods firms listed on the Nigerian Exchange Group over a period of fifteen (15) years (2009-2023). The study also employed descriptive statistics tools, Pearson correlation analysis and Fixed effects regression technique via Eviews 10.0 statistical package to analyze the data. Fixed effects regression is justified for this study as it accounts for firm-specific effects, unobserved heterogeneity, and moderating variables, making it suitable for analyzing panel data and complex relationships. The decision rule for this study was to accept the null hypothesis (Ho) if the probability value (i.e. P-value or Sig.) is greater than or equal to (≥) the stated 5% level of significance (α), and reject it in favor of the alternate hypothesis (H1) if the p-value or sig. calculated is less than 0.05. The model for this study was adapted from Mwaniki and Omagwa (2017) and modified to suit the context of this present study as it incorporates relevant variables, accounts for stochastic error, and accommodates panel data, allowing for a comprehensive and nuanced analysis of the moderating effect of firm size on the nexus between financing decisions and financial stability. The model is modified thus;

**Model 1 Financing decisions and financial stability nexus**

FST = *f* (DER, ICR, TDR)

This can be econometrically expressed as;

$$\mathbf{FST_{it} = \beta 0 + \beta_1 DER_{it} + \beta_2 ICR_{it} + \beta_3 TDR_{it} + \mu \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (I)}$$

**Model 2 Moderating effect of firm size on financing decisions and financial stability nexus**

This is expressed in the functional form of the moderated regression specification as;

FST= *f*(DER*logFSZ, ICR*logFSZ, TDR*logFSZ,)

This can be econometrically expressed as

$$\mathbf{FMSTit = \beta 0 + \beta_1 DERit *logFSZ + \beta_2 ICRIit *logFSZ + \beta_3 TDRit *logFSZ + \mu \ldots (II)}$$

***Where:***

FST = Financial Stability (Measured by Altman's Z-Score)

DER = Debt equity ratio

ICR = Interest coverage ratio

TDR = Total debt ratio

FSZ = Firm Size (The moderator)

β1--- β3, = Coefficients of the regression equation

μ = Stochastic error term

i = is the cross section of firms used

t = is year (time series)

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Table 3.1 Operationalization of variables

| Variable | Type | Measurement | Sources |
|---|---|---|---|
| Firm Size | Moderating variable | Natural logarithm of total assets | Riyono and Ndarti (2019) |
| Debt-equity ratio | Independent variables | Proportion of total debts to total equity in the reporting period | Okoye, Amahalu, Nweze and Obi (2016). |
| Interest coverage ratio | Independent variables | Proportion of profit before interest and tax to total interest charges | Korir, Sang and Sirma (2022) |
| Total debt ratio | Independent variables | Proportion of total debts to total assets | Mboi, Muturi and Wangare (2018). |
| Altman's Z-score | Dependent variable | Z = 1.2A + 1.4B + 3.3C + 0.6D + 0.999E | Lassoued (2018) |

Source: Empirical survey (2024)

For this study, financial stability is assessed using Altman's Z-Score to predict the likelihood of the firms meeting their obligations when due. The formula is;

***Z = 1.2A+1.4B+3.3C+0.6D+0.999E***

*Where:*

A = Working capital / total assets

B = Retained Earnings / total assets

C = Earnings before interest and taxes (EBIT) /total assets

D = Market value of equity / total liabilities

E = Sales / total assets

The coefficients (1.2, 1.4, 3.3, 0.6, and 0.999) are constant weights indicating the model's predictive power (Altman, 1968).

Altman's Z-Score is generally interpreted as follows:

Z-Score ≥ 3.0: High financial stability (low probability of bankruptcy or financial instability)

- 2.7 ≤ Z-Score < 3.0: Medium-high financial stability

- 2.3 ≤ Z-Score < 2.7: Medium financial stability

- 1.8 ≤ Z-Score < 2.3: Medium-low financial stability

Z-Score < 1.8: Low financial stability (high probability of bankruptcy or financial instability)

## DATA ANALYSIS AND DISCUSSION OF FINDINGS

### Descriptive statistics

The result for the descriptive statistics analysis is as presented in table 4.1 below;

**Table 4.1 Descriptive statistics results**

| | FST | LOGFSZ | DER | ICR | TDR |
|---|---|---|---|---|---|
| Mean | 2.544179 | 15.61036 | 0.624165 | 3.313108 | 0.495535 |
| Median | 2.523580 | 14.93597 | 0.796855 | 5.185277 | 0.530708 |
| Maximum | 2.834253 | 20.23140 | 2.466I72 | 26.01105 | 0.719656 |
| Minimum | 1.532437 | 12.06417 | -4.143000 | -7.132747 | 0.092060 |
| Std. Dev. | 0.441764 | 2.285526 | 0.856565 | 12.73424 | 0.578271 |
| Skewness | 0.046645 | 0.619779 | -4.427951 | -3.883128 | -1.178318 |
| Kurtosis | 2.915063 | 2.403315 | 26.90787 | 20.89606 | 40.55769 |
| Jarque-Bera | 0.072953 | 8.674120 | 2979.226 | 1744.342 | 21863.21 |
| Probability | 0.000000 | 0.163075 | 0.000000 | 0.000000 | 0.000000 |
| Sum | 279.8596 | 1717.139 | 90.65815 | 34.44190 | 54.50889 |
| Sum Sq. Dev. | 21.27193 | 569.3755 | 1974.900 | 17675.55 | 36.44932 |
| Observations | 150 | 150 | 150 | 150 | 150 |

**Source: Researcher's computation (2024) using E-views 10.0**

The descriptive statistics in Table 1 provide insights on specific characteristics of the sampled firms. In terms of financial stability, firms with value above the mean (2.54) can be considered highly stable, while those below the mean may face instability issues. The maximum and minimum values (2.834 and 1.532, respectively) show significant variation in financial stability across firms and over time, indicating heterogeneity. The maximum financial stability value of 2.834 suggests that some firms are more stable than others. The debt-equity ratio measures a firm's debt financing relative to equity financing. The mean value (0.624) indicates that, on average, the firms have a debt component of 62.4% in their capital structure. However, some firms have a much higher debt component (up to 79.6%). The standard deviation (0.856) shows significant variation in debt-equity ratios across firms. The skewness (-4.427) indicates that the debt-equity ratio distribution is negatively skewed, meaning most values are concentrated on the left side of the mean. The kurtosis value of 26.908 exceeds 3, indicating a leptokurtic distribution, which suggests a higher peak and heavier tails than a normal distribution. On average, firms' earnings before interest and tax (EBIT) barely cover their interest expenses, with a ratio of 3.313. However, a significant disparity exists among firms, ranging from a high of 26.011 to a low of -7.131, indicating that some firms struggle to meet their interest payments. The substantial standard deviation (12.734) highlights the inconsistency in firms' ability to cover interest expenses, making them vulnerable to financial distress. The skewed distribution (-3.883) suggests that most firms cluster around the lower end of the ICR spectrum, while the leptokurtic distribution (kurtosis value of 20.896) indicates a higher peak and heavier tails, signifying a higher risk of extreme values. This raises concerns about the financial stability and debt management practices among industrial goods firms.

The total debt ratio analysis reveals that, on average, listed industrial goods firms in Nigeria rely on debt financing for approximately 49.5% of their assets, with a mean ratio of 0.495. However, there is significant variation among firms, with some having a high debt reliance of 71.96%, while others maintain a conservative approach with a minimal debt ratio of 9.2%. This suggests that some firms prioritize equity financing, minimizing their debt burden. The relatively low standard deviation (0.578) indicates that the total debt ratio is stable and consistent across firms, with a narrow range of variation. The negative skewness (-1.178) implies that most firms tend to have lower debt ratios, clustering around the left side of the mean. Furthermore, the leptokurtic distribution (kurtosis value of 40.56) indicates a higher peak and heavier tails, suggesting that a few firms have extreme debt ratios, potentially indicating financial distress and instability. The analysis also revealed that the moderating variable, firm size, had a mean value of 15.71 and a range of 12.064 to 20.231, and was found to be normally distributed with a Jarque-Bera test p-value of 0.619. In contrast, most other variables were not normally distributed at a 5% significance level, with p-values of 0.0000. This suggests that firm size follows a normal distribution, and the absence of outliers in the data ensures reliable conclusions, making it suitable for drawing inferences and generalizations, and justifying the use of fixed effects regression technique.

**Pearson correlation matrix**

**Table 4.2 Correlation analysis result**

| | FST | LOGFSZ | DER | ICR | TDR |
|---|---|---|---|---|---|
| FST | 1.000000 | | | | |
| LOGFSZ | 0.639983 | 1.000000 | | | |
| DER | -0.516753 | 0.348238 | 1.000000 | | |
| ICR | 0.279664 | 0.507560 | 0.271904 | 1.000000 | |
| TDR | -0.045121 | -0.188778 | 0.058232 | 0.348039 | 1.000000 |

**Source: Researcher's computation (2024) using E-views 10.0**

The correlation matrix as shown in table 4.2 above reveals mixed correlations, indicating a linear relationship between the variables. Notably, the pairwise correlation coefficients showed relatively weak associations, with values below 0.80, indicating the absence of multicollinearity issues among the predictor variables.

**Regression analyses**

**Table 4.3 Fixed Effect Regression Result**

Dependent Variable: FST
Method: Panel Least Squares
Date: 08/06/24 Time: 10:32
Sample: 2014 2023
Periods included: 15
Cross-sections included: 10
Total panel (balanced) observations: 150

| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|---|---|---|---|---|
| C | -0.176376 | 0.855204 | -0.206238 | 0.8371 |
| LOG_FSZ | 0.175958 | 0.054830 | 3.209165 | 0.0019 |
| DER | -0.044506 | 0.006844 | -3.000577 | 0.0195 |
| ICR | 1.281096 | 0.002381 | 2.460368 | 0.0374 |
| TDR | -0.052204 | 0.046974 | -1.111332 | 0.2695 |

Effects Specification

Cross-section fixed (dummy variables)
Period fixed (dummy variables)

| | | | |
|---|---|---|---|
| R-squared | 0.743232 | Mean dependent var | 2.544179 |
| Adjusted R-squared | 0.674562 | S.D. dependent var | 0.441764 |
| S.E. of regression | 0.252014 | Akaike info criterion | 0.271565 |
| Sum squared resid | 5.461944 | Schwarz criterion | 0.860761 |
| Log likelihood | 9.063917 | Hannan-Quinn criter. | 0.510546 |
| F-statistic | 10.82318 | Durbin-Watson stat | 2.261492 |
| Prob(F-statistic) | 0.000000 | | |

**Source: Researcher's computation (2024) using E-views 10.0**

The regression analysis result as shown in table 4.3 above revealed F-statistic of 10.8231 with a P-value of 0.0000, indicating a significant model at 5% level, and the R-squared value of 0.7432 (74%) suggests that 74% of the systematic variations in financial stability are explained by the model. The adjusted R-squared value of 0.6745 (67%) indicates that the independent variables jointly explain 67% of the variations in financial stability, while the Durbin Watson statistic of 2.2615 confirms that the model is well-specified with no auto-correlation issues. Overall, the model explains 74% of the variations in financial stability, while other factors not included in the model account for the remaining 26%. The analysis result before the moderating effect of firm size was introduced showed that; debt-equity ratio has a significant negative relationship {(Coeff. = -0.044506 (0.0195)} with financial stability of industrial goods firms listed in Nigeria Exchange Group, Interest coverage ratio has a significant positive relationship {Coeff. = 1.2810 (0.0374)} with financial stability of listed industrial goods firms in Nigeria while total debt ratio has an insignificant negative relationship {Coeff. = -0.0522 (0.2695)} with financial stability of listed industrial goods firms in Nigeria.

**Table 4.4 Moderated Regression Result**

Dependent Variable: FST
Method: Panel Least Squares
Date: 08/06/24 Time: 10:37
Sample: 2014 2023
Periods included: 15
Cross-sections included: 10
Total panel (balanced) observations: 150

| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|---|---|---|---|---|
| C | 1.558816 | 0.034276 | 74.65305 | 0.0000 |
| LOGFSZ_DER | -0.000247 | 0.000552 | -0.448337 | 0.6571 |
| LOGFSZ_ICR | 2.322405 | 0.000179 | 0.296875 | 0.0173 |
| LOGFSZ_TDR | -0.002365 | 0.002941 | -0.803978 | 0.4236 |

Effects Specification

Cross-section fixed (dummy variables)
Period fixed (dummy variables)

| | | | |
|---|---|---|---|
| R-squared | 0.711108 | Mean dependent var | 2.544179 |
| Adjusted R-squared | 0.638055 | S.D. dependent var | 0.441764 |
| S.E. of regression | 0.265773 | Akaike info criterion | 0.371264 |
| Sum squared resid | 6.145288 | Schwarz criterion | 0.935910 |
| Log likelihood | 2.580477 | Hannan-Quinn criter. | 0.600287 |
| F-statistic | 9.734122 | Durbin-Watson stat | 2.315109 |
| Prob(F-statistic) | 0.000000 | | |

**Source: Researcher's Computation (2024) using E-views 10.0**

The moderated regression results show that combining financing decisions with firm size explains 71% of the systematic variations in financial stability, with 29% remaining unexplained, and the adjusted R-squared value of 0.6381 indicates that the independent variables jointly explain approximately 64% of the systematic variation in financial stability, leaving 36% unaccounted for. The model is statistically significant, as confirmed by the F-statistics value of 9.1780 and its probability value of 0.0000 at a 5% level, and the Durbin Watson statistics value of 2.3151 shows no auto-correlation issues, justifying the use of the model for analysis.

## Test of hypotheses

**$Ho_1$:** Firm size has no significant effect on the relationship between debt-equity ratio and financial stability of listed industrial goods firms in Nigeria.

The result as shown in table 4.4 above shows that when debt-equity is moderated with firm size, it gives a coefficient value of -0.000247, and probability value of 0.6571($p>0.05$). The coefficient and probability values indicate that the combination of debt equity ratio and firm size has an insignificant negative relationship with financial stability of listed industrial goods firms in Nigeria. This evidence, therefore, leads to a rejection of the alternate hypothesis and acceptance of the null hypothesis. Thus, firm size has an insignificant moderating effect on the relationship between debt-equity ratio and financial stability of listed industrial goods firms in Nigeria at 5% level of significance.

**$Ho_2$:** Firm size has no significant effect on the relationship between interest coverage ratio and financial stability of listed industrial goods firms in Nigeria.

Invariably, the result above reveals that when interest coverage ratio is moderated with firm size, it gives a coefficient value of 2.322405 and probability value of 0.0173($p<0.05$). The coefficient and probability values indicate that the combination of interest coverage ratio and firm size has a significant positive relationship with financial stability of listed industrial goods firms in Nigeria. This evidence, therefore, leads to the acceptance of the alternate hypothesis and rejection of the null; Thus, firm size has a significant moderating effect on the relationship between interest coverage ratio and financial stability of listed industrial goods firms in Nigeria at 5% level of significance.

**$Ho_3$:** Firm size has no significant effect on the relationship between total debt ratio and financial stability of listed industrial goods firms in Nigeria.

The result above shows that when total-debt ratio is moderated with firm size, it gives a coefficient value of -0.002365 and probability value of 0.4236(p>0.05). The coefficient and probability value indicates that the combination of total-debt ratio and firm size has an insignificant negative relationship with financial stability of listed industrial goods firms in Nigeria. This evidence, therefore, leads to a rejection of the alternate hypothesis and acceptance of the null hypothesis. Thus, firm size has an insignificant moderating effect on the relationship between debt-equity ratio and financial stability of listed industrial goods firms in Nigeria at 5% level of significance.

**Discussion of Findings**

This study examined the moderating effect of firm size on the relationship between financing decisions and financial stability of listed industrial goods firms in Nigeria. The study revealed that the debt-equity ratio has a significant negative relationship {(Coeff. = -0.044506 (0.0195)} with financial stability, indicating that high debt level hinders firms' financial stability. This aligns with the position of Kenn-Ndubisi et al. (2019), Ofulue et al. (2022), Hassan and Adegbie (2021), Odum et al. (2021), and Akpochi et al. (2020). These studies suggest that a higher debt-to-equity ratio is associated with reduced financial performance, stability, and cash flow, and can also negatively impact shareholders' returns, consistent with the traditional view that high debt-equity ratios increase financial risk. These studies did not consider the moderating effect of firm size. However, when moderated with firm size, it proved an insignificant relationship {(Coeff. = -0.000247 (0.6571)}, suggesting that larger firms are be better equipped to manage high debt levels without compromising financial stability. This implies that even for larger firms, high debt levels still pose a risk to financial stability, and therefore, firms should be cautious when taking on debt, regardless of their size. These findings indicate that the effect of debt-equity ratio on financial stability is context-dependent and influenced by factors such as industry, firm size, and economic conditions.

The study also revealed that interest coverage ratio has a significant positive relationship {Coeff. = 1.2810 (0.0374)} with financial stability, indicating that firms with higher interest coverage ratios are more likely to achieve financial stability. This position is consistent with the findings of Guedes et al. (2019), Frank and Goyal (2009), and Kayo and Kimura (2019). These studies documented a significant positive relationship between interest coverage ratio and financial stability, indicating that firms with higher interest coverage ratios are more likely to achieve financial stability, experience lower costs of capital, higher credit ratings, and engage in debt financing and growth opportunities. When moderated with firm size, the relationship {Coeff. = 2.322405 (0.0173)} was strengthened, indicating that larger firms with higher interest coverage ratios are even more likely to achieve financial stability. This implies that larger firms with strong interest coverage ratios are better positioned to weather financial shocks and maintain stability, and therefore, firms should prioritize improving their interest coverage ratios to achieve financial stability.

In addition, total debt ratio has an insignificant negative relationship {Coeff. = -0.0522 (0.2695)} with financial stability, indicating that total debt ratio has little effect on financial stability. When moderated with firm size, the relationship {Coeff. = -0.002365 (0.4236)} still remained insignificant (p>0.05), indicating that firm size has no effect on the relationship between total debt ratio and financial stability. This shows that suggests that the moderating effect of firm size is not strong enough to change the direction of the relationship. However, high debt levels can still pose risks to financial stability if not managed properly. This implies that larger firms can tolerate higher levels of total debt but cannot reverse the direction of the relationship with financial stability. This is in agreement with the findings Musa and Kong (2019) and Kenn-Ndubisi et al. (2019). These studies found an insignificant negative relationship between total debt ratio and financial stability, suggesting that high levels of debt lead to financial instability, contrary to traditional views.

## SUMMARY, CONCLUSION AND RECOMMENDATIONS

This study uncovers the complex interplay between financing decisions and financial stability among listed industrial goods firms in Nigeria, with firm size playing a pivotal moderating role. While debt-equity ratio and total debt ratio exhibit insignificant relationships with financial stability when combined with firm size, interest coverage ratio emerges as a key driver of financial stability, particularly among larger firms. These findings have profound implications for firms navigating Nigeria's industrial landscape, highlighting the need for cautious debt

management and strategic interest coverage ratio optimization to ensure financial stability. As the Nigerian economy continues to evolve, this study's insights offer a valuable roadmap for firms seeking to bolster their financial resilience and thrive in an increasingly competitive market. Based on the findings of this study, the following recommendations should be adhered to.

1. Firms should manage their debt-equity ratio cautiously, as high debt levels compromise financial stability regardless of firm size.
2. Industrial goods firms in Nigeria should prioritize improving their interest coverage ratio to enhance financial stability, particularly larger firms which will benefit more from this strategy.
3. Industrial goods firms should monitor their total debt ratio to ensure it is not excessive, especially larger firms which are more vulnerable to financial instability due to their size.
4. Firms should consider their size when making financing decisions, as it moderates the relationship between financing decisions and financial stability, and adjust their strategies accordingly.

With reference to the scope and findings of this study, other researchers are encouraged to;

1. Investigate the impact of other firm-specific factors, such as profitability, liquidity, and corporate governance, on the relationship between financing decisions and financial stability in listed industrial goods firms in Nigeria.
2. Examine the moderating role of industry-specific factors, such as industry type and industry concentration, on the relationship between financing decisions and financial stability in listed industrial goods firms in Nigeria.
3. Conduct a comparative study to examine the differences in the relationship between financing decisions and financial stability between listed industrial goods firms in Nigeria and those in other emerging markets.
4. Investigate the impact of macroeconomic factors, such as interest rates, inflation, and GDP growth, on the relationship between financing decisions and financial stability in listed industrial goods firms in Nigeria, to provide a more comprehensive understanding of the factors influencing financial stability.

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