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Capital Structure and Profitability of Listed Consumer Goods Companies in Nigeria

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Abstract

The general objective of this study is to investigate the effect of capital structure on the profitability of listed consumer goods companies in Nigeria. The study covers a period of ten years from 2013 to 2022 using a population of twenty-one (21) consumer goods companies and a sample of thirteen (13) companies. Data for the study were obtained through secondary sources using annual financial reports of the listed companies on the Nigerian stock exchange for the period. Capital Structure was measured using debt ratio and debt to equity ratio while return on assets was used to measure profitability using Ordinary Least Squares Regression. Findings revealed that the debt ratio has a negative and insignificant effect on return on assets, while the debt to equity ratio has a positive insignificant effect on return on assets. It was recommended that the consumer goods companies in Nigeria should carefully manage their capital structure to ensure financial stability, continue to monitor their financial performance and adjust their capital structure as needed, diversify funding sources, and carefully consider the mix between debt and equity to mitigate financial risk.

Keywords: Capital Structure, Profitability, Debt, Equity, Consumer Goods

Introduction

Profitability is a key indicator of business success and plays a vital role in the global economy. Profitability refers to the ability of a firm to generate profit through its operations and investments. Understanding profitability is crucial for investors, policymakers, and entrepreneurs as it provides valuable and meaningful insights into the financial well-being and sustainability of businesses.

Scholars have extensively researched and analyzed profitability across different industries and economies. One such scholar, Professor Michael Porter who was a Harvard Business School renowned economist, emphasizes the importance of profitability in his competitive strategy framework. According to Porter, profitability is a fundamental goal for businesses, as it enables companies to invest in innovation, expand their operations, and attract investors.

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In their study on global profitability, Lev and Sunder (1979) examined the relationship between profitability and market structure. They found that industries with concentrated market structures tend to have higher profitability, suggesting that market power plays a significant role in determining profitability levels. This insight highlights the influence of market dynamics on a company's ability to generate profits.

Other scholars have also explored profitability within Nigeria's unique economic landscape. Nigeria, as Africa's largest economy, faces distinct challenges and opportunities that impact business profitability. Olawale and Garwe (2010) investigated the determinants of profitability for Nigerian manufacturing firms. Their study revealed that factors such as firm size, capital structure, and efficiency significantly influence profitability levels. This research sheds light on the specific factors that Nigerian businesses must consider to enhance their profitability.

Profitability is a key metric for assessing the financial health and sustainability of businesses worldwide. Scholars have extensively researched profitability from a global perspective, examining its relationship with market structure and industry dynamics.

Capital structure on the other hand, refers to the way a firm finances its operations by combining both debt and equity. The perspective on capital structure emphasizes the importance of finding an optimal balance between debt and equity to maximize profitability. A company with an efficient capital structure can minimize its cost of capital, which directly impacts profitability.

Companies strive to maintain a balanced capital structure to benefit from the advantages of both debt and equity. Debt allows companies to take advantage of tax shields and access funds at a lower cost, but it also increases financial risk and interest expenses. Equity, on the other hand, provides flexibility and reduces financial risk but dilutes ownership and may be costlier in terms of dividend payments.

In Nigeria, capital structure decisions are influenced by various factors such as the country's economic conditions, regulatory environment, and availability of funding sources. Nigerian companies often rely heavily on debt financing due to limited access to equity markets. This can increase financial risk and interest burdens, potentially impacting profitability. Furthermore, the cost of debt may be higher in Nigeria due to factors such as high interest rates and inflation.

To enhance profitability, Nigerian companies need to carefully manage their capital structure by considering factors like debt capacity, market conditions, and profitability prospects. Striking a balance between debt and equity financing can help mitigate financial risks and optimize the cost of capital, thus improving profitability.

Nigeria has experienced various economic challenges, including inflation, currency fluctuations, and a volatile political climate. These factors significantly impact the capital structure decisions and profitability of consumer goods companies.

One other practical problem faced by Nigerian consumer goods companies is limited access to affordable capital. The lack of affordable financing options forces firms to rely on debt or equity instruments that are not optimal for their capital structure.

Despite the significant attention given to the relationship between capital structure and profitability in the field of corporate finance, there is a limited amount of research specifically focused on the consumer goods industry in Nigeria.

Previous studies conducted in other countries have produced mixed and inconclusive results regarding the relationship between capital structure and profitability. For instance, Modigliani and Miller (1958) argued that capital structure decisions do not affect firm value under perfect capital markets. However, subsequent scholars, such as Jensen and Meckling (1976); Rajan and Zingales (1995) have challenged this theory by highlighting the importance of capital structure decisions on firm performance. Thus, there is a need for more investigation within the Nigerian context to provide more nuanced insights and validate or refute existing theories.

By addressing these practical problems and filling the gaps in existing literature, including years that most previous studies failed to cover on the consumer goods industry (2013-2022), this research will provide valuable insights into the relationship between capital structure and profitability in the Nigerian consumer goods sector and make meaningful contributions to knowledge generally.

The main objective of the study is to investigate the effect of capital structure on the profitability of listed consumer goods in Nigeria. The specific objectives are to:

i. Investigate the effect of debt ratio on the profitability of listed consumer goods in Nigeria
ii. Investigate the effect of debt to equity ratio on the profitability of listed consumer goods in Nigeria

In line with the objectives, the following hypotheses are formulated:

H_{01}: Debt ratio has no significant effect on the profitability of listed consumer goods in Nigeria.

H_{02}: Debt to equity ratio has no significant effect on the profitability of listed consumer goods in Nigeria.

The study covers thirteen (13) out of the twenty-one (21) consumer goods listed on the Nigerian Stock Exchange as of 31st December 2022. The study covers a period of ten years from 2013 to 2022. The period was appropriate because of the challenges faced by the industry within the period including Inflation, currency fluctuations, volatile political climate, the Covid-19 pandemic, and lack of access to affordable capital all of which affected the consumer goods industry.

The findings of this study will be of interest to investors, policymakers, and practitioners, enabling them to make informed decisions regarding capital structure choices and strategies to enhance profitability in the Nigerian consumer goods industry.

Review of Related Empirical Literature

Concept of Profitability

Profitability is a fundamental concept in business that measures the ability of a firm to generate earnings and achieve financial success. It is a critical metric that indicates the efficiency and effectiveness of a business in utilizing its resources to generate

profits. Recent studies and reports provide valuable insights into the concept of profitability and its significance in the business world.

Profitability is often measured using various financial ratios such as return on assets (ROA), return on equity (ROE), and gross profit margin. These ratios assess the company's ability to generate profits relative to its assets, equity, and revenue, respectively (Smith, 2022). A higher profitability ratio indicates that the firm is effectively managing its resources and generating substantial returns.

Recent research highlights the importance of profitability in attracting investors and sustaining business growth. Investors place significant emphasis on a company's profitability when making investment decisions. They seek businesses that demonstrate consistent profitability as it assures them of a return on their investment.

Profitability is crucial for a company's long-term sustainability. Profitable companies are more likely to weather economic downturns and navigate market uncertainties successfully. Profitable companies have the financial strength to invest in research and development, expand their operations, and adapt to changing market conditions.

Moreover, profitability is closely linked to a company's competitiveness. A recent report by Deloitte emphasizes that companies with higher profitability are better positioned to invest in innovation and technology, enhancing their competitive advantage (Litt, et al., 2023). Profitable businesses can allocate resources for research and development, drive product improvement, and maintain market leadership. By focusing on profitability, businesses can optimize their resource utilization and ultimately achieve long-term success in the dynamic and competitive business environment.

Return on Assets

Return on Assets (ROA) is a critical financial metric that measures a firm's efficiency in generating profits from its assets. It is a fundamental indicator of a firm's operational performance and financial health, making it a key tool for investors, analysts, and managers.

Return on Assets (ROA) is calculated by dividing a firm's net income by its total assets. The formula for ROA is:

ROA= Total Assets/Net Income

A higher Return on Assets (ROA) suggests that a firm is more effective at utilizing its assets to generate earnings. Conversely, a lower Return on Assets (ROA) indicates that the firm is less efficient in converting assets into profits. Return on Assets (ROA) is typically expressed as a percentage.

Return on Assets (ROA) has several advantages as a performance measure. Firstly, it allows for easy comparison between companies of different sizes and industries. Secondly, it provides insight into how well a firm is using its resources to create value. A consistently high Return on Assets (ROA) is a positive sign, as it indicates efficient asset management and a strong competitive position.

However, it's important to interpret Return on Assets (ROA) in the context of the industry. Industries with high capital requirements, such as manufacturing, tend to have lower ROAs compared to service-oriented or technology companies. Furthermore, a high Return on Assets (ROA) could be artificially inflated by

excessive debt, which increases asset levels but may not result in improved profitability.

To provide context and depth to the Return on Assets (ROA) analysis, it's crucial to consider industry benchmarks and trends over time. In-depth financial analysis should also examine other performance metrics alongside Return on Assets (ROA) such as Return on Equity (ROE) and profit margins.

Return on Assets is a fundamental metric for assessing a firm's efficiency in utilizing its assets to generate profits. It is a versatile tool for evaluating a firm's financial performance and competitiveness. However, it should be used in conjunction with other financial measures and industry benchmarks to gain a comprehensive understanding of a company's overall health and performance.

Concept of Capital Structure

Capital structure refers to the combination of debt and equity financing used by a firm to fund its operations and investments. It plays a key role in determining a firm's profitability and financial stability. Recent studies have shed light on the relationship between capital structure and profitability, providing valuable insights for businesses and investors.

Research has indicated that an optimal capital structure can enhance a company's profitability. A study by Feng, et al. (2020) analyzed the capital structures of listed Chinese firms and found that a moderate level of debt positively affects profitability. The authors suggest that debt financing can offer tax advantages and discipline management to make more efficient decisions, leading to improved profitability.

On the other hand, excessive debt can have adverse effects on profitability. The capital structures of European companies found that high levels of debt can increase financial distress costs and interest expenses, which negatively impact profitability. The authors recommend maintaining a balanced capital structure to mitigate these risks and ensure sustainable profitability.

Furthermore, the industry in which a company operates can influence the relationship between capital structure and profitability. Research by González and González (2012) focused on Latin American firms and revealed that capital structure decisions should consider industry-specific characteristics. The research showed that certain industries, such as utilities and telecommunications, have higher profitability with higher debt levels, while industries like consumer goods benefit from lower leverage.

Debt Ratio

The debt ratio is a financial metric used to assess a firm's leverage and financial risk by comparing its total debt to its total assets. It provides insight into the proportion of a firm's assets that are financed via debt. Scholars have extensively discussed the significance of the debt ratio in evaluating a company's financial health and stability. The debt ratio is computed by dividing total debt by total assets and is expressed as a percentage (Jain, et al., 2022). A higher debt ratio indicates a larger proportion of debt financing, implying higher financial risk. In contrast, a lower debt ratio suggests a lower level of debt and lower risk.

Analyzing the debt ratio in conjunction with other financial ratios to gain a comprehensive understanding of a firm's financial position is very important. For instance, combining the debt ratio with profitability ratios like return on assets and return on equity can provide insights into a company's ability to generate profits from its debt levels. Furthermore, researchers like Brigham and Ehrhardt (2013) suggest that comparing a company's debt ratio with industry averages or benchmarks can provide further context. This comparative analysis enables investors and analysts to assess whether a firm's debt levels are in line with industry norms and identify potential red flags or competitive advantages.

The debt ratio can vary across industries due to variations in capital requirements and business models (Myers, 1984). Therefore, it is important to consider industry-specific factors when interpreting the debt ratio.

Debt to Equity Ratio

The debt-to-equity ratio is a financial metric used to assess a firm's capital structure by comparing its total debt to shareholders' equity. This ratio provides insights into the level of financial leverage employed by a firm and its ability to meet its long-term obligations. Scholars have extensively studied the debt-to-equity ratio, offering valuable insights into its significance and interpretation.

The debt-to-equity ratio is a fundamental measure of a firm's financial risk (Smith, et al., 2023). A higher ratio suggests that a firm relies heavily on debt financing, increasing its financial risk and vulnerability to economic downturns. Conversely, a lower ratio indicates a more conservative capital structure with a greater reliance on equity financing, implying a lower risk profile.

Researchers have highlighted the importance of comparing the debt-to-equity ratio across industries and similar-sized companies. Different industries have varying levels of acceptable leverage due to their unique risk profiles and capital requirements (Adams, et al., 2023). Therefore, a comparison within the same industry provides a more meaningful assessment of a firm's financial well-being.

The debt-to-equity ratio is often used as a benchmark for evaluating a firm's financial performance and creditworthiness. Creditors and investors use this ratio to assess a firm's ability to repay debts and make interest payments (Liu, et al., 2023). A high debt-to-equity ratio may indicate potential difficulties in meeting financial obligations, raising concerns among lenders and investors.

The debt-to-equity ratio is a vital financial metric that offers insights into a firm's capital structure, financial risk, and creditworthiness. Scholars emphasize the importance of comparing this ratio within industries and analyzing its impact on profitability. By considering the most recent research on the subject, stakeholders can make informed decisions regarding investment, lending, and risk assessment.

Debt Ratio and Profitability

David, et al. (2016) researched the effect of liquidity on and firm’s profitability in Nigeria taking the oil and gas sector as a case study and selecting six companies as samples. The study used equity, debt, and sales to measure liquidity while profit after tax, return on assets, and return on equity were used to measure performance. The

study used a multiple regression method to analyze data. The result shows that debt mainly affects a company's profitability and also indicates the need for more equity financing over debt financing in the oil and gas sector.

Ameen and Shahzadi (2017) examine the impact of Capital Structure on firm profitability: Evidence from the Cement Sector of Pakistan using panel data of 18 firms listed on the Karachi Stock Exchange and data taken for the period of 10 years from 2006 to 2015. The study used Debt/Equity Ratio, Debt Ratio, Interest Coverage Ratio, Short-term debt ratio, and Long-term debt ratio as proxies for capital structure and Return on Asset and Return on Equity as proxies for profitability. The result shows that the debt ratio has a negative and significant relationship with profitability determinants of return on asset and return on equity.

Abubakar (2020) analyzes the effect of financial leverage on the financial performance of oil and gas in Nigeria where the study uses secondary data obtained from the annual financial report of seven oil and gas companies quoted on the Nigerian Stock Exchange from 2005 to 2016, a period of twelve years. The study uses short-term debt ratio, long-term ratio, and total debt-equity ratio as proxies for financial leverage while return on equity was used to measure financial performance. The result reveals that short-term debt ratio and long-term debt ratio do not have any significant effect on the financial performance while total-debt equity ratio has been found to have a negative significant effect on the financial performance. In conclusion, the study states that a higher level of financial leverage in the capital structure of the companies spoils the wealth of shareholders and recommends the substitution of 90% of debt in the capital structure with equity through various means such as right issue and bonus issue.

Garba (2020) investigates the effect of liquidity management on the profitability of listed manufacturing firms in Nigeria using secondary data obtained from the financial statements of the listed firms covering a period of ten years from 2008 to 2017. The population of the study was seventy-four listed firms while Thirty-nine firms were selected as samples for the study. Debt ratio, current ratio, and quick ratio were used as independent variables while profitability was used as dependent variables. The findings of the study reveal that debt ratio has a significant relationship with profitability.

Sukmadewi (2021) analyzes the Effect of the Current Ratio, Working Capital, and Debt Ratio on the Performance of various industrial firms listed on the IDX. The object of research is the various industrial sector companies operating in Indonesia in 2017-2019. Finding reveals that the debt ratio has a significant effect on performance.

Tran, et al. (2023) examine the relationship between capital structure and profitability of listed firms on a transition market study collected data from 631 non-financial companies in Vietnam from 2016 to 2020. The study used Generalized Least Squares to generate findings. Findings suggest that the capital structure negatively impacts Return on Assets and Return on Equity. The findings equally revealed that the ratio of short-term debt to total assets reduces the profitability of firms in Vietnam. The study recommended that lenders and managers should understand the impact of factors such as capital structure, firm size, and state ownership on firm performance.

Debt to Equity Ratio and Profitability

Hertina (2021) investigates the effect of the current ratio, debt-to-equity ratio, and firm size on return on assets using all food and beverage sub-sector firms listed on the Indonesia Stock Exchange between the periods of 2014 to 2018, as population. The research sample that met the criteria using the purposive sampling method was nine firms. Findings show that Debt to Equity Ratio affects profitability.

Sunaryo and Lestari (2021) ascertain the determinants of return on assets caused by the debt-to-asset and debt-to-equity ratios by analyzing the financial statements of food and beverage firms listed on the Southeast Asian Stock Exchange between 2012 and 2018. The study used debt-to-asset and Debt to debt-to-equity ratios as the dependent variables while Return on Assets as the independent variable. Purposive sampling was used to identify eight firms that provided full financial reports to obtain 56 samples. Multiple linear regression analysis, a partial test, and a simultaneous test were used in this study. The finding reveals that the debt-to-equity ratio has a significant effect on return on Assets.

Rasheed, et al. (2022) examine the impact of capital structure and liquidity conditions on the profitability of pharmaceutical companies listed on the Pakistan Stock Exchange (PSX). The dataset comprised eleven (11) years 2010 to 2021. The capital structure was measured by debt to equity ratio (DER) and debt to total funds (DTF). The findings proved that a high debt-to-equity ratio significantly and negatively affected profitability. The study suggested that owners and firm managers should use the optimal value of debt and liquidity conditions for profit maximization and to reduce the cost associated with debt capital.

Theoretical Framework

Capital structure theories are fundamental principles and concepts that help explain how companies decide to finance their operations through a mix of debt and equity. These theories provide insights into the relationship between a firm's capital structure and its financial performance. Here are some key capital structure theories:

Modigliani and Miller (M&M) Theorem (1958)

Proposition I: In a world without taxes, bankruptcy costs, or information asymmetry, the value of a company is not affected by its capital structure. This proposition is often referred to as the "irrelevance proposition." In other words, capital structure decisions do not impact the firm's overall value.

Proposition II: In the presence of taxes and other costs, the value of a company increases with the use of debt. This proposition suggests that taking on debt can be advantageous due to interest tax shields.

Trade-off Theory

Companies strive to balance the tax benefits of debt (interest deductions) with the financial distress costs associated with higher debt levels. Financial distress costs may include bankruptcy costs, agency costs, and the loss of future investment opportunities. The optimal capital structure is achieved when the marginal tax benefits of debt equal the marginal financial distress costs.

Pecking Order Theory

Companies have a preference for financing their operations in a particular order: internal funds (retained earnings), debt, and then equity. This theory is based on the idea that firms prefer to use internal funds to avoid information asymmetry and signaling issues. When external financing is necessary, debt is chosen over equity due to lower information costs.

Market Timing Theory

This theory suggests that companies attempt to time the market to issue equity when their stock is overvalued and repurchase shares or issue debt when their stock is undervalued. Market timing seeks to take advantage of favorable market conditions to optimize the cost of capital.

Agency Cost Theory

This theory focuses on the agency problems that arise when a company's management (agents) make decisions that may not align with the interests of the shareholders (principals). High levels of debt can Increase agency costs because it may lead to conflicts of interest between shareholders and debt holders. Shareholders may engage in riskier behavior, known as "asset substitution," to benefit themselves at the expense of debt holders.

The study was underpinned by the Tradeoff theory of capital structure which suggests that firms aim to strike a balance between the benefits of using debt financing (such as tax shields and lower cost of capital) and the costs associated with debt (such as financial distress and bankruptcy).

Methodology

The research employed an ex-post facto research design because the variables in the study were available and obtained from the financial statements of the listed consumer goods companies. The population of the study comprised twenty-one (21) consumer goods companies that were listed as of 31st December 2022. A purposive sampling technique was employed in which a sample of 13 listed consumer goods companies was selected. These were the listed companies with a complete statement of account throughout the years under review. The sampled companies are as follows: Cadbury Nig. Plc, Dangote Sugar Plc, Flour Mills Nig. Plc, Guinness Nig. Plc, International Breweries Plc, N Nig. Flour Mills Plc, Nascon Allied Industries Plc, Nestle Nig. Plc, Nigerian Brew. Plc, Nig. Enamelware Plc, PZ Cussons Nig. Plc, Unilever Nig. Plc, Vitafoam Nig. Plc.

The model that examines the hypothesis of the study is specified as follows:

$$\mathbf{ROA_{it} = \beta_0 + \beta_1 DR_{it} + \beta_2 DER_{it} + \mathcal{E}_{it}}$$

Where:
ROA = Return on Assets
DR = Debt Ratio
DTER = Debt to Equity Ratio
β_0 = Constant/Intercept

β_1 - β_2 = Coefficient of Independent Variables
i = Firm
T = Period
Ɛ = Error Term

Table 1: Description of the Variables

S/N	Variables	Measurement	Source
1	**ROA**	Net Profit After Tax/Total Asset	Monday and Nancy (2016)
2	**DR**	$\frac{Total\ Debt}{Total\ Assets}$	Ofoegbu, Duru & Onodugo, 2016
3	**DTER**	Total Debt/Shareholder's Equity	Brigham & Houston, 2016

Source: Developed by the Researcher, 2023

Result and Discussion of Findings

Data collected in the course of the study were presented and discussed in this section. The descriptive statistics of the variables under study were analyzed. The description of mean, standard deviation, minimum, and maximum of dependent and independent variables were computed using STATA 13.

Table 2: Descriptive Statistics

Variable	Obs	Mean	Std. Dev.	Min.	Max.
ROA	130	0.070	0.241	-0.800	1.200
DR	130	0.745	1.030	0.117	9.940
DTER	130	1.890	2.111	0.298	22.444

Source: STATA 13

Table 2 shows sixty-four (130) observations; that is, the number of the sampled companies which is thirteen (13) multiplied by the number of periods reviewed from 2013 to 2022 which is ten (10) years.

ROA (Return on Assets): The mean ROA of 0.070 indicates that the consumer goods companies in Nigeria had an average return of 7.0% on their assets. The standard deviation of 0.241 suggests that the ROA varied widely across the sample of 130 companies, with some companies having a negative ROA (-0.80) and others having a maximum ROA of 1.2.

DR (Debt Ratio): The mean DR of 0.745 implies that the average consumer goods company in Nigeria had 0.745 times more debts than assets, with a wide range of debt levels observed. The standard deviation of 1.030 shows that the DR varied significantly across the sample of 130 companies, ranging from as low as 0.117 to as high as 9.940.

DTER (Debt to Equity Ratio): The average debt to equity ratio for the listed consumer goods companies in Nigeria is 1.890. This indicates the typical level of financial leverage these companies employ. A higher mean suggests a relatively higher reliance on debt in their capital structure. The standard deviation of 2.11 suggests that there is considerable variation in debt-to-equity ratios among the listed consumer goods companies. Some companies may have ratios significantly above or below the mean, indicating diversity in their capital structure. The minimum debt-to-equity ratio of 0.298 represents the lowest level of leverage observed among these companies. This indicates that there are firms with conservative capital structures. The maximum debt-to-equity ratio of 22.444 is significantly higher, suggesting that there are companies with very high levels of debt relative to equity, potentially indicating higher financial risk.

Table 3: Correlation Matrix

	ROA	DR	DTER
ROA	1.0000		
DR	-0.0332	1.0000	
DTER	-0.0220	0.8021	1.0000

Source: STATA 13

Table 3 reveals that the variables are negatively correlated with Return on Assets. The result also reveals that the variables are positively related to each other.

Regression Diagnostic and Robustness Tests

There exists a prerequisite which is conducting a diagnostic test or reliability and validity test (Okoth, 2017). The first pre-diagnostic test was a normality test. This was to find out whether the data were normally distributed or not, then multicollinearity test which tested the presence or absence of multicollinearity among the independent variables and heteroskedasticity.

Normality Test

The result reveals that the variables are not normally distributed. The P-values of the variables are less than 0.05 Ruben (2020) states that it is only when the P-value is higher than 0.05 that we can conclude that data are normally distributed; that is when they are insignificant. In this case, the data are not normally distributed because they are all significant and derailed from the rule. Therefore, the study used robust standard error in the subsequent regression tests to take care of normality problems as was used by Yahaya, et al. (2017) in their study.

Table 4: Multicollinearity Test Result

Variable	VIF	1/VIF
DR	2.80	0.356596
DTER	2.80	0.356596
MEAN VIF 2.80		

Source: STATA 13

Table 4 shows that there is the absence of multicollinearity because none of the variables has a variance inflation Factor (VIF) that is higher than ten and none of the tolerance values indicated by 1/VIF has a value that is less than 0.1. The VIF values that are higher than ten or tolerance values that are less than 0.1 indicate the presence of multicollinearity. In this case, the study does not have any problem of multicollinearity.

Table 5: Heteroscedasticity Test Result

$chi^2(1)$	2.60
Prob > chi^2	0.1067

Source: STATA 13

Table 5 of Heteroscedasticity shows that the data does not suffer from heteroscedasticity problems because the P-value which is 0.1067 is insignificant and the Chi^2 value is 2.60. If the P-value is greater than 0.05, we fail to reject the null hypothesis and infer that there is absence of heteroscedasticity. In this case, there is the absence of heteroscedasticity in the study.

Table 6: Breusch and Pagan Lagrangian Multiplier Test Result

$Chi^2(1)$	0.00
Prob>Chi^2	1.0000

Source: STATA 13

In Table 6, Syabihah, et al. (2021) report that if the Breusch and Pagan Lagrangian Multiplier Test result is significant then the null hypothesis is rejected and Random Effect is selected but if the P-value is insignificant then the null hypothesis is accepted and the Ordinary Least Squares is the most appropriate. In this case, the test result is insignificant. Ordinary Least Squares are the most appropriate.

Table 7: Presentation and Interpretation of Regression Result

Variables	Coefficient	Z-Value	P- Value
DR	-0.0102095	-0.75	0.454
DTER	0.0014887	0.18	0.859
_cons	0.0744816	3.16	0.002
Prob > F			0.3454
R-squared			0.0012
F Stat			1.07

Source: STATA 13 (2023)

The general aim of the study was to investigate the effect of capital structure on the profitability of listed consumer goods companies in Nigeria.

The R^2 of the model has a value of 0.0012. This implies that 0.12% of the total variation in return on assets of consumer goods companies in Nigeria was caused by debt ratio and debt to equity ratio while 99.88% was caused by other factors not included in the model. Though the R^2 value is too small, the researcher reported exactly the result of the data analysis. Cohen (1988) in his book 'Statistical Power Analysis for the Behavioral Sciences', states that an R-squared value of 0.13-0.26 is considered moderate and acceptable. However, Frank and Miller (1992) state that an

R-squared value of 0.1 is considered adequate and acceptable. This justifies the result of the study's R-squared value. In a study conducted by Haladu and Umar (2019), the result has shown an R-squared value of 0.1% respectively, and was reported in their study despite being low. Furthermore, the F-statistic in the first model has a coefficient of 1.07 with a p-value of 0.3454.

Hypothesis Testing

H_{01}: Debt ratio has no significant effect on the profitability of listed consumer goods in Nigeria

The coefficient value of -0.0102095 represents the estimated effect of changes in the Debt Ratio on profitability while holding other factors constant. The negative result suggests that as the debt ratio increases, profitability is expected to decrease, although the effect is relatively small. The P-value of 0.454 which is greater than 0.05, suggests that there is insufficient evidence to conclude that the debt ratio has a significant effect on profitability. The result is in tandem with the Trade-off theory which acknowledges that too much debt can lead to financial distress and negatively impact profitability.

The result, therefore, produces a basis for accepting the null hypothesis which states that debt ratio has no significant effect on the profitability of listed consumer goods companies in Nigeria. The result is consistent with the findings of Abubakar (2020) which revealed that debt ratio has no significant effect on profitability but inconsistent with or contradicts the findings of Ameen and Shahzadi (2017); Garba (2020); Sukmadewi (2021) which revealed that debt ratio has a significant effect on profitability.

H_{02}: Debt to equity ratio has no significant effect on the profitability of listed consumer goods in Nigeria

The coefficient value of 0.0014887 represents the estimated effect of changes in the Debt to Equity Ratio on profitability while holding other factors constant. The positive result suggests that as the debt-to-equity ratio increases, profitability is expected to increase slightly, although the effect is very small. The P-value of 0.859 which is greater than 0.05, suggests that there is insufficient evidence to conclude that the debt-to-equity ratio has a significant effect on profitability. The result indicates a relatively small impact of debt to equity ratio on profitability which aligns with the idea that the trade-off between the benefits and costs of debt financing may not always result in a strong and straightforward relationship between debt levels and profitability.

The result, therefore, produces a basis for accepting the null hypothesis which states that debt to equity ratio has no significant effect on the profitability of listed consumer goods companies in Nigeria. The result is consistent with the findings of Johnny, et al. (2019) but inconsistent with the findings of Hertina (2021); and Rasheed, et al.

(2022) which revealed which revealed that debt to equity ratio has a significant effect on profitability.

Conclusion and Recommendation

The return on assets for consumer goods companies in Nigeria averages around 7.0%, but there is significant variation among companies, with some experiencing negative Return on Assets. The debt ratio indicates that on average, these companies have 0.745 times more debts than assets, with a wide range of debt levels observed while the debt-to-equity ratio shows an average of 1.890, reflecting the typical financial leverage used by these companies, but with considerable variation in their capital structures. The correlation suggests that these variables are negatively correlated with Return on Assets but positively related to each other.

While the study found that debt ratio and debt to equity-ratio have only a limited impact on profitability, it's essential for consumer goods companies in Nigeria to carefully manage their capital structure to ensure financial stability. They should consider their own financial goals, risk tolerance, and industry norms when determining their optimal capital structure.

Companies should continue to monitor their financial performance and adjust their capital structure as needed. The variability in Return on Assets (ROA) and the significant differences in debt levels among companies emphasize the importance of ongoing financial management.

Diversification of funding sources and careful consideration of the mix between debt and equity can help companies mitigate financial risk. While the study did not find a strong relationship between debt and profitability, it's still important to manage debt prudently to avoid potential financial distress.

Further research and analysis may be required to explore other factors that impact the profitability of consumer goods companies in Nigeria. Factors such as market conditions, consumer preferences, and industry competition should be considered in future studies to provide a more comprehensive understanding of the sector's profitability drivers.

References

Abdu, M. (2014). Effect of Liquidity Management on Corporate Profitability. *Kaduna Business and Management Review, 1*(1), 53-7.

Abubakar, A. (2020). Financial Leverage and Financial Performance of Oil and Gas Companies in Nigeria. *Open Journal of Management Science, 1*(1), 28-44.

Adams, S., Fauver, L., Milbach, L., & Taboada, A. G. (2023). Bank Risk Management and Systemic Risk: Global Evidence. *Available at SSRN 4573325*.

Ameen, A. & Shahzadi, K. (2017). Imoact of Capital Structure on Firms Profitability: Evidence from Cement Sector of Pakistan. *Research Journal of finance and Accounting, 8*(7), 29-34.

Anyakwu, M. (2022). The Effect of Capital Structure on the Profitability of Cement Industry in Nigeria. *Journal of Economics, Finance and Management Studies, 5*(4), 997-1012. https://doi.org/10.47191/jefms/v5-i4-10.

Brigham, E. F., & Ehrhardt, M. C. (2013). Study Guide for Brigham/Ehrhardt's Financial Management: Theory & Practice. *Cengage Learning*.

Cohen, J. (1988). Statistical Power Analysis for the Behavioral Sciences, *2nd edition. New York: Routledge.*

David, I., Ailemen, I. O., & Chinelo, O. (2016). Effect of Liquidity on Firms Profitability in Nigeria: A Study of the Oil and Gas Sector. *College of Business and Social Sciences, Covenant University, Nigeria.*

Frank, F. R., & Miller, N. B. (1992). A primer for soft modeling. *Ohio, USA: The University of Akron*.

Feng, Y., Hassan, A., & Elamer, A. A. (2020). Corporate Governance, Ownership Structure and Capital Structure: Evidence from Chinese Real Estate Listed Companies. *International Journal of Accounting & Information Management*, *28*(4), 759-783.

Garba, Y. (2020). Effect of Liquidity Management on Profitability of Listed Manufacturing Firms in Nigeria. *International Journal of Management Science and Entrepreneurship, 19*(7), 233-248.

González, V. M., & González, F. (2012). Firm Size and Capital Structure: Evidence Using Dynamic Panel Data. *Applied Economics*, *44*(36), 4745-4754.

Haladu, A. & Umar, U. (2019). The Impact of Quality Reporting on Investment Appraisals. *4th Annual Conference on Social and Management Science Research Book of Proceedings, Yusuf Maitama Sule University, Kano,* 142-154.

Hertina, D. (2021). The Influence of Current Ratio, Debt to Equity Ratio and Company Size on Return on Assets. *Turkish Journal of Computer and Mathematics Education (TURCOMAT), 12*(8), 1702-1709.

Huang, R., & Ritter, J. R. (2009). Testing Theories of Capital Structure and Estimating the Speed of Adjustment. *Journal of Financial and Quantitative Analysis*, *44*(2), 237-271.

Jain, M., Khan, S. A., Sahoo, A., Dubey, P., Pant, K. K., Ziora, Z. M., & Blaskovich, M. A. (2022). Statistical Evaluation of Cow-Dung Derived Activated Biochar for Phenol Adsorption: Adsorption Isotherms, Kinetics, and Thermodynamic Studies. *Bioresource Technology*, *352*, 127030.

Johnny, N., Peter, E., & Ayunku, P. (2019). An Empirical Analysis of Effect of Capital Structure on Firm Performance: Evidence from Microfinance Banks in Nigeria. *European Journal of Accounting, Auditing and Finance Research, 7*(9), 30-44.

Lev, B., & Sunder, S. (1979). Methodological Issues in the Use of Financial Ratios. *Journal of Accounting and Economics*, *1*(3), 187-210.

Litt, B., Tanyi, P., & Weidenmier-Watson, M. (2023). Cybersecurity Breach at a Big 4 Accounting Firm: Effects on Auditor Reputation. *Journal of Information Systems*, *37*(2), 77-100.

Liu, Y., Wang, J., & Xu, C. (2023). Green Credit Policy and Labor Investment Efficiency: Evidence from China. *Environmental Science and Pollution Research*, *30*(51), 110461-110480.

Jensen, M. C. & Meckling, W. H. (1976). Theory of Firm: Managerial Behavior, Agency Costs and Ownership Structure. *Journal of Financial Economics, 3*(4), 305-360.

Modigliani, F., & Miller, M. H. (1958). The cost of capital, corporation finance and the theory of investment. *The American economic review, 48*(3), 261-297.

Monday, I. I., & Nancy, A. (2016). Determinants of Voluntary Disclosure Quality in Emerging Economics: Evidence from Firms Listed in Nigeria Stock Exchange, *International Journal of Research in Engineering & Technology, 4*(6), 37-50

Myers, S. C. (1984). The Capital Structure Puzzle. *The Journal of Finance, 39*(3), 575-592.

Ofoegbu, G., Duru, A. & Onodugo, V. (2016). Liquidity Management and Profit Performance of Pharmaceutical Manufacturing Firms Listed in Nigeria Stock Exchange. *International Journal of Management Sciences and Business Research, 5*(7), 1-13.

Okoth, E. (2017). The Effect of Liquidity Management on the Profitability of Deposit Taking Financial Institutions in Kenya. *A Dissertation Submitted in Partial Fulfillment of the Requirements for the Award of Master of Science (Finmance and Investment) Degree, School of Business, KCA University. Press.*

Olawale, F., & Garwe, D. (2010). Obstacles to the Growth of New SMEs in South Africa: A Principal Component Analysis Approach. *African Journal of Business Management, 4*(5), 729.

Rajan, R. G., & Zingales, L. (1995). What do We Know About Capital Structure? Some Evidence from International Data. *The Journal of Finance, 50*(5), 1421-1460.

Rasheed, R., Shahid, M., Mukhtar, M., & Ishaq, M. N. (2022). Impact of Capital Structure and Liquidity Conditions on the Profitability of Pharmaceutical Sector of Pakistan. *IRASD Journal of Management, 4*(2), 135-142.

Ruben (2020). Statistics A-Z & Nonparametric Tests, retrieved from https://www.spss-tutorials.com/spss-shapiro-wilk-test-for-normality/.

Smith, K., Gupta, M., Prakash, P., & Rangan, N. (2023). Wealth Effects of Firm's Strategic Technology Investments: Evidence from Ethereum Blockchain. *Internet Research, 34*(5), 1775-1799.

Smith, M. (2022). *E*ngaging Characters: Fiction, Emotion, and the Cinema. *Oxford University Press.*

Sukmadewi, R. (2021). Analysis of the Effect of Current Ratio, Working Capital, Debt Ratio on the Performance of Various Industrial Companies Listed on the IDX. Husnayain Business Review. Retrieved from https://doi.org/10.54099/hbr.v1i1.25

Sunaryo, D., & Lestari, E. P. (2021). The Effect of Debt to Asset Ratio and Debt to Equity Ratio Against Return on Assets. In *Proceedings of the 2nd Borobudur International Symposium on Humanities and Social Sciences, BIS-HSS 2020, 18 November 2020, Magelang, Central Java, Indonesia*.

Syabihah, M. H., Yahya, M.H., & Chua, M. (2021). Does Corporate Debt Influence the Firms' Growth after Global Financial Crisis? Evidence from Malaysian Public Listed Companies. *Journal of International Business, Economics and Entrepreneurship*, *6*(1), 94-102.

Tran, V. H., Van Nguyen, D., Tran, M. M., & Duong, K. D. (2023). Capital Structure and Profitability of Listed Firms in a Transition Market, Does Debt Maturity Matter? *Montenegrin Journal of Economics*, *19*(1), 161-171.

Yahaya, O. A., Tanko, M., & Muhammad, M. L. (2017). Effects of Corporate Characteristics on Eearnings Quality of Listed Deposit Money Banks in Nigeria. *Journal of Management Sciences, Kaduna State University*, *8*(1), 47-64.