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Impact of capital structure on financial performance of listed consumer goods companies in Nigeria

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Abstract

Purpose: This study examines the impact of capital structure on the financial performance of listed consumer goods companies in Nigeria.

Methodology: The study covers a 14-year period (2010–2024). Capital structure is proxied by Total Debt to Total Assets (TDTA), Long-Term Debt to Total Assets (LTDA), and Total Debt to Equity (TDTE), while financial performance is measured using Return on Assets (ROA) and Tobin's Q. Secondary data were sourced from the Nigerian Exchange Group (NGX) for 16 listed consumer goods firms that met the selection criteria. The study employed descriptive statistics, correlation matrix, and panel regression analysis using Panel Corrected Standard Errors (PCSE) to test the hypotheses.

Results and conclusion: The findings reveal that TDTA and LTDA have significant positive effects on ROA, while TDTE exerts a significant negative effect, implying that asset-based and long-term debt financing enhances profitability, whereas excessive equity-based leverage reduces it. For Tobin's Q, TDTE and firm size show significant negative effects,

Implication of findings: Indicate that high leverage and larger firm size are associated with lower market valuation. The study concludes that an optimal mix of debt financing is critical for enhancing firm profitability and market value. It recommends that managers of consumer goods firms should carefully structure their capital mix, with more emphasis on long-term debt financing, while avoiding excessive equity-based leverage to improve both profitability and shareholder value.

Keywords: Capital, Financial performance, Long-term debt, Tobin's Q.

1. Introduction

Financial performance reflects a company's ability to generate revenue, manage expenses, and produce profit over a specific period, serving as a critical indicator of its overall financial health and operational efficiency. It is assessed through key financial metrics such as profitability (e.g., net profit margin), liquidity (e.g., current ratio), solvency (e.g., debt-to-equity ratio), efficiency (e.g., asset turnover), and growth. These metrics, derived from core financial statements, such as the income statement, statement of financial position, and cash flow statement—offer a comprehensive understanding of a firm's performance in generating income, meeting obligations, and utilizing assets effectively.

Return on Assets (ROA) is a central measure of financial performance, indicating how efficiently a company uses its total assets to generate profit. ROA varies across industries, with asset-heavy sectors like manufacturing. ROA is essential for investors seeking to evaluate how effectively a firm converts its investments into earnings (Singh, et al 2024).

A Tobin's Q greater than 1 means the market values the company more highly than the cost of replacing its assets, suggesting growth opportunities, strong investor confidence, and efficient use of resources Conversely, a Tobin's Q less than 1 implies the firm is undervalued or its assets are not being utilized effectively, which may signal weak performance or low market confidence (Lim, & Mali, 2024).

Tobin's Q is especially important to investors and managers because it reflects not only profitability but also the firm's future growth prospects and market expectations. A high Q indicates that investors believe the company can generate returns above the cost of its assets, while a low Q signals limited growth potential. However, Tobin's Q can also be influenced by industry differences and market conditions—for example, technology firms often show higher Q ratios due to innovation potential, while capital-intensive industries may exhibit lower Q ratios due to heavy asset requirements (AbdulBasith, & Al-Fayoumi, 2025).

Capital structure refers to the mix of debt and equity used to finance a company's operations and growth. Debt offers tax benefits but increases financial risk, while equity avoids repayment obligations but may dilute ownership. Hybrid instruments like convertible bonds combine features of both. The choice of capital structure significantly influences a firm's financial performance and risk profile. A well-structured capital structure is crucial for enhancing a company's financial performance because it directly influences profitability, risk management, and overall financial stability. It optimizes cost of capital, enhances profitability, maintains financial flexibility, improves investor confidence, reduces financial risk, supports strategic decision-making and boosts firm value. Li, (2024).

Nigerian firms face a multitude of macroeconomic challenges that significantly impact their financial performance and operational efficiency. A major issue is **inflation** and **currency fluctuation,** which lead to rising costs of raw materials, labor, and imported inputs. Firms that cannot pass these costs onto consumers due to market resistance face shrinking profit margins. Additionally, depreciation of the naira raises the cost of imports, while an appreciating naira makes exports less competitive, affecting overall profitability (Taslima & sayem 2024).

Value chain disruptions also present critical hurdles. Disruptions caused by natural disasters, political instability, or inadequate infrastructures such as poor road networks—can delay production, increase logistical costs, and erode profitability. When key components are unavailable, production halts lead to operational inefficiencies, resource wastage, and customer dissatisfaction (Abdulraheem et al., 2024).

Access to **capital** remains a significant barrier for Nigerian firms. High interest rates and stringent loan requirements make borrowing costly and inaccessible, especially for startups and SMEs. These constraints hinder growth, innovation, and the ability to invest in essential infrastructure and technology, resulting in stagnation (Metu and Nwogwugwu, 2024).

Regulatory burdens further strain financial resources. Compliance with labor, environmental, and industry-specific regulations requires significant investments, particularly challenging for small to medium enterprises. While necessary for long-term sustainability and reputation, such obligations divert funds from other strategic areas like R&D and marketing (Onuh et al., 2024).

Debt management is another pressing concern. High leverage, combined with elevated interest rates, results in significant interest payments, reducing the cash available for business operations. Firms that rely heavily on expensive loans face the risk of financial distress, especially during economic downturns or revenue shortfalls (Osmond and Okechukwu, 2024).

From a theoretical perspective, models like **Capital Structure Theory, Stakeholder Theory, Resource-Based Theory,** and **Agency Theory** provide insights but often fall short in practice. These models may

overlook complexities such as conflicting stakeholder interests, data limitations, and agency conflicts (Olutimehin et al., 2024). In Nigeria, agency problems are pronounced due to weak governance, where managers may prioritize personal goals over shareholder value, increasing agency costs and monitoring expenses.

Moreover, **forecasting** in Nigeria is challenged by unreliable data and overreliance on outdated historical trends. This issue hampers strategic planning in an environment characterized by rapid change, inflation, and regulatory volatility, leading to misaligned business decisions and missed opportunities. This study will examine the impact of capital structure on the performance of listed consumer goods firms in Nigeria.

2. Literature review

Empirical review

The study, by Duguleană, et al. (2024), seeks to examine the relationship between financial performance and capital structure in the context of the Romanian B2C e-commerce sector, with a particular focus on the impact of the COVID-19 pandemic. The research was conducted in Romania, using a sample of 437 e-commerce firms active between 2005 and 2020. To measure financial performance, the study uses Return on Assets (ROA), Return on Equity (ROE), and net profit margin. Capital structure is measured using the leverage ratio—calculated as total debt divided by total assets. Additional control variables include firm size (measured as the natural logarithm of total assets) and market relationship (proxied by the net profit margin). The study employs panel data econometric models, including Difference GMM and System GMM, to explore the direction and strength of these relationships.

Also, Herawati & Sumiati (2025), the research was conducted in Indonesia, focusing on companies in the property and real estate sub-sector listed on the Indonesia Stock Exchange (IDX). study titled, "The Effect of Intellectual Capital, Firm Size, and Capital Structure on Financial Performance: Empirical Study of Sub-Sector Companies Property and Real Estate Registered on the IDX from 2018–2022"The study aimed to examines the effect of intellectual capital, firm size, and capital structure on financial performance, with a view to understanding which of these internal factors significantly influence the profitability of firms operating in a volatile business environment, the dependent variable in the study is financial performance, measured using Return on Assets (ROA). The independent variables include Intellectual Capital, measured by Value Added Intellectual Capital (VAIC), Firm Size, measured by the natural logarithm of total assets, and Capital Structure, measured using the Debt-to-Equity Ratio (DER). The study analyzed a sample of 19 companies, with a total of 95 firm-year observations over the period from 2018 to 2022. To analyze the data, the researchers used multiple linear regression analysis on panel data, processed using SPSS. Various diagnostic tests such as normality, multicollinearity, autocorrelation, and heteroscedasticity were also conducted to ensure model validity.

Duguleană, et al. (2024) the main findings of the study reveal a negative relationship between capital structure and financial performance among Romanian e-commerce firms. Specifically, companies with higher leverage (more debt) tend to have lower profitability, as measured by Return on Assets (ROA), Return on Equity (ROE), and net profit margin. Additionally, the study found that larger firms generally perform better financially and are more resilient during economic shocks. Interestingly, the COVID-19 pandemic had a positive impact on the financial performance of e-commerce firms across all size categories.

Luvito et al. (2024) examines simultaneous and partial effects of green banking practices, capital structure, and financial performance on the value of firms. The study was carried out in Indonesia, focusing specifically on banking companies listed on the Indonesia Stock Exchange (IDX). The dependent variable, company value, was measured using Tobin's Q, while the independent variables were green banking (measured as a dummy variable), capital structure (measured using the debt-to-equity ratio), and financial performance (measured using return on equity). The study employed a purposive sampling method, selecting 14 banking firms from a population of 46 firms. It covered a period of three years (2019–2021). Data analysis was conducted using panel data regression, and the Random Effects Model was selected as the most appropriate analytical technique based on results from the Chow, Hausman, and Lagrange Multiplier tests.

Nonetheless, Liong and Uluputty (2024), in their *study titled Capital Structure, Financial Performance, Investment Decision and Firm Value,* investigate the impact of capital structure, financial performance, and investment decisions on firm value. The study focused on nine infrastructure sector companies listed on the Indonesia Stock Exchange over the period 2017–2021. Capital structure was measured using the Debt-to-Equity Ratio (DER), financial performance was assessed through Return on Assets (ROA), and investment decisions were evaluated using the Price-Earnings Ratio (PER), while firm value was measured by Tobin's Q. The researchers employed panel data regression analysis, with data processing conducted using EViews 9 software.

Moreover, Chirchir et al. (2024) found that capital structure, as measured by debt ratio, equity ratio, and debt-to-equity ratio, has a significant effect on the financial performance of non-financial firms listed on the Nairobi Securities Exchange. The study revealed that an optimal mix of debt and equity financing contributes positively to return on assets, indicating improved efficiency in asset utilization and overall profitability. The implication of the findings is that corporate managers should carefully structure their financing decisions to achieve a balanced capital structure that enhances financial performance and supports long-term growth

Lastly, Chirchir et al. (2024), in their study titled *Capital Structure and Financial Performance of Non-Financial Firms Listed at Nairobi Securities Exchange, Kenya,* examines the impact of capital structure on the financial performance of non-financial firms listed on the Nairobi Securities Exchange. The study employed the Debt Ratio (DR), Equity Ratio (ER), and Debt-to-Equity Ratio (DER) as proxies for capital structure, while Return on Assets (ROA) was used to measure financial performance. The analysis was conducted on a sample of thirty-three (33) non-financial firms over the period 2009 to 2018. Utilizing panel data methodology, the study applied descriptive statistics, correlation analysis, and multiple regression analysis—specifically, a fixed-effects regression model—using STATA software.

The following hypothesis was provided to guide the studies.

H1: **T**here is no significant relationship between Return on asset and capital structure as measured by debt to equity, long-term debt to total asset and total debt to total asset among listed consumer goods firms in Nigeria.

H2: **T**here is no significant relationship between Tobin's Q and capital structure as measured by debt to equity, long-term debt to total asset and total debt to total asset among listed consumer goods firms in Nigeria.

Theoretical review

The Modigliani and Miller (M&M) theory, developed by Franco Modigliani and Merton Miller in 1958 and later extended in 1963, is one of the foundational theories of capital structure in corporate finance. In their original 1958 proposition—under the assumption of a perfect capital market with no taxes, transaction costs, or bankruptcy costs—Modigliani and Miller argued that a firm's capital structure is irrelevant to its overall value. According to this view, the value of a firm is determined solely by its underlying earning power and investment decisions, not by the mix of debt and equity it employs. However, in 1963, Modigliani and Miller revised their theory to incorporate the effect of corporate taxation. In this extension, they acknowledged that interest payments on debt are tax-deductible, which creates a "tax shield" that effectively reduces the firm's taxable income and increases its after-tax cash flow. As a result, the use of debt financing can increase the overall value of the firm.

Other theories, which include Trade-Off Theory suggest that firms balance the benefits and costs of debt when deciding their capital structure. The main benefit of debt is the tax savings from interest payments (tax shield), while the main cost is the risk of financial distress or bankruptcy. Firms aim to find an optimal capital structure where these two factors are balanced while Pecking Order Theory posit, firms follow a hierarchy when choosing financing sources due to information asymmetry. They prefer to use internal funds (retained earnings) first, then debt, and issue equity only as a last resort. This is because external financing, especially equity, can signal uncertainty or overvaluation to investors. Lastly, agency theory focuses on conflicts of interest between stakeholders—mainly shareholders, managers, and creditors. Debt can be used as a tool to reduce agency problems, especially between managers and shareholders, by forcing managers to use resources more efficiently. However, too much debt can lead to conflicts between shareholders and creditors, especially if the firm takes on risky projects. For the purpose of this study, we will align with the Modigliani and Miller (M&M) theory.

3. Methodology

This study examines the impact of capital structure on firm financial performance of listed consumer goods companies in Nigeria; the study covers a period of 14 years (2010–2024). Capital structure is measured using Total Debt to Total Assets (TDTA), Long-Term Debt to Total Assets (LDTA), and Total Debt to Equity Ratio (DE), while financial performance is measured using Return on Assets (ROA) and Tobin's Q. firm size and firm age were used as control variable of the study. The study utilizes secondary data obtained from the websites of the Nigerian Exchange Group (NGX) for listed consumer goods firms in Nigeria. A total of 16 firms were selected based on specific criteria, which include: (i) the firm must be listed on the NGX; (ii) it must not have been delisted during the study period; and (iii) it must have a complete set of financial data covering the years 2010 to 2024. The research uses descriptive statistics, Pearson correlation matrix and regression analysis to analyze data.

Model specification

$$ROA_{i,t} = \alpha + \beta_1 TDTA + \beta_2 TDTE_{i,t} + \beta_3 LDTA_{i,t} + \beta_4 TDTA_{i,t} + \beta_5 TDTE_{i,t} + \beta_6 LDTA + \beta_7 FS_{i,t} + \beta_8 FA_{i,t} + \varepsilon \ldots 1$$

$$\text{Tobin's } Q_{i,t} = \alpha + \beta_1 TDTA + + \beta_2 TDTE_{i,t} + \beta_3 LDTA_{i,t} + \beta_4 TDTA_{i,t} + \beta_5 TDTE_{i,t} + \beta_6 LDTA + \beta_7 FS_{i,t} + \beta_8 FA_{i,t} + \varepsilon \ldots\ldots 2$$

$ROA_{i,t}$ = Return on asset of firm i for time t;
Tobin's $Q_{i,t}$ = Return on equity of firm i for time t;
$TDTA_{i,t}$ = Total debt to total asset of firm i for time t;
$TDTE_{i,t}$ = Total debt to equity of firm i for time t;
$LDTA_{i,t}$ = Long term debt to total asset of firm i for time t;

ε1, ε2, ε3 = Error terms
α = intercept
β1 – β8 = coefficients.

4. Results and discussion

Descriptive statistics

Table 1: Descriptive statistics of the variables

Variables	OBS	Mean	Std. Dev.	Min.	Max.	Skewness	Kurtosis
ROA	224	0.056	0.083	-0.301	0.279	-0.977	5.301
TOBINSQ	224	2.035	1.288	0.137	5.724	0.213	5.244
TDTA	224	0.528	0.207	0.011	0.931	0.643	3.628
TDTE	224	0.180	0.137	-0.114	0.767	1.038	2.833
LTDA	224	0.122	0.113	0.001	0.680	-0.058	2.039
FS	224	10.691	0.633	9.086	11.864	1.111	2.647
FA	224	51.625	11.669	5.000	100.000	0.864	4.951

Source: Survey Data (2024).

Return on Assets (ROA) The average profitability of the 16 consumer-goods firms over the 14-year window is 5.62 %. The dispersion is modest (standard deviation = 8.30 %), but the range is wide, from a loss of 30.1 % to a peak of 27.93 %. The negative skew (-0.977) and high kurtosis (5.30) indicate that extreme losses occur more often than very high profits. Tobin's Q (TOBINSQ) Investors value these firms at roughly twice their replacement cost (mean = 2.04). The ratio varies from 0.14 to 5.72, with a standard deviation of 1.29. The near-zero skew (0.21) and kurtosis above 5 point to a fairly symmetric but fat-tailed distribution—several firms command large market premiums.

Total Debt-to-Total Assets (TDTA) on average, 52.86 % of assets are debt-financed. The leverage ranges from a negligible 1.18 % to a highly leveraged 93.11 %. Positive skew (0.64) and moderate kurtosis (3.63) show that while most firms cluster around the mean, a few carry exceptionally high debt loads.
Total Debt-to-Equity (TDTE) The mean ratio of 0.18 implies that total debt is about 18 % of equity, but the maximum reaches 76.76 %. The pronounced positive skew (1.04) signals that a minority of firms are markedly more leveraged than the rest.

Long-Term Debt-to-Total Assets (LTDA) Long-term debt constitutes only 12.22 % of total assets on average, with a narrow spread (SD = 11.30 %) and an almost symmetric distribution (skew ≈ 0). The bulk of leverage therefore comes from short-term rather than long-term borrowing.

Firm Size (FS, log of total assets) with a mean of 10.69 (about ₦44 billion in real terms), the sample comprises medium-to-large consumer-goods companies. Size is fairly homogeneous (SD = 0.63), yet the right-skew (1.11) shows a few giants in the group.

Firm Age (FA, years since incorporation) the companies are well-established, averaging 51.6 years in operation. The youngest firm is 5 years old and the oldest in the full century, with moderate dispersion (SD ≈ 11.7). Positive skew (0.86) and high kurtosis (4.95) indicate a cluster of mature firms and a tail of relatively younger ones.

The selected Nigerian consumer-goods firms are profitable, trade at a premium to book value, and rely more on total debt than on long-term debt. While leverage levels are generally moderate, a subset of firms is highly geared. Profitability is slightly skewed toward losses, and both market valuation and leverage display fat tails, underscoring the need for robust regression techniques in the subsequent analysis.

Table 2: Correlation matrix

Variables	ROA	TQ	TDTA	TDTE	LTDA	FS	FA	VIF
ROA	1.0000							
TQ	0.1295	1.0000						
TDTA	0.0047	0.5127	1.0000					1.47
TDTE	-0.1868	-0.1055	0.3388	1.0000				1.51
LTDA	0.1788	-0.0073	0.3116	0.0821	1.0000			1.06
FS	0.0747	-0.3558	0.0428	0.1571	0.0663	1.0000		1.08
FA	-0.0729	0.0167	0.1993	-0.0164	0.1181	0.0821	1.0000	1.11

Source: Survey Data (2024).

Table 2 presents the correlation matrix of the study variables together with the Variance Inflation Factor (VIF) values. The results show that Return on Assets (ROA) has a weak positive correlation with Total Debt to Total Assets (TDTA) (r = 0.129) and Long-Term Debt to Assets (LTDA) (r = 0.179), but a weak negative correlation with Total Debt to Equity (TDTE) (r = –0.187) and Firm Age (FA) (r = –0.073). This suggests that higher asset-based leverage and long-term debt are marginally associated with improved profitability, while equity-based leverage and older firm age tend to reduce profitability.

Tobin's Q (TQ), on the other hand, shows a very weak positive correlation with FA (r = 0.017) and a weak negative correlation with TDTE (r = –0.1055) and Firm Size (FS) (r = –0.356), indicating that larger firms and those with higher equity-based leverage tend to attract lower market valuation. TDTA is strongly correlated with TDTE (r = 0.513), which is expected as both are measures of leverage, while LTDA also shows moderate positive correlations with TDTA (r = 0.339) and TDTE (r = 0.312), reflecting consistency among the capital structure variables.

The Variance Inflation Factor (VIF) values for all explanatory variables range between 1.06 and 1.51, which are well below the threshold of 10. This indicates the absence of multicollinearity, confirming that the independent variables can be reliably included together in the regression models without bias from correlation among them.

Table 3: Regression of results: impact of capital structure on return on assets

	Return on Assets Panels Corrected Standard Errors (PCSE)			
Variables	**Coef.**	**Std. Err.**	**Z**	**P>/z/**
TDTA	0.1081	0.0304	3.55	0.000
TDTE	-0.2255	0.0459	-4.91	0.000
LTDA	0.1541	0.0543	2.84	0.004
FS	0.0094	0.0081	1.16	0.245
FA	-0.0005	0.0003	-1.65	0.100
_CONS.	-0.0561	0.0862	-0.65	0.516
R-Squared:	0.1550			
Number of Obs.	224			
Wail $chi^2(4)$	44.80			
Prob> chi^2	0.0000			
Hettest	0.0000			
Hausman Test	Prob>chi2 =	0.0013		

Source: Survey Data 2024.

Table 3 presents the regression results on the impact of capital structure on Return on Assets (ROA) using Panel Corrected Standard Errors (PCSE). The results show that Total Debt to Total Assets (TDTA) has a positive and statistically significant effect on ROA ($\beta = 0.1081$, $p < 0.01$), implying that higher asset-based leverage improves profitability. The findings are consistent with the study of Kasasbeh, (2021), **Adesina, et al, (2015)** and of **Morellec, *et al*, (2014),** but contradict the study of Ahmed et al. (2024) and Alabdulkarim, et al. (2024).

Similarly, Long-Term Debt to Assets (LTDA) is positively and significantly related to ROA ($\beta = 0.154$, $p < 0.01$), suggesting that long-term financing contributes positively to firm profitability. In contrast, Total Debt to Equity (TDTE) has a negative and highly significant impact on ROA ($\beta = -0.225$, $p < 0.01$), indicating that excessive reliance on equity-based leverage reduces firm profitability. The study of Meshack, et al. (2022) and Minnema and Andersson, (2018) but contradict the study of Hajisaaid, (2020) and Nazir, *et al,* (2021). Also, Firm Size (FS) shows a positive but statistically insignificant effect on ROA ($\beta = 0.009$, $p = 0.245$), suggesting that the scale of the firm does not significantly influence profitability. Firm Age (FA) also has a negative but weakly significant effect ($\beta = -0.0005$, $p = 0.100$), indicating that older firms may experience slight declines in profitability over time. The constant term is negative and insignificant ($\beta = -0.0561$, $p = 0.516$). The study is consistent with the study of Sudrajat and Daud, (2020) and Sihombing, et al. (2025), but contradict the study of Foong (2021) and Kartikasari Merianti (2016).

The model has an R-squared value of 0.155, meaning that the independent variables explain about 15.5% of the variation in ROA. The Wald chi-square test ($\chi^2 = 44.80$, $p < 0.01$) confirms that the overall model is statistically significant. The Hausman test result ($p = 0.0013$) justifies the use of a fixed effects model, while the significant heteroskedasticity test ($p < 0.01$) supports the application of PCSE estimation to ensure robust results.

Table 4: Regression of Results: Impact of Capital Structure on Tobin's q

	TobinsQ			
	Panels Corrected Standard Errors (PCSE)			
Variables	**Coef.**	**Std. Err.**	**Z**	**P>/z/**
TDTA	-0.0353	0.4766	-0.07	0.941
TDTE	-1.5128	0.6254	-2.42	0.016
LTDA	-0.2050	0.7323	-1.65	0.100
FS	-0.5583	0.2110	-2.65	0.008
FA	0.0126	0.0093	1.34	0.179
_CONS.	7.7944	2.1779	3.58	0.000
R-Squared: Within	0.0816			
Between	0.1389			
Overall	0.1047			
Number of Obs.	224			
Wail $chi^2(4)$	20.42			
Prob> chi^2	0.0010			
Hettest	0.1397			
Hausman Test	Prob>chi2 =	0.1513		
Breusch LM test for Random Effects	0.0000			

Source: Survey Data 2024.

The regression analysis presented in Table 4 examines the impact of capital structure on Tobin's Q using panels corrected standard errors (PCSE). The analysis includes several variables:

Total Debt to Total Assets (TDTA) has a coefficient of -0.0353, which is not statistically significant (p = 0.941), suggesting that total debt relative to total assets does not have an impact on Tobin's Q. the study of Hassan et al. (2014), khan (2012) and Oliveira & Basso (2024), but the result contradict the study by Okanda et al. (2025), **Adesina et al. (2015).**

Total Debt to Total Equity (TDTE) shows a significant negative coefficient of -1.5128 (p = 0.016), indicating that higher debt relative to equity is associated with a decrease in Tobin's Q, implying that increased leverage may negatively affect firm value. The study of Meshack, *et al.* (2022) and Minnema & Andersson, (2018) but contradict the study of Hajisaaid, (2020) and Nazir, *et al,* (2021).

Long-Term Debt to Assets (LTDA) has a coefficient of -0.2050 with a p-value of 0.100, indicating a marginal negative influence on Tobin's Q, though it is not conventionally significant at the 0.05 level. The study of Hajisaaid, (2020) and Nazir, *et al,* (2021) but contradict the study by Meshack, *et al.* (2022) and Minnema & Andersson, (2018).

Firm Size (FS) presents a coefficient of -0.5583 (p = 0.008), indicating a statistically significant negative relationship with Tobin's Q, suggesting that larger firms may experience lower market valuations relative to their assets. The study of Mbarek & Ayadi (2025) and Mak & Kusnadi (2005). While the study result is contradicted by the study of Ahmed et al. (2023) and Astuti *et al.* (2018).

Firm Age (FA) has a coefficient of 0.0126 (p = 0.179), which is positive not statistically significant, indicating that firm age does not significantly impact Tobin's Q. the study of Mallinguh *et al.* (2020), Tho (2024) and Setiana, (2023), but contradict the study of Loderer & Waelchli, (2010) and Dan (2021).

The model's overall fit is moderate, with R-squared values of 0.0816 (within), 0.1389 (between), and 0.1047 (overall). The number of observations is 224. The Wail chi-squared statistics are 20.42 with a significant p-value of 0.0010, indicating that the model as a whole is statistically significant. The Hausman test shows a p-value of 0.1513, suggesting no strong preference for fixed versus random effects. Finally, the Breusch LM test indicates a significant presence of random effects ($p < 0.0000$).

5. Conclusion

This study has examined the impact of capital structure on the financial performance of listed consumer goods companies in Nigeria over a 14-year period. The analysis revealed that Total Debt to Total Assets (TDTA) and Long-Term Debt to Total Assets (LTDA) positively influence Return on Assets (ROA), indicating that appropriate levels of asset-based and long-term leverage can enhance profitability. In contrast, Total Debt to Equity (TDTE) was found to have a significant negative effect on ROA, suggesting that excessive reliance on equity-based leverage may hinder profitability. Furthermore, the analysis of Tobin's Q indicated that higher debt relative to equity adversely affects firm value, while firm size negatively correlates with market valuation. These findings underscore the importance of capital structure decisions in optimizing financial performance amidst Nigeria's challenging economic landscape.

Companies should strive to achieve an optimal mix of debt and equity financing to enhance profitability and firm value. A careful balance between asset-based and long-term debt can improve financial performance. Firms should monitor their leverage ratios, particularly the debt-to-equity ratio, to avoid excessive reliance on equity financing, which can negatively impact profitability. Companies should consider increasing their long-term debt financing, as it has shown a positive relationship with profitability. This can provide stability and improve cash flow management.

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