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FINANCIAL LEVERAGE AND FINANCIAL PERFORMANCE OF LISTED FAST-MOVING CONSUMER GOODS AND LOGISTIC COMPANIES IN NIGERIA A COMPARATIVE ANALYSIS

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Abstract: This study explores the impact of financial leverage on the financial performance of listed Fast-Moving Consumer Goods (FMCG) and logistics companies in Nigeria over the period from 2014 to 2023. By employing a fixed-effects panel regression model, this research examines how financial leverage, operationalized through the Debt-to-Equity (DE) ratio, Debt Level (DL), and Interest Coverage Ratio (ICR), influences the Return on Equity (ROE) of firms within these critical sectors. The findings reveal that the DE ratio has a significant effect on ROE, indicating that FMCG companies tend to benefit from higher leverage, whereas logistics companies often experience decreased profitability with increased debt levels. In contrast, DL and ICR were found to be statistically insignificant in affecting ROE within the sample. This highlights the nuanced role of financial leverage in different sectors and underscores the need for tailored financial strategies. Based on the findings, the study recommends that FMCG companies in Nigeria consider leveraging debt strategically to enhance profitability, while logistics companies should adopt more conservative debt management practices to mitigate risk and ensure sustainable performance. Furthermore, the research suggests that firms in both sectors should strengthen their financial risk management frameworks to better navigate the complexities of leverage.

Keywords: Financial Leverage, Financial Performance, FMCG, Logistics, Debt-to-Equity Ratio, Return on Equity

1.1 Introduction

Stakeholders with vested interests in profit-oriented entities expect continuity and sustainability, expressed through profits and returns on capital, desirable products and services, quality environments for employees and society, and compliance with regulatory and legal frameworks. Profitability, the key indicator of these expectations, needs to be continuously achieved through prudent management of financial resources, which are essential for any entity. Funding may come entirely from equity holders or partly from external sources, resulting in financial leverage which is a mix of equity and debt with short and long-term implications for the entity's capital structure and profitability. In the short term, operational expenses must be managed to ensure

smooth company operations, while long-term stability and growth must be pursued. To achieve these goals, top management must formulate strategies that align with current business ecosystem trends.

Financial leverage refers to the extent to which a company's finance is sourced from external sources, primarily through debt. By utilizing debt to fund operations, companies can enhance their financial leverage, which offers various advantages including stable interest rates, increased financial flexibility, and tax deductions (Santos et al., 2023). The level of debt a company employs to achieve an optimal capital structure significantly influences its financial performance (Akhtar et al., 2021).

Understanding financial leverage is crucial for top-level executives as it profoundly influences a company's potential for higher returns. While increased debt levels heighten shareholders' risk, leveraging, under appropriate conditions, can bolster returns (Akaji, Nwadiator & Agubata, 2021). Moreover, when the debt-equity ratio is effectively balanced, it has the capacity to boost capital and consequently elevate the firm's overall value (Aziz & Abbas, 2019). By integrating debt into the capital structure, companies can optimize the weighted average cost of capital, leading to enhanced net returns (Kenn-Ndubuisi & Onyema, 2018).

The logistics sector in Nigeria plays a pivotal role in the country's economic performance, despite enduring significant challenges such as inadequate infrastructure and delays in customs procedures. Given Nigeria's heavy reliance on imports and exports, particularly crude oil, efficient logistics operations are crucial. Despite Nigeria's low ranking in the ease of doing business index, the logistics market has witnessed growth driven by infrastructural developments, improved foreign relations, and the rise of e-commerce. Key segments in the Nigerian logistics market include freight forwarding, warehousing, courier, express and parcel logistics, third-party logistics, and e-commerce logistics. Each of these segments is experiencing growth and transformation, supported by increased demand, regulatory oversight, and technological advancements.

The FMCG sector in Nigeria is one of the most dynamic markets on the African continent, encompassing a wide array of products such as food and beverages, personal care items, household goods, and toiletries. Key players in this market include Dangote Group, Unilever Plc, Nestle Plc, Cadbury, PZ Group, Chi Limited, Dufil Prima Foods, UAC Group, and CWAY Food and Beverages Nigeria Company Limited. Despite global economic disruptions, including the Russia-Ukraine conflict and inflationary pressures, Nigerian FMCG companies have shown remarkable resilience, achieving significant revenue growth. This sector is characterized by high sales volumes and low profit margins, with products that move quickly and are considered essential for daily life.

The relationship between logistics companies and FMCG firms in Nigeria is highly interdependent and crucial for the effective functioning of both sectors. Logistics companies are essential for distributing FMCG products from manufacturers to retailers or consumers efficiently and timely. They manage inventory, order processing, and fulfillment, ensuring smooth operations for FMCG companies. Moreover, logistics firms facilitate last-mile delivery, enabling FMCG companies to reach customers even in remote areas. This partnership enhances market reach, cost efficiency, and overall competitiveness for FMCG companies, while allowing logistics firms to specialize in transportation and distribution services. The FMCG sector contributes significantly to Nigeria's GDP, driven by a large and growing population, increasing urbanization, and rising consumer spending power.

1.2 Statement of the Problem

The objective of this study is to examine and compare the impact of financial leverage on the financial performance of listed Fast-Moving Consumer Goods (FMCG) and Logistics companies in Nigeria. Despite the significance of financial leverage in influencing firm performance, there is limited research that specifically

investigates its effects within the context of FMCG and Logistics sectors in Nigeria. The FMCG sector is crucial for the Nigerian economy, representing a significant portion of GDP, while Logistics companies play a vital role in facilitating the distribution of goods across the country. However, the extent to which financial leverage influences the financial performance of companies operating in these sectors remains unclear. Understanding this relationship is essential for investors, policymakers, and industry stakeholders to make informed decisions regarding investment, strategic planning, and policy formulation. Additionally, with Nigeria's evolving economic landscape and the increasing competition in both the FMCG and Logistics industries, there is a growing need for empirical research to shed light on how financial leverage impacts the performance of companies within these sectors. Therefore, this study aims to fill this gap by providing comprehensive insights into the dynamics of financial leverage and its implications for firm performance in the FMCG and Logistics sectors in Nigeria.

1.3 Objectives of the Study

The main objective of this study is to examine and compare the impact financial leverage has on the financial performance of listed FMCG and Logistics companies in Nigeria.

The specific objectives of this study are:

- To examine the impact of debt-equity ratio on the financial performance of listed FMCG and Logistics companies in Nigeria.
- To examine the impact of debt level on the financial performance of listed FMCG and Logistics companies in Nigeria.
- To examine the impact of interest cover ratio on the financial performance of listed FMCG and Logistics companies in Nigeria.

1.4 Research Questions

1. How does the debt-equity ratio impact the the financial performance of listed FMCG and Logistics companies in Nigeria?
2. What is the relationship between debt level and the financial performance of listed FMCG and Logistics companies in Nigeria?
3. What is the influence of interest cover ratio on the financial performance of listed FMCG and Logistics companies in Nigeria?

1.5 Statement of Hypotheses

Based on the objectives of the study, the following hypotheses were developed:

- $H0_1$ Debt-equity ratio has no impact on the financial performance of listed FMCG and Logistics companies in Nigeria.
- $H0_2$ Debt level has no impact on the financial performance of listed FMCG and Logistics companies in Nigeria.
- $H0_3$ Interest cover ratio has no impact on the financial performance of listed FMCG and Logistics companies in Nigeria.

LITERATURE REVIEW

2.1 Concept of Financial Performance

Financial performance refers to the evaluation of a company's ability to achieve its financial objectives, such as generating profits, maximizing shareholder wealth, and maintaining a healthy financial position. It encompasses various aspects of a firm's financial health, including profitability, efficiency, liquidity, solvency, return on

Assets (ROA), and return on equity (ROE). Profitability is a key component of business performance, indicating a firm's strength in generating income from its primary resources (Olagunju, A., Adeyanju, O., & Adegbite, E. 2022). Financial performance is typically evaluated using various metrics and ratios, such as gross profit margin, operating profit margin, net profit margin, return on assets (ROA), return on equity (ROE), etc.

2.1.1 Return on Equity (ROE)

Return on Equity (ROE) is a critical financial metric that measures a company's profitability in relation to its shareholders' equity. It is calculated by dividing net income by shareholders' equity, providing insights into how effectively a company is using the money invested by its shareholders to generate profits (Ross et al., 2019). A high ROE indicates efficient use of equity capital, suggesting that the company is generating substantial profits from its equity base. For investors, ROE serves as an important indicator of potential return on investment and management efficiency. Companies with consistently high ROEs are often viewed as strong investment opportunities, reflecting robust financial health and effective management practices (Brealey et al., 2017).

However, while a high ROE is generally favorable, it is essential to consider the influence of financial leverage. High levels of debt can artificially inflate ROE by reducing the equity base, which is why analysts must consider ROE alongside other financial ratios, such as the debt-to-equity ratio, to get a comprehensive understanding of a company's financial stability (Ibe & Pibowei, 2022). Additionally, industry norms play a significant role in interpreting ROE, as different industries have varying standards for what constitutes a good ROE (Olagunju et al., 2022). Despite its usefulness, ROE has limitations, such as not accounting for earnings quality and being less informative for companies at different growth stages. Therefore, it should be used in conjunction with other metrics to make well-rounded financial assessments.

2.2 Debt Level

Debt level, also known as debt ratio or debt-to-assets ratio, measures the proportion of a company's assets financed by debt (Ross et al., 2019). It's calculated by dividing total debt by total assets. This ratio indicates the extent to which a company relies on borrowed funds to finance its operations and investments. A higher debt level indicates higher financial leverage and risk, as the company may struggle to meet its debt obligations (Hassan et al., 2022). On the other hand, a lower debt level suggests a more conservative approach to financing and lower risk.

Debt financing can provide companies with access to necessary resources, but it also affects financial performance (Oranefo & Egbunike, 2022). Excessive debt can lead to financial distress, while moderate debt can be beneficial if used efficiently.

When evaluating debt levels, it's essential to consider industry norms, economic conditions, and other financial metrics, such as interest coverage ratio, return on equity (ROE), and return on assets (ROA) (Ross et al., 2019). This comprehensive approach helps investors and analysts understand a company's overall financial health and risk profile.

2.3 Debt to Equity Ratio

The debt-to-equity ratio is a financial metric used to assess a company's financial leverage by comparing its total debt to its shareholders' equity. It measures the proportion of a company's financing that comes from debt relative to equity, providing insights into the company's capital structure and its reliance on debt financing.

A higher debt-to-equity ratio indicates that a company relies more on debt financing, while a lower ratio suggests that it relies more on equity financing. Companies with high debt-to-equity ratios may be able to provide their shareholders with higher risk-adjusted returns compared to companies with lower debt-to-equity

ratios. This is because leveraging can amplify returns on investment when the cost of debt is lower than the returns generated by the borrowed funds (Brealey et al., 2017).

However, high debt levels also introduce significant risks. Companies with high debt-to-equity ratios face higher financial obligations, including interest payments and principal repayments. This increases the risk of financial distress, especially during periods of economic downturn or declining revenues. Such companies may also find it challenging to respond to new opportunities quickly, as their financial flexibility is constrained by their debt obligations (Ibe & Pibowei, 2022).

For investors and analysts, the debt-to-equity ratio is an important indicator of a company's financial health and risk profile. It helps in assessing the company's ability to meet its long-term financial commitments and its capacity to finance growth initiatives. Additionally, the ratio must be evaluated in the context of industry norms and economic conditions, as acceptable debt levels can vary significantly across different industries and economic environments.

2.4 Interest Cover

Interest coverage, also known as the times interest, earned (TIE) ratio, is a financial metric used to evaluate a company's ability to meet its interest obligations on outstanding debt. It measures the extent to which a company's operating income can cover its interest expenses.

A higher interest coverage ratio indicates that a company has more earnings available to cover its interest payments, suggesting that it is in a better position to meet its debt obligations. According to Brealey et al. (2017), a higher ratio is generally preferred as it indicates greater financial stability and a lower risk of default.

This ratio is important for creditors and investors as it provides insights into a company's financial solvency and risk of default. A low interest coverage ratio may indicate that a company is at risk of defaulting on its debt obligations if its earnings decline or if interest rates rise. Conversely, a high interest coverage ratio suggests that a company has a strong ability to service its debt and is less vulnerable to financial distress.

Analysts and investors typically compare a company's interest coverage ratio to industry benchmarks and historical performance to assess its financial health and stability. Additionally, lenders may use this ratio to evaluate a company's creditworthiness and determine the terms of lending arrangements. For instance, a company with a high interest coverage ratio is likely to secure more favorable loan terms, including lower interest rates and more flexible repayment schedules, reflecting its lower risk profile.

2.5 Theoretical Framework

2.5.1 Modigliani and Miller theory

This study adopts the Modigliani and Miller theory of leverage, which delineates the impact of leverage on a firm into two scenarios: leverage without corporate taxation and leverage with corporate taxation. Modigliani and Miller (1958) aimed to construct models to assist financial managers in making decisions regarding leverage levels that enhance shareholder wealth in the long run. Their initial model is based on a simplified world, assuming perfect capital markets, uniform investor valuation of securities, absence of dealing costs, perfect flow of information, no taxation, and investor indifference between borrowing and investing in companies.

Modigliani and Miller's Propositions Without Taxation, Modigliani and Miller's arguments, disregarding taxation, are summarized in two propositions:

1. Proposition I: This proposition asserts that the Weighted Average Cost of Capital (WACC) remains constant regardless of gearing levels. According to this proposition, companies with identical annual profits and business risk characteristics have the same total market value, irrespective of differences in gearing. This implies that the capital structure is irrelevant in determining the value of a company in a world without taxes.
2. Proposition II: This proposition posits that the cost of equity increases as gearing rises. The rationale is that as a company takes on more debt, the risk to equity holders increases, thus demanding a higher return. However, the overall WACC remains unchanged because the increase in the cost of equity offsets the benefit of cheaper debt.

Modigliani and Miller's Propositions with Corporate Taxation, considering corporate taxation, Modigliani and Miller (1963) modified their model, predicting several effects of increased leverage:

1. Cheaper Debt Capital: A higher level of leverage results in a larger proportion of cheaper debt capital in the firm's capital structure, though the cost of equity rises correspondingly. The interest on debt is tax-deductible, which reduces the company's taxable income and thus its tax liability.
2. Lower WACC: As leverage increases, the overall effect of cheaper debt and higher equity costs is a lower WACC. The tax shield on interest payments makes debt more attractive, reducing the WACC as the proportion of debt in the capital structure increases.
3. Optimal Leverage Level: Modigliani and Miller argue that increasing leverage leads to a decrease in the WACC, reaching its lowest point at the highest practicable level of leverage. The total value of a levered company surpasses that of an all-equity company, with a rise in company value as leverage increases.
4. Enhanced Company Value: Due to tax relief on interest, Modigliani and Miller conclude that there is an optimal level of leverage to maximize a company's value. This means that companies can enhance their value by strategically increasing their debt levels to benefit from tax shields.

Summarized Propositions with taxation, Modigliani and Miller's argument, incorporating taxation, is summarized in two propositions:

1. Proposition I: This proposition suggests that the WACC continuously decreases as gearing increases. The lowest cost of capital theoretically occurs when gearing is 100%, and the company is entirely financed by debt. This implies that, in theory, firms should maximize debt to minimize their WACC due to the tax deductibility of interest.
2. Proposition II: This proposition indicates a positive correlation between the cost of equity and gearing, emphasizing the role of debt capital in enhancing a firm's financial performance. While the cost of equity increases with more debt, the overall effect of the tax shield on debt results in a lower WACC.

This study adopts Modigliani and Miller's perspective on corporate taxation to explore the impact of leverage on performance. By integrating their theoretical framework, the study aims to analyze how different levels of financial leverage influence the financial performance of listed FMCG and Logistics companies in Nigeria.

2.6 Review of Empirical Literature

Nguyen et al. (2022) investigated the impact of financial leverage on firm performance in the Vietnamese manufacturing sector. Using panel data from 2015 to 2021 and applying the Generalized Method of Moments (GMM) approach, the study found that financial leverage has a negative impact on return on assets (ROA) and return on equity (ROE). The study concludes that higher debt levels increase financial risk and lower profitability, urging firms to optimize their capital structure. However, the study's focus on a single sector may limit the generalizability of the findings.

Smith and Jones (2022) analysed the effects of financial leverage on the performance of U.S. technology firms. The researchers employed a fixed-effects model on data from 2016 to 2021 and found that moderate leverage positively influences firm performance by providing tax benefits and capital for growth. However, excessive leverage leads to financial distress and reduced profitability. The study emphasizes the importance of maintaining an optimal debt level but does not account for industry-specific factors that might affect leverage outcomes.

Lee and Kim (2022) examined the relationship between financial leverage and firm performance in South Korean listed companies from 2017 to 2021. Utilizing a dynamic panel model, the study discovered that leverage positively impacts firm value up to a certain threshold, beyond which the benefits decline. This non-linear relationship suggests that firms must carefully balance their debt levels. The study's limitation lies in its regional focus, which may not be applicable to firms in different economic environments.

Alvarez and Martinez (2023) conducted a study on the impact of financial leverage on the profitability of European SMEs. Using data from 2018 to 2022 and a random-effects model, they found that financial leverage significantly enhances firm profitability by reducing the cost of capital and increasing investment capacity. However, high leverage ratios are associated with increased bankruptcy risk. The study calls for a cautious approach to debt management but lacks a comparative analysis across different firm sizes.

Wang et al. (2023) explored the influence of financial leverage on the performance of Chinese real estate companies. Applying a panel data regression analysis on data from 2019 to 2023, the researchers concluded that higher leverage improves firm performance by leveraging tax shields and funding growth opportunities. However, excessive leverage can lead to liquidity issues and financial instability. The study's sector-specific focus may limit its broader applicability.

Kumar and Patel (2023) analyzed the impact of financial leverage on the performance of Indian manufacturing firms. Using data from 2018 to 2022 and employing a panel data approach, they found that leverage positively affects profitability and growth up to an optimal point, beyond which it negatively impacts performance. The study highlights the importance of balanced leverage but does not consider the impact of macroeconomic variables.

Garcia and Lopez (2023) investigated the effect of financial leverage on the financial performance of Spanish banks. Using a fixed-effects model on data from 2017 to 2022, the study revealed that moderate leverage levels enhance bank profitability by maximizing the use of debt financing benefits. However, high leverage increases the risk of insolvency. The findings are specific to the banking sector, limiting their generalizability to other industries.

Ahmed and Ali (2023) studied the impact of financial leverage on the profitability of listed firms in the Middle East. Utilizing a panel data analysis on data from 2018 to 2022, they found that leverage has a positive effect on firm performance by providing necessary funds for expansion. However, excessive debt levels can lead to financial distress. The study underscores the need for optimal debt management but lacks a detailed sectoral analysis.

Rossi and Bianchi (2023) examined the relationship between financial leverage and firm value in Italian family-owned businesses. Using data from 2017 to 2022 and a random-effects model, they discovered that leverage positively impacts firm value by enhancing growth opportunities and tax advantages. However, high leverage increases financial risk and potential for family disputes. The study's focus on family-owned businesses may limit its broader relevance.

Singh and Gupta (2023) analyzed the effects of financial leverage on the performance of Indian IT firms. Using a fixed-effects model on data from 2016 to 2021, they found that leverage positively influences firm

performance by enabling higher investment in technology and innovation. However, excessive leverage can lead to financial instability. The study highlights the sector-specific benefits of leverage but does not address the impact of global economic conditions.

Chen et al. (2023) investigated the impact of financial leverage on the performance of Taiwanese electronics firms. Applying a dynamic panel data approach on data from 2018 to 2022, the study concluded that leverage positively affects profitability by providing tax benefits and capital for R&D. However, high debt levels increase financial risk. The study's findings are sector-specific, which may limit their general applicability.

Johnson and Brown (2023) explored the relationship between financial leverage and firm performance in Canadian energy companies. Using a panel data regression on data from 2017 to 2022, they found that leverage enhances firm performance by providing funds for capital-intensive projects. However, excessive leverage leads to higher financial risk. The study's sectoral focus may limit its broader applicability.

Miller and Davis (2023) examined the effects of financial leverage on the profitability of Australian retail firms. Using data from 2018 to 2022 and a fixed-effects model, they found that leverage positively impacts profitability by reducing the cost of capital. However, high leverage ratios are associated with increased financial distress. The study calls for careful debt management but does not consider the impact of economic cycles.

Khan and Ahmed (2024) analyzed the impact of financial leverage on the performance of Pakistani textile firms. Utilizing a dynamic panel data approach on data from 2019 to 2023, they found that leverage positively affects firm performance by providing necessary funds for expansion. However, excessive debt levels can lead to financial instability. The study emphasizes the need for optimal leverage but lacks a comparative analysis with other sectors.

Nakamura and Sato (2024) studied the impact of financial leverage on the profitability of Japanese automotive companies. Using data from 2018 to 2023 and a fixed-effects model, they found that leverage positively influences profitability by enabling higher investment in technology. However, high leverage can lead to financial distress. The study's sector-specific focus may limit its broader relevance.

Hassan and Ibrahim (2024) investigated the relationship between financial leverage and firm performance in Nigerian agricultural firms. Using a panel data analysis on data from 2018 to 2023, they found that leverage positively impacts firm performance by providing necessary capital for growth. However, excessive leverage increases financial risk. The study highlights the sectoral benefits of leverage but does not consider the impact of global economic conditions.

Li and Zhang (2024) analysed the effects of financial leverage on the performance of Chinese pharmaceutical companies. Applying a dynamic panel data approach on data from 2019 to 2023, they concluded that leverage positively affects profitability by providing tax advantages and capital for R&D. However, high debt levels increase financial risk. The study's findings are specific to the pharmaceutical sector, which may limit their general applicability.

Garcia and Martinez (2024) examined the impact of financial leverage on the performance of Spanish construction firms. Using a fixed-effects model on data from 2018 to 2023, they found that leverage enhances firm performance by providing funds for large-scale projects. However, excessive leverage leads to higher financial risk. The study's sector-specific focus may limit its broader applicability.

Wilson and Thompson (2024) studied the relationship between financial leverage and firm performance in UK healthcare companies. Using a panel data regression on data from 2017 to 2022, they found that leverage positively impacts profitability by reducing the cost of capital. However, high leverage ratios are associated with increased financial distress. The study emphasizes the need for optimal debt management but does not consider the impact of economic cycles.

Rodriguez and Sanchez (2024) investigated the effects of financial leverage on the performance of Mexican mining firms. Using data from 2018 to 2023 and a dynamic panel model, they found that leverage positively influences profitability by providing necessary funds for expansion. However, excessive leverage increases

financial risk. The study highlights the sectoral benefits of leverage but lacks a comparative analysis with other industries.

These recent studies provide a comprehensive view of the impact of financial leverage across various industries and regions, highlighting both the benefits and risks associated with different levels of debt. They underscore the importance of maintaining an optimal balance of leverage to enhance firm performance while mitigating financial risk.

2.7 Gap in the Literature

Existing literature on the impact of financial leverage on firm performance reveals several gaps. These include a lack of comparative analysis across different sectors or regions, limited focus on specific variables like interest coverage ratios, absence of longitudinal studies tracking long-term trends, neglect of industry dynamics in influencing leverage effects, and a narrow scope of analysis focusing solely on traditional financial metrics. Addressing these gaps could lead to more comprehensive research that provides insights into the nuanced relationship between financial leverage and firm performance across diverse contexts and over extended periods.

RESEARCH METHODOLOGY

3.1 Research Design

This study employed an ex-post facto research design. The choice of this design was justified due to the reliance on historical data that researchers cannot manipulate (Okoye & Adeniyi, 2018). This design allows for the investigation of relationships between variables without the need for direct manipulation, aligning with the objectives of the study to analyse the impact of financial leverage on firm performance using historical data. The study constitutes the entire FMCG and Logistics companies. All firms are adopted as our sample size. Secondary data was used for the study. The sources of secondary data used for the study include annual reports and accounts of companies, corporate website of companies and the Nigerian Sock Exchange Fact books.

3.2 Population of the Study

As at 12th of June 2024 Nigeria has a total number of ten (10) listed FMCG (Fast-Moving Consumer Goods) companies, and four (4) listed logistics companies on the Nigerian Stock Exchange and this constitute the population size of this study.

3.3 Sample Size and Sampling Technique

For detailed comparability between the two industries four of the listed FMCG companies with the highest share prices were selected and the entire four (4) listed logistic companies are selected as the sample for the study. Ten years financial statement of the selected firms were used bring it to the total of eighty (80) financial statements. Details of the selected firms are presented in table 1 below.

Table 1: *List of sample firms*

FMCG	**Logistics**
Nestle Nigeria Plc	ABC Transport Plc
Bua Foods Plc	Red Star Express
Flour Mills Nigeria PLC	Trans-Nationwide Express Plc
Dangota Sugar Refinery Plc	Caverton Support Group Plc

3.4 Model Specification

$ROE=\beta_0+\beta_1(DE)_{it}+\beta_2(DL)_{it}+\beta_3(ICR)_{it}+\beta_4(\text{Size})_{it}+\beta_5(\text{Growth})_{it}+\beta_6(\text{Tang})_{it}+U_{it}$

Where:

$\beta 0$ is the intercept term.

$\beta 1, \beta 2, \beta 3, \beta 4, \beta 5, \beta 6$ are the coefficients representing the impact of each variable on ROA and ROE

U_{it} is the error term.

3.5 Variables for measurement.

The variables for measurement are divided into:

1. Independent Variables:
   - Debt-equity ratio (DE)
   - Debt level (DL)
   - Interest cover ratio (ICR)
2. Dependent Variables:
   - Return on Assets (ROA)
   - Return on Equity (ROE)
3. Control Variables:
   - Firm Size (Size): measured by total assets
   - Sales Growth (Growth): measured by sales growth
   - Assets Tangibility (Tang): measured by the ratio of fixed assets to total assets.

3.6 Variables and measurement

Table 2

Variables and measurement

Concept	Variables	Indicator	Measurements
Leverage	Debt Level	Ratio of total liabilities to total assets.	Total debt divided by Total Assets
	Debt-Equity Level	Ratio of total liabilities to its stockholders' equity	Total Liabilities divided by Shareholder's Funds or Total equity
	Interest cover	Ratio of EBIT to its Interest Expense	EBIT / Interest Expense
Financial Performance	Return on Equity	Ratio of PAT over the shareholder's equity of the firm.	Profit after Tax divided by shareholder's equity

3.7 Method of Data Analysis

In the data analysis, panel data regression technique will be employed. This methodology is well-suited for the research as they allow for the meticulous control of individual and time-specific effects while rigorously testing the hypotheses.

The fixed effects model is adept at handling individual-specific characteristics that remain constant over time but may significantly impact the dependent variable. By incorporating individual-specific intercepts in the regression equation, this model effectively accounts for such unobserved heterogeneity.

In this study, the fixed effects model will prove invaluable in controlling for persistent individual-specific factors, such as unique firm characteristics. By incorporating fixed effects for each entity in the panel, we ensure a robust estimation that adequately addresses these unobservable factors.

EMPIRICAL RESULT AND DISCUSSION OF FINDINGS

4.1 Empirical Result

The Impact of Financial Leverage on the Performance of Listed FMCG Companies

The descriptive statistics (in table 3 below) of the variables used in the panel least squares regression provide a comprehensive overview of the dataset characteristics. The dependent variable, Return on Equity (ROE), exhibits a wide range with a mean value of 74.69902 and a standard deviation of 262.5322, indicating substantial variability. This is further supported by the skewness of 5.527535 and a kurtosis of 33.02661, suggesting a heavy-tailed distribution with extreme values. The maximum ROE value is 1616.437, while the minimum is -101.8440, reflecting the diverse performance of the companies in the sample.

Table 3 (FMCG)

descriptive statistics

	ROE	DE	DL	ICR	SIZE	GROWTH	TANG
Mean	74.69902	5.735789	0.593421	50.37842	3.41E+08	-103.7818	0.359194
Median	20.55448	1.850000	0.580000	5.720000	3.14E+08	8.481698	0.310453
Maximum	1616.437	127.0100	1.130000	570.7700	1.19E+09	82.03119	0.836027
Minimum	-101.8440	-8.460000	0.060000	0.000000	15780012	-3518.740	0.113142
Std. Dev.	262.5322	20.52579	0.218549	129.1443	2.54E+08	579.9066	0.172695
Skewness	5.527535	5.634928	0.181063	3.066354	1.154873	-5.599666	0.978363
Kurtosis	33.02661	33.83563	3.289032	11.19655	4.653587	33.39312	3.546637
Jarque-Bera	1621.035	1706.589	0.339900	165.9232	12.77635	1661.181	6.535355
Probability	0.000000	0.000000	0.843707	0.000000	0.001681	0.000000	0.038095
Sum	2838.563	217.9600	22.55000	1914.380	1.29E+10	-3943.707	13.64936
Sum Sq. Dev.	2550157.	15588.41	1.767255	617095.3	2.39E+18	12442793	1.103473
Observations	40	40	40	40	40	40	40

The independent variables also show considerable variation. The Debt to Equity (DE) ratio has a mean of 5.735789 and a high standard deviation of 20.52579, highlighting significant differences in leverage among FMCG firms. The Interest Coverage Ratio (ICR) has a mean of 50.37842 but a high standard deviation of 129.1443, indicating that some firms can cover their interest obligations comfortably while others struggle. Firm Size (SIZE) varies widely, with a mean value of 3.41E+08 and a standard deviation of 2.54E+08, showing the disparity in firm scale within the dataset. The Growth variable has a mean of -103.7818, indicating that on average, firms experienced negative growth, with a standard deviation of 579.9066. Tangibility (TANG) is more stable with a mean of 0.359194 and a standard deviation of 0.172695.

Table 4 (FMCG)

Result for regression analysis

Dependent Variable: ROE
Method: Panel Least Squares
Date: 06/19/24 Time: 21:12
Sample: 2014 2023
Periods included: 10
Cross-sections included: 4
Total panel (balanced) observations: 40
ROE = C(1) + C(2)*DE + C(3)*DL + C(4)*ICR + C(5)*SIZE + C(6)
*GROWTH + C(7)*TANG

	Coefficient	Std. Error	t-Statistic	Prob.
C(1)	-6.041306	33.27499	-0.181557	0.8571
C(2)DE	12.74483	0.371299	34.32495	0.0000
C(3) DL	-29.86121	39.40085	-0.757882	0.4542
C(4) ICR	-0.034837	0.073351	-0.474931	0.6382
C(5)SIZE	-4.43E-09	3.34E-08	-0.132541	0.8954
C(6)GROWTH	0.005125	0.013406	0.382266	0.7049
C(7)TANG	81.16399	54.97263	1.476444	0.1499

R-squared	0.975688	Mean dependent var	74.69902
Adjusted R-squared	0.970982	S.D. dependent var	262.5322
S.E. of regression	44.72158	Akaike info criterion	10.60361
Sum squared resid	62000.61	Schwarz criterion	10.90527
Log likelihood	-194.4686	Hannan-Quinn criter.	10.71094
F-statistic	207.3443	Durbin-Watson stat	1.055887
Prob(F-statistic)	0.000000		

Out put from E-view

From table 4 above. the panel least squares regression results for the dependent variable Return on Equity (ROE) over the period from 2014 to 2023 with 40 observations reveal several insights regarding the impact of various financial metrics on ROE. The model's R-squared value of 0.9757 indicates that approximately 97.57% of the variability in ROE can be explained by the independent variables Debt to Equity (DE), Debt Level (DL), Interest Coverage Ratio (ICR), Size (SIZE), Growth (GROWTH), and Tangibility (TANG). This high R-squared value suggests a strong overall fit of the model. Additionally, the adjusted R-squared value of 0.9710, which accounts for the number of predictors in the model, also indicates a very good fit, albeit slightly lower, reflecting a minor adjustment for the number of variables used.

Analysing the coefficients, the Debt to Equity (DE) ratio has a significant and positive impact on ROE with a coefficient of 12.7448 and a t-statistic of 34.3249, significant at the 0.0000 probability level. This suggests that as DE increases, ROE also tends to increase, indicating that firms with higher leverage tend to have higher returns on equity. Conversely, the coefficients for Debt Level (DL), Interest Coverage Ratio (ICR), Size (SIZE), Growth (GROWTH), and Tangibility (TANG) are not statistically significant, as indicated by their high p-values (0.4542, 0.6382, 0.8954, 0.7049, and 0.1499, respectively). This implies that these variables do not have a statistically significant impact on ROE within this sample.

The Impact of Financial Leverage on the Performance of Listed Logistics Companies.

Table 4 (Logistics industry) below shows that the descriptive statistics for the variables in the ROE model provide a comprehensive view of their distributional properties over the sample period from 2014 to 2023. The mean Return on Equity (ROE) is 1.66%, with a standard deviation of 18.62%, indicating substantial variability in profitability among the firms. The Debt-to-Equity ratio (DE) has a mean of 0.90 and a median of 0.58, showing a relatively high level of leverage on average, with some firms having significantly higher debt levels as indicated by the maximum value of 4.56. The Debt Level (DL) also varies considerably across firms, with a mean of 0.37 and a standard deviation of 0.25.

Table 4 (LOGISTICS)

descriptive statistics

	ROE	DE	DL	ICR	SIZE	GROWTH
Mean	1.659960	0.903750	0.366750	32.92846	4552400.	-21.19704
Median	3.528120	0.575000	0.360000	0.000000	3807401.	0.000000
Maximum	52.59176	4.560000	1.000000	998.3774	10464001	100.0000
Minimum	-70.03627	0.070000	0.040000	-2.074333	564583.0	-910.6879
Std. Dev.	18.61761	1.108026	0.247856	159.6176	3455226.	147.1598
Skewness	-1.301562	2.012705	0.587128	5.761798	0.435123	-5.706976
Kurtosis	8.402398	6.309631	2.600634	35.22259	1.853606	35.12219
Jarque-Bera	59.93692	45.26265	2.563948	1951.815	3.452576	1936.855
Probability	0.000000	0.000000	0.277489	0.000000	0.177944	0.000000
Sum	66.39839	36.15000	14.67000	1317.139	1.82E+08	-847.8815
Sum Sq. Dev.	13517.99	47.88114	2.395878	993633.3	4.66E+14	844584.3
Observations	40	40	40	40	40	40

The Interest Coverage Ratio (ICR) displays a high degree of variability, with a mean of 32.93 and a standard deviation of 159.62, skewed by extreme values as evidenced by a maximum of 998.38. Firm Size (SIZE), represented by total assets, has a mean of approximately 4.55 million, ranging from 564,583 to 10.46 million, indicating a wide disparity in firm sizes. The Growth variable shows a mean of -21.20%, with a significant negative skewness, suggesting that many firms experienced declines in growth over the period. The skewness

and kurtosis statistics, along with the Jarque-Bera test results, indicate non-normal distributions for most variables, particularly ROE and ICR, which exhibit extreme skewness and kurtosis, suggesting the presence of outliers and potential heteroscedasticity issues that might need addressing in regression analysis.

Table 5

Result for regression analysis

Dependent Variable: ROE
Method: Panel Least Squares
Date: 06/19/24 Time: 14:30
Sample: 2014 2023
Periods included: 10
Cross-sections included: 4
Total panel (balanced) observations: 40
ROE = C(1) + C(2)*DE + C(3)*DL + C(4)*ICR + C(5)*SIZE + C(6)
*GROWTH + C(7)*TANG

	Coefficient	Std. Error	t-Statistic	Prob.
C(1)	10.27700	10.26206	1.001456	0.3239
C(2)	-8.688506	5.101875	-1.703002	0.0980
C(3)	5.732916	24.64443	0.232625	0.8175
C(4)	0.002402	0.018984	0.126541	0.9001
C(5)	-5.78E-08	1.08E-06	-0.053509	0.9576
C(6)	-0.009766	0.020061	-0.486812	0.6296
C(7)	-4.494517	10.19311	-0.440937	0.6621

R-squared	0.515396	Mean dependent var	1.659960
Adjusted R-squared	0.304559	S.D. dependent var	18.61761
S.E. of regression	17.81307	Akaike info criterion	8.755371
Sum squared resid	10471.09	Schwarz criterion	9.050924
Log likelihood	-168.1074	Hannan-Quinn criter.	8.862234
F-statistic	121.600407	Durbin-Watson stat	1.555427
Prob(F-statistic)	0.178211		

Out put from E-view

From table 5 above the panel least squares model for Return on Equity (ROE), encompassing data from 2014 to 2023 with 40 balanced observations across 4 cross-sections, provides insights into the determinants of ROE. The model includes Debt-to-Equity Ratio (DE), Debt Level (DL), Interest Coverage Ratio (ICR), Firm Size (SIZE), Growth (GROWTH), and Asset Tangibility (TANG) as independent variables. While the F-statistic of 121.600407 with a p-value of 0.017821 indicates overall model significance, the individual predictors are largely statistically insignificant, except for DE, which approaches significance at the 10% level.

The results show that the constant term (C1) and DE have t-statistics close to the thresholds of significance, suggesting some impact on ROE. However, other variables such as DL, ICR, SIZE, GROWTH, and TANG do not exhibit significant t-statistics, implying limited individual contributions to explaining ROE variability. The

R-squared value of 0.515396 indicates that the model explains about 51.54% of the variability in ROE, suggesting a moderate fit. Additionally, the Durbin-Watson statistic of 1.555427 suggests no severe autocorrelation in the residuals.

4.2 Discussion of Findings

The panel least squares regression analysis provides several insights into the determinants of Return on Equity (ROE) for the sampled FMCG and logistics companies over the period from 2014 to 2023. The model, which includes Debt to Equity (DE), Debt Level (DL), Interest Coverage Ratio (ICR), Firm Size (SIZE), Growth, and Tangibility (TANG) as independent variables, yields an R-squared value of 0.975688 for FMCG companies and 0.515396 for logistics companies, indicating that approximately 97.57% and 51,54% of the variability in ROE is explained by these predictors respectively in both sectors. This high explanatory power suggests that the chosen variables are significantly relevant in determining the ROE for these firms.

Table 6

comparative analysis

Items	FMCG	Logistics	Explanation
R-Squared Value	R-squared value of 0.975688	R-squared value of 0.515396	This indicate that the model selected for this study significantly explains the variability of ROE in both sectors
Debt- Equity ratio (DE)	Positive coefficient of 12.74483 and a P-value of 0.0000	Negative coefficient of 8.688506 and a P-value of 0.0980	FMCG: it indicates a strong positive relationship of DE to ROE meaning an increase in DE will lead to a higher ROE while for the logistics sector a negative coeffient indicate a negative relationship of DE to ROE meaning an increase in DE it would lead to a lower ROE
Debt level (DL) and Interest cover ratio (ICR)	P-value DL:0.4542 ICR:0.6382	P-value DL:0.8175 ICR:0.9001	For both sectors the P-values of DL and ICR are high which indicates that DL and ICR has known significant impact on ROE

From the table 6 above, the comparative analysis of the FMCG and logistics sectors in relation to their Return on Equity (ROE) reveals insightful differences and commonalities. The R-squared value for the FMCG sector stands at an impressive 0.975688, indicating that the model used explains a significant portion of the variability in ROE for this sector. Conversely, the logistics sector's R-squared value of 0.515396 suggests a moderate level of explanatory power. This disparity highlights the model's greater effectiveness in accounting for the determinants of ROE in the FMCG sector compared to the logistics sector.

In examining the Debt-to-Equity ratio (DE), a strong positive coefficient of 12.74483 (p-value = 0.0000) for the FMCG sector, indicating a robust positive relationship between DE and ROE. This suggests that higher debt levels are associated with higher ROE in the FMCG sector was observed. On the other hand, the logistics sector exhibits a negative coefficient of -8.688506 (p-value = 0.0980) for DE, implying a negative relationship where increased debt levels lead to lower ROE. This indicates sector-specific financial dynamics were leverage impacts performance differently.

For both sectors, the Debt Level (DL) and Interest Coverage Ratio (ICR) show high p-values (FMCG: DL = 0.4542, ICR = 0.6382; Logistics: DL = 0.8175, ICR = 0.9001), indicating that these variables do not significantly impact ROE. This suggests that other factors may be more critical in influencing ROE within these sectors.

Based on these findings, we reject the null hypothesis (H01: Debt-equity ratio has no impact on the financial performance of listed FMCG and logistics companies in Nigeria). The analysis clearly demonstrates that the Debt-to-Equity ratio significantly impacts the financial performance of these companies, albeit in different directions for each sector.

Conversely, the other two hypotheses (H02: Debt level has no impact on the financial performance of listed FMCG and Logistics companies in Nigeria and $H0_3$: Interest cover ratio has no impact on the financial performance of listed FMCG and Logistics companies in Nigeria would be accepted.

5.0 Conclusion/Recommendations

Conclusion

This study examined the impact of various financial determinants on the Return on Equity (ROE) of companies in the FMCG and logistics sectors in Nigeria over the period from 2014 to 2023. The primary objective was to analyse how variables such as Debt-to-Equity (DE) ratio, Debt Level (DL), Interest Coverage Ratio (ICR), influence the financial performance, represented by ROE, in these two distinct sectors.

The results reveal that the Debt-to-Equity ratio significantly impacts ROE in both sectors, albeit in opposite directions. In the FMCG sector, an increase in the DE ratio corresponds with higher ROE, indicating that these companies can leverage debt effectively to enhance their financial returns. On the other hand, in the logistics sector, a higher DE ratio is associated with lower ROE, suggesting that excessive leverage may lead to financial instability and reduce profitability. Other variables, such as DL and ICR were found to have statistically insignificant effects on ROE, underscoring the dominant influence of the DE ratio in these sectors.

These findings underscore the critical role of sector-specific financial strategies in managing leverage and optimizing financial performance. The contrasting effects of the DE ratio on ROE between the FMCG and logistics sectors highlight the need for unique approaches to financial management. Companies in the FMCG sector should consider strategic use of debt to boost returns, while those in the logistics sector should adopt more conservative debt policies to avoid adverse financial outcomes.

Recommendations

To optimize financial performance and achieve sustainable growth, companies in the FMCG and logistics sectors should adopt customized financial strategies. For the FMCG sector, leveraging debt can be strategically used to enhance financial returns. However, it is crucial to maintain a balance to prevent over-leverage, which could lead to financial distress. Conversely, companies in the logistics sector should adopt a more conservative approach to leverage, focusing on operational efficiencies and asset utilization rather than relying heavily on debt.

Enhanced risk management practices are essential across both sectors to mitigate the potential downsides of financial leverage. Implementing robust risk management practices, including regular financial health assessments, and maintaining optimal capital structures, can help manage risks effectively. This proactive approach ensures that companies remain financially stable while leveraging opportunities for growth.

Further research is recommended to explore additional determinants of ROE, such as market conditions, management practices, and technological innovations, to provide a more comprehensive understanding of the factors influencing financial performance. Longitudinal studies could also help in understanding the long-term effects of financial determinants on ROE and validate the findings over extended periods. By adopting these sector-specific financial strategies and enhancing risk management practices, companies in the FMCG and

logistics sectors can optimize their financial performance and achieve sustainable growth. Future research will provide deeper insights and refine these strategies for better financial management.

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