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Financial Leverage on The Firm Value of Listed Consumer Goods Firms

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Abstract

Financial leverage's impact on the firm value of listed consumer goods companies in Nigeria was investigated in this study. The study used secondary data gathered from the quarterly audited financial statements of sixteen (16) consumer goods companies listed on the Nigerian Stock Exchange, spanning the calendar quarters of 2015 Q1 through 2024 Q4. The selection of the 16-firm sample was done by non-probability judgmental sampling. The Equity Multiplier (EM) and Degree of Financial Leverage (DFL) were used as stand-ins to gauge the amount of financial leverage. Enterprise Value (EV), Market to Book Value (MBV), and Price to Sales Ratio (PSR) were used as stand-ins to gauge the degree of business value. Finbox and the Nigerian Stock Exchange were used to collect all of the data, and E-Views was used for the study. The degree of the association between financial leverage and firm value was ascertained using both descriptive and inferential statistics, such as the Unit Root Test, Descriptive Statistics, and Correlation Analysis. The Hausman test was used to determine the preferred model in a panel regression analysis that employed the Fixed Effects Model (FEM), Random Effects Model (REM), and Pooled Ordinary Least Squares (OLS). With a p-value of 0.000 for all three models, the regression findings showed that the Equity Multiplier had a mild and inconsequential impact on the Price to Sales Ratio and Enterprise Value, but a substantial and significant positive influence on Market to Book Value. The impacts of Degree of Financial Leverage on all firm value proxies were found to be extremely weak and statistically negligible. The findings indicate that financial leverage has a limited and proxy-dependent effect on firm valuation and that the market reacts more favorably to capital structure decisions represented by debt-based financing than to leverage-induced earnings volatility. The management of these companies was counseled to implement the best leverage methods that increase shareholder value while considering other metrics that are unaffected by changes in the capital structure.

Keywords: *Equity Multiplier, Degree of Financial Leverage, Enterprise Value, Market to Book Value, and Price to Sales Ratio.*

1.0 INTRODUCTION

Epoch after epoch, those who have chosen to delve into the complex realm of business have been faced with a great conundrum. Is it necessary to obtain debt to operate? If so, how much debt is required to operate profitably? Can the business handle the recurring implications of shouldering this burden? Thus, they grappled with these questions and deliberated as to what choice to make and the overall ramifications it will bring about for themselves and their businesses.

These questions were contemplated upon over the years up till contemporary times. The nature of corporate funding, which led to the aforementioned queries, has since prompted the proposal of a number of theories, including the Modigliani-Miller (1958) theory, the Pecking

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Order theory, and the Trade Off theory of capital structure. The goal of each of these theories is to determine the ideal capital structure that a business should aim toward. Thus, the modern queries start to surface: What is the required ratio of financial debt to equity for the company? How is the firm value of the company impacted by the percentage of financial leverage taken on? Although the fundamental nature of the questions over time has been the same, the difference lies in seeking to know the impact that choosing financial leverage levels will potentially have on the firm value of the company.

Whilst Financial leverage has the potential to increase future returns, it comes with its share of risks which include the cost of taking on the debt, as well as the risk of not being able to repay those debts. Knowing this, it thus becomes crucial to investigate the ideal amount of financial leverage to take on, so as to obtain the optimal capital structure that will satisfy the risk appetite of both shareholders and lenders in the listed consumer goods firms in Nigeria. Some companies aim to take on debt to acquire the tax shield advantage and seek to pit this advantage against the cost of possible financial distress. As such, it has been suggested there is no universal theory of capital structure choice (Myers 2003 as cited in Daruwala 2023).

The choice depends on the company, their risk appetite, their financial health and the strategic financial path they wish to traverse. As such, the researchers believe that Financial leverage then becomes a concept to be considered, with regard to the effect it has on the overall perception of stakeholders, and in particular, investors, whose perception of the company is reflected in the firm value at any given time. Whilst there are numerous other factors that will affect the judgement of potential and current investors, the risk component of financial leverage, vis-à-vis the potential returns that investors can potentially obtain, make it a compelling variable to be studied and tested.

Firm value is the perceived worth of the company in the minds of potential investors. Due to the fact that the investors weigh the potential risks of taking on an investment, financial leverage and by extension, the capital structure of the company play an integral part in the determination of the firm value of companies. Nawaz and Ahmad (2017) assert that “one of the crucial decisions that finance experts of any organization take is about capital structure which influences the weighted average cost of capital as well as the firm value of shares”.

The recent trends in the consumer goods industry, specifically over the past eight years, in terms of exchange rate volatility and multiple interest rate hikes, have generated curiosity as to how the companies operating in this sector are basing their capital structure decisions vis-à-vis the macroeconomic pressures, as well as how these decisions are affecting the perceived worth of these companies to potential investors. As such, it is of great significance to the researchers to investigate the relationship that the financial leverages of these consumer goods firms have with the overall firm value.

Investigating the impact of financial leverage on consumer goods companies listed on the Nigerian Stock Exchange is the goal of this study. By doing this, it is hoped that a conclusion regarding the general assessment of Nigerian investors toward different degrees of financial leverage, considering the nation's unique economic circumstances, can be drawn.

This study aims to assess the impact of financial leverage on the firm value of consumer goods companies that are listed in Nigeria because it highlights the general trend of how financial leverage influences consumer goods companies' firm value. Financial leverage is an integral source of finance for any company, and companies in the consumer goods sector are no exception to this fact. It is used to finance company expansions, asset purchases and working

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capital supplementation. Whilst financial leverage introduces a boost in the funds of a company as well as critical support for project executions, it also comes with its portion of risk that must be factored into the decision making as to whether to use it or not.

These risks include the risk of the company not being able to repay the debt as well as the risk of not being able to pay the regular interest payments (cost of the debt) on time. If these innate risks associated with financial leverage are compounded with the risks of the macroeconomic environment of Nigeria including interest rate upward trajectory and exchange rate volatility, we get a picture of a complex and difficult situation.

Despite the importance of this issue, few first-hand analyses have directly assessed the relationship between financial leverage and firm value in Nigeria's consumer goods sector. Existing studies make use of conventional metrics such as debt to equity and debt ratio. Furthermore, the existing studies display conflicting findings with some having a significant positive relationship and others having a significant negative relationship. None of the existing studies have made use of Degree of Financial Leverage and Equity Multiplier as proxies of financial leverage, and Enterprise Value, Market to Book Value and Price to Sales Ratio as proxies of firm value collectively. This is a significant gap in literature that our goal was to address this problem with the assistance of this study

Determining the impact of financial leverage on the firms' value of consumer goods companies in Nigeria was the primary goal of this research. Additional related goals include establishing how the equity multiplier affects the enterprise value of listed consumer goods companies in Nigeria, how it affects the market to book value of listed consumer goods companies in Nigeria, how it affects the price to sales ratio of listed consumer goods companies in Nigeria, how it affects the enterprise value of listed consumer goods companies in Nigeria, how it affects the degree of financial leverage on the enterprise value of listed consumer goods companies in Nigeria, how it affects the market to book value of listed consumer goods companies in Nigeria, and how it affects the price to sales ratio of listed consumer goods firms in Nigeria.

This study makes two primary contributions: In order to ascertain which financial leverage was used more successfully in terms of Enterprise Value, Market to Book Value, and Price to Sales Ratio, it first closes gaps in the literature, particularly with regard to consumer products businesses. The Hausman test is used to determine the estimate methods of Pooled Ordinary Least Squares (POLS), Random Effect Panel Data Model (REM), and Fixed Effect Panel Data Model (FEM), which have been mostly ignored in earlier research. Secondly, an ex-post facto data model was employed as a methodological improvement to examine the reasons behind the financial leverage from 2015 Q1 to 2024 Q4 utilizing a different mix of the three-firm values proxy and secondary factors.

2.0 THEORETICAL BACKGROUND

2.1. Literature review on financial leverage and firms value

In contemporary times, companies and society at large place significant emphasis on financial leverage and how it can impact an organization. To this end, Akinnibi (2023) referred to financial leverage as the use of debt to amplify the return from project investments. This serves as a tool which enables companies to acquire and retain assets without having to invest their own funds or dilute their ownership structure. Emphasis has been placed so far on the multiplicative factor which is expected to be attained from using borrowed funds for

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investments. This has been alluded to by Al-Hawatmah and Shaban (2023), who said that the advantage of using debt is realized through the income/returns generated by the assets being greater than the cost of utilizing the debt. Although the returns can be amplified potentially, so too can the risks. As such, meticulous planning is usually carried out to determine the chances of such risks becoming a reality, and strategies which might mitigate such risks to be in tandem with investors and creditors risk profile. The nature of financial leverage thus makes it imperative to have adequate knowledge in risk management and risk profiling, so that the use of financial leverage by companies can yield fruitful outcomes for investors.

Firm value as a concept, serves as an excellent tool for estimating future expectations. This is because it is a tool that not only gives the value of a firm as at the current time but also portrays the expected future earnings of the company. As such, it can be used in financial projections over a period of time for estimation of future share prices and company value (Sampurna & Romawati, 2019). There are various elements that affect firm value, and they include but are not limited to: To mention a few, these include the company's profitability, the investment projects it has undertaken, macroeconomic factors, the company's size, the capital structure mix, its risk profile, growth prospects for the industry it operates in, the company's dividend policy, and the top management profile.

According to (Dang et al, 2019), the greater the profits that a business is able to generate, the higher the value of its company. From the perspective of investors, when a company is generating year on year returns at an increasing rate, it shows that greater returns for original investment are to be expected. Consequently, the investors will demand for the company which shows such prowess in earnings increase potential. Due to the increased and rushed demand for that company’s stocks given the fixed supply of stocks, the price will inevitably rise. This is how the market forces of demand and supply interrelate in the stock market. As can be seen, it is the earning potential of the company that serves as an underlying driver for the price that investors would pay.

This phenomenon of profitability affecting the value of a firm has cast a greater importance on the various profitability ratios which are used to compare and contrast the profitability aspects of competing companies within the same industry. Investors make use of ratios such as the Return on Asset Ratio and Return on Equity Ratio to ascertain the viability of investing in a company.

Most research focuses on the relationship between financial leverage and profitability, stock return, and organizational success. Financial leverage is a major factor in consumer goods companies' firm value since it shapes their content to reflect their greener business practices. Ibrahim and Isiaka (2020) are one example of this, as they used data from a few chosen companies listed on the Nigerian Stock Exchange to ascertain the impact of financial leverage on business value. During a thirteen-year period from 2008 to 2020, Omabu et al. (2021) sought to determine the relationship between financial leverage and the wealth growth of shareholders of listed industrial goods enterprises in Nigeria.

Additionally, Etim et al. (2022) tried to investigate the connection between debt financing and the firm value of Nigerian listed consumer goods companies. In contrast, Alao and Sanyaolu (2020) attempted to evaluate how financial leverage affected the productivity of Nigerian consumer goods manufacturing companies. A recent study by Obi and Nworie (2024) looked at the levels of financial leverage and how it affected the stock market performance of Nigerian consumer goods companies.

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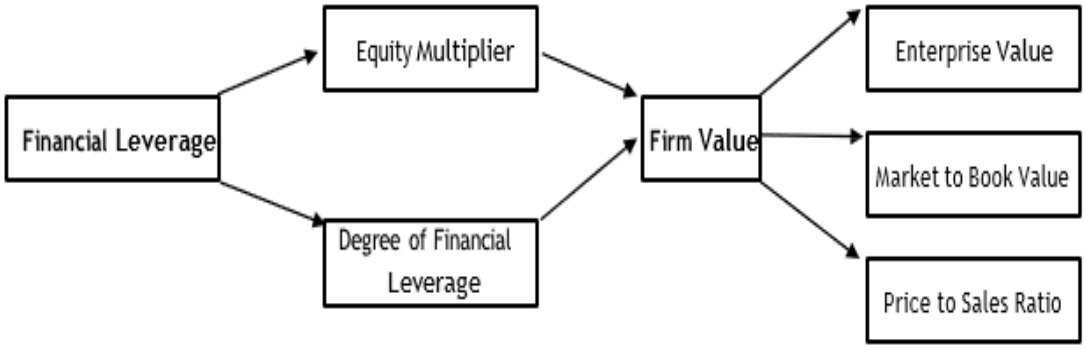
They discovered that the financial leverage ratio had a significant and favorable impact on the stock return of Nigerian consumer goods companies that were listed. Further research is necessary to determine the actual impact of financial leverage on the firm value of Nigerian consumer products companies that are listed, given the contradictory findings. Using the previously described proxies, which are unusual in studies conducted on the listed consumer goods sector in Nigeria over a long current period (2015 to 2024), this study sought to advance the research done in this field. Therefore, this study offered a novel viewpoint on how investor views and valuations of Nigerian consumer products companies are impacted by leverage acquisition decisions.

2.1.1 Conceptual Framework



Source: Ahmad, Francis & Josiah Model, (2025)

Theoretical Framework

Modigliani and Miller Theory

Franco Modigliani and Merton Miller's 1958 Modigliani and Miller theory of capital structure serves as the theoretical foundation for this investigation. In particular, the theoretical underpinning of this analysis will be Modigliani and Miller's Proposition I with taxes. This variation of Modigliani and Miller's Proposition we posit that as a firm takes on more debt, the effect of the tax shield, derived from tax deductible interest payments, will cause an increase in a firm's value (Osayande & Orobator, 2024). Modigliani and Miller made several assumptions when arriving at their theory.

They assumed that the world operates in perfect way in the sense that there is absence of taxes, transactions costs and bankruptcy costs, in addition to having zero information asymmetry (Iqbal et al, 2012). In the Nigerian context which this study will be examining, there are a number of abnormalities which do not fall in line with Modigliani and Miller's assumptions, as is the case with any real-life case. The Nigerian context is characterized by lack of access to credit markets, high interest rates, high inflation rate, volatile exchange rate, and significant risk of bankruptcy given previously mentioned factors.

2.2 Empirical Review

Obi and Nworie (2024) investigated the impact of financial leverage on the stock market performance of Nigerian consumer products companies that are listed. While stock return indicated stock market performance, the debt to asset ratio served as a stand-in for the degree

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of financial leverage. The research design employed in the study was ex-post facto. The study's population consisted of all 21 companies listed on the Nigerian Exchange Group's consumer products sector. The published financial statements of fifteen (15) purposively picked companies from 2013 to 2022 provided the study's data. While hypotheses were evaluated using the Pooled Ordinary Least Square approach at a 5% significance level, descriptive statistics were used for data analysis. They discovered that the stock return of Nigerian consumer goods companies listed is considerably and favorably impacted by the financial leverage ratio (p-value = 0.0029).

The impact of financial leverage on the financial performance of Nigerian consumer goods companies that are listed was investigated by Oke et al. in 2024. Using secondary data from published financial statements on the Nigeria Exchange Group (NGX) over an eight-year period (2015–2022), samples of eleven companies were examined.

Return on Equity (ROE) was used to measure financial performance, while the long-term Debt Ratio (LTDR), Short Term Debt Ratio (STDR), and Interest Coverage Ratio (INCOV) were used to monitor financial leverage. Descriptive statistics, correlation, the Hausman Test, and panel regression analysis were utilized to analyze the data used in this study.

The results were established with the use of e-views 10. Hausman test the best estimator between fixed and random effect regression was chosen for the investigation using the panel result test. The financial performance of Nigerian consumer goods companies that were listed was found to be positively and significantly impacted by the long-term debt ratio. The financial performance of Nigerian listed consumer goods companies was positively and marginally impacted by the short-term debt ratio and interest coverage ratio.

Finding and analyzing the impact of market value, firm size, and financial leverage on financial performance was the goal of Estiasih et al. (2024). Explanatory research methodologies were employed, and the population consisted of food and beverage manufacturing companies registered on the Indonesia Stock Exchange for the 2017-2019 period. Purposive sampling was the method employed, and twelve companies' audited financial reports were fully and consistently reported utilizing the purposive sample technique with criteria.

Secondary data of the time series kind was the data source used. Smart PLS 3.0 software was used to perform Partial Least Square (PLS) analysis in order to test the hypothesis. The findings demonstrated a substantial relationship between financial performance and financial leverage. However, neither firm size nor market value significantly impacted financial performance. In their 2023 study, Okpunor et al. investigated how financial leverage affected the financial performance of a few consumer products companies that were listed on the Nigeria Exchange Group. From the annual reports of consumer products companies listed on the Nigeria Stock Exchange, secondary data was gathered and retrieved.

The study used a longitudinal panel research approach that was ex post facto. The findings were as follows: the debt to equity ratio significantly increased the return on equity of a selected listed consumer goods company in the Nigeria Exchange group; the interest coverage ratio significantly increased the net profit margin of a selected listed consumer goods company in the Nigeria Exchange group; and financial leverage significantly increased the gross revenue of a selected listed consumer goods company in the Nigeria Exchange group. These findings were based on the results.

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The impact of supply chain financing, liquidity, and financial leverage on the performance of businesses in Pakistan's cement, textile, sugar, and pharmaceutical industries was investigated by Khan and Siddiqui (2023). Data over the previous decade was compiled from the financial reports offered on the official websites of all 50 corporations in four industries. Data was gathered between 2011 and 2020. The World Bank was another data source that was used.

Data was analyzed using the generalized method of moment (GMM), and the findings indicated that financial leverage has a beneficial effect on business performance in the pharmaceutical, sugar, and textile industries but a negative influence in the cement industry. In contrast to the textile, sugar, and pharmaceutical industries, the cement industry experienced a negative impact on company performance due to supply chain finance (SCF). Firm performance was positively impacted by liquidity (LIQ) in the following industries: pharmaceutical, sugar, textile, and cement. Additionally, the data demonstrated how important supply chain finance is to improving business performance.

Using an ex-post facto research design, Etim et al. (2022) attempted to determine the impact of debt financing on the firm value of consumer goods firms listed in Nigeria. As of December 31, 2019, twenty-one (21) consumer goods companies were listed on the floor of the St. Nigerian Stock Exchange. The study's sample size consisted of sixteen (16) Nigerian consumer goods companies, and the study covered the fiscal year 2013–2019. The study employed the purposive sampling technique, collecting data from the financial statements of the Nigerian sample companies. Descriptive statistics and multiple linear regression analysis were done on the collected data using E-view version 10. According to study results, the firm value of Nigerian consumer goods companies that are listed is positively and significantly impacted by debt ratio and long-term debt.

Over the course of thirteen years, from 2008 to 2020, Omabu et al. (2021) investigated the relationship between financial leverage and the wealth growth of shareholders in Nigerian listed industrial goods companies. A research design known as ex-post facto was used. The study's panel data sets were from the annual reports and financial statements of thirteen (13) publicly traded industrial goods companies. The study variables were described using the mean, standard deviation, minimum, and maximum values of the dataset from the sampled industrial products enterprises using descriptive statistics. To evaluate the study's hypothesis, the Hausman test and Panel Least Square (PLS) regression analysis were used. The specific results demonstrated a substantial and positive correlation (p-value = 0.0003<0.05) between the debt-to-equity ratio and cash value.

Using data from a sample of carefully chosen businesses registered on the Nigerian Stock Exchange, Ibrahim and Isiaka (2020) investigated the impact of financial leverage on firm value. A panel data analysis was used in the study, and secondary data from the financial statements of the chosen companies from 2014 to 2018 was used. The easy sampling technique was used to choose the sample of the 18 businesses under study. Financial leverage was measured using the long-term debt to equity ratio. This study was the first to use the Tobin's q ratio as a stand-in for company value in Nigeria. When presenting the Tobin's Q model of business valuation, other variables that have been shown in the literature to be significant when evaluating firm value; such as total assets, return on assets, and the number of years the firm has been in operation - were used as control variables. To ascertain the strength of the causal and correlational linkages between the dependent variable and the regressors, EVIEWS was used to evaluate the collected data. Using the estimate methodologies of the Fixed Effect Panel

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Model (FEM), Random Effect Panel Data Model (REM), and Pooled Ordinary Least Squares (POLS), the study ascertained the extent of causation. To find out how well financial leverage predicts business value, the correlation coefficients were calculated using the pairwise correlation matrix.

The study by Ibrahim et al. (2021) was followed by a more comprehensive approach by Omabu et al. (2021) and Etim et al. (2022), who used data from a few chosen companies listed on the Nigerian Stock Exchange to ascertain the impact of financial leverage on firm value. For thirteen years, from 2008 to 2020, Omabu et al. (2021) sought to determine the relationship between financial leverage and the wealth creation of shareholders. Equity multiplier and degree of financial leverage were not utilized as proxies of financial leverage in any of the aforementioned research, despite the fact that they all attempted to determine the relationship between financial leverage and company value. Aside from the aforementioned, no study used the consumer goods sector as a case study. Furthermore, none of these researches measured the independent and dependent variables using two proxies for the independent variable and three proxies for the dependent variable. Additionally, none of these researches examined the subject between 2015 and 2024, creating a new gap in the work's scope. Additionally, this study filled a theoretical gap that none of the other investigations had addressed: Modigliani and Miller. In light of this, this study closes a research vacuum by investigating how financial leverage affects the firm value of Nigerian consumer goods companies that are listed.

3.0 METHODOLOGY

The ex post facto research design was chosen for this study since the events under investigation had already occurred. According to Onwumere, Onodugo, and Ibe (2013), this design can also be used for research aimed at determining the cause-and-effect relationship between the dependent and independent variables. This study's primary goal is to identify cause-and-effect links among the variables that were chosen, hence the data that was gathered from the Nigerian Stock Exchange is secondary in nature. The study's goal was to investigate how financial leverage affected the firm value of Nigerian consumer goods companies that were listed. To this end, the models listed below were chosen for this research. To accommodate the flexibility of this study, a minor change was made to the study of Etim et al. (2022), which looked at the link between debt financing and firm value of listed consumer goods firms in Nigeria.

The mathematical specification of the model applied in this paper are presented as follows:

$$EV_{it} = \varphi_0 + \varphi_1 EM_{it} + \varphi_2 DFL_{it} + \mu_i + \varepsilon_{it} \quad (1)$$

$$MBV_{it} = \alpha_0 + \alpha_1 EM_{it} + \alpha_2 DFL_{it} + \mu_i + u_{it} \quad (2)$$

$$PSR_{it} = \pi_0 + \pi_1 EM_{it} + \pi_2 DFL_{it} + \mu_i + v_{it} \quad (3)$$

Where;

FV = Firm Value (Dependent Variable)

FL = Financial leverage (Independent Variable);

EV = Enterprise Value (Dependent Proxy);

MBV = Market to Book Value (Dependent Proxy);

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PSR = Price to Sales Ratio (Dependent Proxy);

EM = Equity Multiplier (Independent Proxy);

DFL = Degree of Financial leverage (Independent Proxy)

$\varphi_0, \alpha_0, \pi_0$ = Intercept or autonomous parameter estimates

$\varphi_1, \varphi_2; \alpha_1, \alpha_2; \pi_1, \pi_1$ = coefficients of Equity Multiplier and Degree of Financial leverage

$\mu_i =$ unobserved individual effects (or fixed effect error term, or unobserved heterogeneity)

$\varepsilon_{it}; u_{it}; v_{it}$ = are the error terms and $\varepsilon_{it}, u_{it}, v_{it} \square N(0, \sigma_\varepsilon^2)$

Note: $i = 1, 2, ...N$ representing cross sections; $; t = 1, 2, ..., T$ representing time periods

In order to determine the best panel estimate technique for the research, the Hausman test was employed as a diagnostic tool to determine whether the explanatory variables and the individual-specific effects were associated. Whether to use a fixed effects model or a random effects model was determined by the results of this test. In light of the findings, the study used an estimating methodology that guaranteed the accuracy and consistency of the parameter estimates.

The mathematical formulation of the Hausman test applied in the analysis is presented as follows:

$$H = (\phi_{RE} - \phi_{FE})' \left[Var(\phi_{RE}) - Var(\phi_{RE})^{-1} \right] (\phi_{RE} - \phi_{FE}) \quad (4)$$

Where:

ϕ_{RE} = coefficient vector from the Random Effects model

ϕ_{FE} = coefficient vector from the Fixed Effects model

$Var(\phi_{RE})$ = variance-covariance matrix of ϕ_{RE}

$Var(\phi_{RE})$ = variance-covariance matrix of ϕ_{FE}

H = Hausman test statistic

Random Effects is the preferred model under the null hypothesis (there is no association between regressors and individual effects); the Fixed Effects model is better appropriate under the alternative hypothesis (correlation exists). It is preferred to use the Fixed Effects model and reject the null hypothesis if the calculated -statistic is significant (p-value < 0.05).

The mathematical representation of the Fixed Effects (FE) model is specified as:

$$y_{it} = \alpha_i + \phi x_{it} + \varepsilon_{it} \quad (5)$$

Where:

y_{it} = the dependent variable (e.g., firm value) for firm i at time t

α_i = unobserved individual-specific effect (captures time-invariant heterogeneity across countries)

x_{it} = vector of independent variables (e.g., Equity Multiplier and Degree of Financial leverage)

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ϕ = vector of coefficients to be estimated

ε_{it} = error term

The Fixed Effects model assumes that α_i may be correlated with the regressors x_{it} and it controls for this by allowing each country to have its own intercept. This approach focuses on within-country variations over time and eliminates time-invariant omitted variable bias.

The mathematical representation of the Random Effects (RE) model is given as:

$$y_{it} = \alpha + \varphi x_{it} + u_i + \varepsilon_{it} \quad (6)$$

Where:

y_{it} = the dependent variable (e.g., firm value) for firm i at time t

α = common intercept across all countries

x_{it} = vector of explanatory variables (e.g., Equity Multiplier and Degree of Financial leverage)

φ = vector of coefficients to be estimated

u_i = unobserved country-specific random effect (assumed to be uncorrelated with x_{it}

ε_{it} = idiosyncratic error term

The key assumption in the Random Effects model is that the unobserved effect u_i is uncorrelated with the regressors x_{it}. This allows the model to exploit both within- and between-country variations, making it more efficient than the Fixed Effects model when the assumption holds.

4.0 DATA ANALYSIS AND RESULTS

Using the mean, standard deviation, skewness, kurtosis, and Jarque-Bera p-value, the data set's descriptive statistics for 16 publicly traded consumer goods companies in Nigeria during a ten-year period were calculated. In this part, the panel unit root test (using the Augmented Dickey-Fuller Fisher Test) and correlation analysis will also be looked at. The correlation analysis will display the direction and strength of the proxies under consideration to determine the extent to which the various proxies move together. The panel unit root test shall determine the stationarity of the data and its susceptibility to produce spurious results. Table 4.2.1 below presents the summary statistics for all variables used in the study.

Table 1: Descriptive Statistics Source

Variable	Mean	Std Dev	Skewness	Kurtosis	JB p-value
EV	₦224.0B	₦367.0B	2.13	6.54	0.000
MBV	3.49	6.68	5.46	49.75	0.000
PSR	5.99	29.36	22	528.71	0.000
EM	3.65	11.94	9.21	116.3	0.000
DFL	6.19	6.19	-17.71	346.83	0.000

Source: EVIEWS 9, (2025)

The above table provides descriptive insights into the distribution of the data for 16 firms over a 40-quarterly period which translates to 640 observations. From the above table, high

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levels of dispersion can be seen for all the variables and in particular, for Equity Multiplier (EM) and Price-to-Sales Ratio (PSR). The exhibition of great positive skewness and high kurtosis in PSR (skewness = 22.00; kurtosis = 528.71) and EM (skewness = 9.21; kurtosis = 116.3) are clear indications of potential outliers and a non-normal distribution. As for the Jarque-Bera p-values being 0.000, p value being less than 0.05 indicates that the data is not normally distributed and hence the use of panel data techniques with about 640 observations to counter to some extent the violation of normality assumptions.

The Enterprise Value has a large standard deviation of ₦367 billion and skewness of 2.13, which implies a positively skewed distribution. As for the kurtosis figure, then the kurtosis value of 6.54 translates to the data set being a leptokurtic distribution with more susceptibility to outliers. The Market to Book Value has a standard deviation of 6.68 and a skewness of 5.46, which implies a positively skewed distribution. As for the kurtosis figure, then the kurtosis value of 49.75 translates to the data set being a leptokurtic distribution with more susceptibility to outliers. This might be due to some firms having very high Market to Book Values. The Price to Sales Ratio has a standard deviation of 29.36 and a skewness of 22, which implies a heavily positively skewed distribution. As for the kurtosis figure, then the extreme kurtosis value of 528.71 translates to the data set being a leptokurtic distribution with more susceptibility to outliers. The Equity Multiplier has a range from -52.47 to 195.15 which indicates the presence of negative equity. The skewness figure of 9.21 and kurtosis of 116.3 suggests positively skewed data with a leptokurtic distribution. The Degree of Financial Leverage has a heavy skewness of 17.71 with extreme kurtosis of 346.83 indicating a highly negative skew and a leptokurtic distribution.

All variables had a Jarque-Bera p-value of 0.000 which is interpreted as the data being abnormally distributed at 5% level. As such, the use of panel data models are justified to combat the deviation of normality assumption. The Jarque-Bera test displayed a p-value of 0.000 for all five proxies, concluding that the data set is not normal. Due to the fact that data set being used is large in size (640 observations), the Central Limit Theorem holds and therefore the subsequent regression tests can be conducted without any issues. The correlation analysis was performed to ascertain the relationship between the five variables and to detect any potential multicollinearity issues in the data. The result is shown below:

Table 2: Correlation Analysis

	EV	MBV	PSR	EM	DFL
EV	1				
MBV	0.339	1			
PSR	0.044	0.025	1		
EM	0.049	0.729	-0.012	1	
DFL	-0.034	-0.096	-0.015	-0.021	1

Source: EVIEWS 9, (2025)

From the above correlation analysis matrix, Equity Multiplier (EM) and Market to Book Value (MBV) are showing signs of strong positive correlation with a correlation coefficient of 0.729. This could imply that firms with higher levels of equity multipliers, and thus higher debt profiles, have higher market to book values, confirming that increase in financial leverage can increase firm value, with the prior statement being limited to these two proxies. The Price to Sales Ratio (PSR) is exhibiting almost zero negative correlation with both of the financial leverage proxies. Enterprise Value (EV) has a weak correlation with other variables. Due to the fact that the independent proxies have weak correlation to each other, there is limited risk

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of multicollinearity in the regression analysis. Enterprise Value (EV) has a positive correlation of 0.339 with MBV, weak positive correlation with PSR and EM of 0.044 and 0.049 respectively, and a weak negative correlation with DFL of -0.034.

Market to Book Value (MBV) has a positive correlation of 0.339 with EV, weak positive correlation with PSR of 0.025, a weak negative correlation with DFL of -0.096 and a very strong positive correlation with EM of 0.729 which indicates that firms with high equity multipliers and thus leverage have higher MBVs. Also, Price to Sales Ratio (PSR) has a weak positive correlation with EV and MBV of 0.044 and 0.025 respectively, and a weak negative correlation with EM and DFL of -0.012 and -0.015 respectively. Equity Multiplier (EM) has a strong positive correlation with MBV of 0.729, while DFL has a weak negative correlation with all the variables. Since no two variables exhibited a correlation level above 0.80, then multicollinearity will not be a significant issue.

4.0 TEST OF HYPOTHESES

The regression results for the three models estimated using the Fixed Effects, Random Effects, and Pooled OLS techniques are shown in this section.

4.1 Pooled Ordinary Least Squares (Pooled OLS)

Table 4.1: Pooled OLS Result

Model	R-squared	F-stat p-value	EM Coeff. (p-val)	DFL Coeff. (p-val)
D_EV	0.003	0.383	334m (0.1785)	86.9m (0.7235)
MBV	0.532	0.000	0.531 (0.000)	0.014 (0.4690)
PSR	0.000	0.992	0.006 (0.9300)	0.007 (0.9241)

Source: EVIEWS 9, (2025)

Regarding D_EV, the R-squared value of 0.003 shows that both EM and DFL account for around 0.3% of the variation in D_EV. Both DFL and EM have p-values of 0.837 and 0.226, respectively, making them statistically inconsequential at the 5% significance level. This can be interpreted to mean that both EM and DFL do not significantly affect D_EV at the 5% significance level. As such, this implies that D_EV is influenced by other factors which cannot be sufficiently captured by leverage alone. For MBV, the R-squared value of 0.532 indicates that about 53.2% of the variation in MBV is explained by both EM and DFL, which is a clear sign of a strong relationship between MBV and financial leverage.

DFL is statistically insignificant at the 5% significance level with a p- value of 0.469. EM on the other hand is statistically significant with a p-value of 0.000. This can be interpreted to mean that EM has a positive significant effect on MBV at the 5% significance level. As such, this implies that firms with higher EM, and thus leverage taken, will translate to higher MBV. This strengthens the argument that strategic leverage build-up influences the perception of investors about a firm's valuation.

With an R-squared value of 0.000, PSR has no explanatory power because just 0.0% of its variance can be explained by both EM and DFL. With corresponding p-values of 0.923 and 0.973, EM and DFL are both statistically insignificant at the 5% significance level. This suggests that, at the 5% significance level, neither EM nor DFL significantly alter PSR. The incredibly low r-squared value and highly statistically insignificant values indicate that leverage proxies do not serve well as strong predictors of PSR. This may be due to the fact that PSR is sensitive to other indices that are not captured in the metrics used.

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4.1.1 Fixed Effects Model

Table 4.1.1: Fixed Effects Model (FEM) Results

Model	R-squared	F-stat p-value	EM Coeff. (p-val)	DFL Coeff. (p-val)
D_EV	0.013	0.969	354m (0.1627)	68.9m (0.7832)
MBV	0.715	0.000	0.532 (0.000)	0.009 (0.556)
PSR	0.074	0.000	-0.008 (0.909)	0.010 (0.881)

Source: EVIEWS 9, (2025)

4.1.2 Random Effects Model

Table 4.1.2: Random Effects Model (REM) Results

Model	R-squared	F-stat p-value	EM Coeff. (p-val)	DFL Coeff. (p-val)
D_EV	0.0030	0.3830	334m (0.182)	86.9m (0.725)
MBV	0.6400	0.0000	0.532 (0.000)	0.009 (0.549)
PSR	0.0000	0.9890	-0.004 (0.953)	0.009 (0.893)

Source: EVIEWS 9, (2025)

With an R-squared value of 0.013 for Model 4.1.1 of the FEM data, both EM and DFL account for roughly 1.3% of the variation in D_EV. With p-values of 0.866 and 0.995, respectively, EM and DFL are both statistically insignificant at the 5% significance level. This suggests that at the 5% significance level, neither EM nor DFL significantly alter D_EV. The F-Stat p-value is 0.969, over the significance level of 5%. This shows that the independent proxies, EM and DFL, do not together account for fluctuations in firm value, and the model is statistically insignificant.

According to the R-squared value of 0.003 derived from the REM data, both EM and DFL account for roughly 0.3% of the variation in D_EV. Both DFL and EM have p-values of 0.837 and 0.226, respectively, making them statistically inconsequential at the 5% significance level. According to this interpretation, D_EV is not significantly impacted by either EM or DFL at the 5% significance level. The 5% significance level is exceeded by the F-Stat p-value of 0.383. This suggests that the independent proxies, EM and DFL, do not together account for fluctuations in firm value, and the model is statistically insignificant. The REM results are very similar to the FEM results.

The R-squared value of 0.715 for Model 4.1.2 of the FEM data shows that both EM and DFL account for roughly 71.5% of the variation in MBV. DFL has a p-value of 0.845, making it statistically insignificant at the 5% significance level, whereas EM has a p-value of 0.000. According to this interpretation, DFL has no significant effect on D_EV at the 5% significance level, however EM has a substantial impact on MBV. At 0.000, the F-Stat p-value is below the 5% significance level. This suggests that the independent proxies, EM and DFL, together account for fluctuations in firm value and that the model is statistically significant.

Based on the REM results, the R-squared value of 0.640 shows that both EM and DFL account for roughly 64.0% of the variation in D_EV. DFL has a p-value of 0.506, making it statistically insignificant at the 5% significance level, whereas EM has a p-value of 0.000. This suggests that, at the 5% significance level, DFL has no discernible effect on D_EV, whereas EM has a considerable impact on MBV. The F-Stat p-value is 0.000, below the significance level of 5%. This shows that the independent proxies, EM and DFL, together account for fluctuations in firm value and that the model is statistically significant.

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About 7.4% of the variation in D_EV is explained by both EM and DFL, according to Model 3's R-squared value of 0.074 in the FEM data. EM and DFL have respective p-values of 0.917 and 0.955, making them statistically inconsequential at the 5% significance level. At the 5% significance level, this suggests that neither EM nor DFL significantly alter D_EV. With an F-Stat p-value of 0.000, the significance level is higher than 5%. Thus, the independent proxies, EM and DFL, together explain fluctuations in firm value, and the model is statistically significant.

The R-squared value of 0.000 from the REM results shows that both EM and DFL account for roughly 0.000% of the variation in D_EV, indicating very low explanatory power. At the 5% significance level, EM and DFL have p-values of 0.923 and 0.973, respectively, making them statistically insignificant. According to this interpretation, D_EV is not significantly impacted by either EM or DFL at the 5% significance level. With a p-value of 0.989, the F-Stat is above the 5% significance level. This suggests that the independent proxies, EM and DFL, do not together account for fluctuations in firm value, and the model is statistically insignificant. Both FEM and REM are weak in this instance, with weak to nil explanatory power for model 3.

With MBV demonstrating the best explanatory power and a positive statistically significant correlation between MBV and EM, the FEM results exhibit the same pattern as the Pooled OLS. The REM results complement the previous findings. In the MBV model, EM is the only variable that is still statistically significant at the 5% significance level, and it produced the same outcome when all three methods were used. The results of the other two models show poor explanatory power and statistical insignificance. Because the Hausman test identified the REM as the preferable model, as will be seen later, the results are significant.

Table 4.1.4: Hausman Test Results

Model	Chi-Sq Stat	p-value	Interpretation	Preferred Model
D_EV	0.25	0.883	p > 0.05 → REM preferred	REM
MBV	0.2	0.906	p > 0.05 → REM preferred	REM
PSR	0.44	0.802	p > 0.05 → REM preferred	REM

Source: *EVIEWS 9, (2025)*

For all the models, the p-values are above 0.05 which translates to REM being the preferred model for all three models. Henceforth, the REM model shall be used to interpret results and make recommendations based on the Hausman test output.

4.2 Discussion of Findings

The findings of this study provide important new information about the connection between listed consumer goods companies' firm value and financial leverage in Nigeria. Enterprise Value, Market to Book Value, and Price to Sales Ratio were utilized as proxies for Financial Leverage, Equity Multiplier, and Degree of Financial Leverage in order to assess the impact on Firm Value.

The investigation's conclusions are examined below. Equity Multiplier had a statistically substantial and favorable impact on Market-to-Book Value, according to the study's findings, which held true for all three models - POLS, FEM, and REM. This conclusion is consistent with the findings of Etim et al. (2022), who looked into the relationship between debt financing and the firm value of listed consumer goods companies in Nigeria.

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They found that the firm value of listed consumer goods companies in Nigeria was positively and significantly impacted by the debt ratio and long-term debt. Additionally, the financial leverage ratio had a significant and favorable impact on the stock return of listed consumer goods firms in Nigeria, according to Obi and Nworie (2024), who looked at the levels of financial leverage and how it affected the stock market performance of Nigerian consumer goods firms.

The long-term debt ratio also had a favorable and significant impact on the financial performance of listed consumer goods firms in Nigeria, according to Oke et al. (2024), who looked at the impact of financial leverage on the financial performance of these firms. Their studies corroborate the position that financial leverage, when strategically acquired and utilized, can enhance investor perception and firm valuation. Also, these results are in resonation with the Pecking Order theory, which suggests that investors are more confident in firms that finance operations through debt rather than equity, interpreting it as a signal of internal strength and confidence in the management.

In contrast, these findings differ with the findings of Ibrahim and Isiaka (2020) who sought to ascertain how financial leverage affected business value using data from a few chosen companies listed on the Nigerian Stock Exchange and came to the conclusion that financial leverage had a notably detrimental impact on firm value. On the other hand, the absence of statistically significant relationships between both Equity Multiplier and Degree of Financial Leverage on Enterprise Value (D_EV) and Price-to-Sales Ratio (PSR) suggests that leverage does not substantially influence operational or sales-based valuation metrics.

In other words, taking leverage recklessly whilst utilizing it inefficiently can hinder the value creation prospects of a company. As DFL is insignificant across all three models, it can be reasoned that the burden of debt in the form of interest expense incurred, does not necessarily influence or change the views of investors about the value of firms in the consumer goods sector of Nigeria. Rather, the volatility of the macroeconomic environment in Nigeria could be a contributing factor to this conclusion.

Furthermore, the consistent result of Equity Multiplier across all three models as a significant determinant of MBV, solidifies the postulation that purely investor oriented metrics are more sensitive in relation to financial structures than sales based metrics. Due to the fact that Market to Book Value is a purely market based metric, it serves as a direct gauge on the sentiments of investors which are influenced by any slight variations in risk and modifications in capital structure.

This is more so in a macroeconomic environment like that of Nigeria which entails massive risk especially with regard to financial leverage due to the high double digits interest rates and thus recurring interest obligations. Enterprise Value and Price to Sales Ratio on the other hand are more holistic in nature than MBV as they contain various other metrics independent of investor sentiments.

The results obtained have shown that the relationship between financial leverage and firm value is heavily dependent on the firm value metric that is chosen. Market based metrics such as MBV respond more to changes in capital structure, specifically leverage, than revenue-based metrics like PSR or wholistic metrics like Enterprise Value. These findings contribute to bridging the gap in literature where previous studies yielded conflicting results and serves as empirical evidence specific to the Nigerian consumer goods sector.

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5.0 CONCLUSION AND RECOMMENDATIONS

The study concluded that EM has a statistically significant and positive influence on MBV across all models, indicating that capital structure influences investor perception and market valuation. However, the effect of EM on EV and PSR was statistically insignificant, suggesting that these operational and revenue-based metrics are driven by broader macroeconomic and firm-specific factors not captured by leverage ratios alone. The Degree of Financial Leverage (DFL) was not statistically significant in any of the models, implying that operational leverage is not a key determinant of firm value in this sector.

This result supports the assertion that the market rewards capital structure optimization over debt- servicing sensitivity. In conclusion, financial leverage does affect firm value, but the nature and extent of that effect depend on which measure of firm value is under consideration. Based on these, the study recommends that since Equity Multiplier has a very weak positively insignificant effect on the Enterprise Value, Price to Sale and Market to Book Value of listed consumer goods firms in Nigeria from 2015 Q1 to 2024 Q4, the firms should endeavor to remove reliance on Equity Multiplier to adjust their Enterprise Value and aim for value creation strategies that will directly impact their Enterprise Value.

Also, the firm are advised to treat capital structure in isolation to sales revenue strategies. Therefore, utilizing sales boosting strategies to boost operational performance should be the target of management. It is critical to separate the two as leverage decisions are shown to have no relation at all to revenue driven metrics. Finally, the firm should continue striving to maintain high levels of debt and utilize them appropriately in high NPV projects to continue to attract good and steady MBV valuation.

On the aspect of Degree of Financial Leverage, it was negatively insignificant and the study recommends that since interest obligations do not appear to affect the perception of investors, it is advised that the management of these firms reduce the debt burden they have as it has gone beyond its marginal utility point in the case of affecting firm value. Reduction of debt burden and thus interest obligations will serve as a boost in profitability, although the sought-after tax shield will be reduced.

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