Innovations

Capital Structure and Firm Value: A Study of the Consumer Goods Sector in Nigeria

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Abstract: *This paper analyzed impact of capital structure on firm value through panel regression empirical framework. The sample population was derived from specific consumer goods enterprises quoted on NGX between 2009 and 2023. Random effects regression was carried out to assess influence of selected independent variables (long-term debt ratio, total debt to total assets ratio, equity to total assets ratio, GDP growth rate, inflation rate), along with firm size and firm age (control variables), on Tobin's Q (dependent variable). Empirical analysis indicated that leverage ratios, firm age, and inflation adversely affected firm value, whereas equity ratio, GDP growth rate, and firm size positively influenced firm value. Findings suggest that consumer goods-oriented firms should prioritize internal financing, supporting pecking order theory, or maintain equitable balance between debt and equity, consistent with trade-off theory, rather than resorting to excessive debt financing amid high interest costs, macroeconomic instability, poor ease of doing business, inadequate infrastructure, and challenging business environments, particularly in frontier and emerging economies.*

Key words: *Capital Structure, Firm Value, Consumer Goods, Nigerian Exchange.*

Introduction:

Finance is a primary catalyst for any business's operations. Profit maximization is not merely an objective but an essential mission for profit-driven organizations. Financial managers and specialists lead this initiative, augmenting firm value through elevated share prices and asset accumulation. The dominance of finance as a facilitator of all activities renders the efficacy and efficiency in the acquisition and use of funds essential for every corporation aspiring to achieve and sustain profitability, as well as enhance firm value. Nonetheless, funding challenges are present in both for-profit and non-profit entities. Finance fulfills several functions for firms, enabling the funding of investments with positive NPV through multiple financing mechanisms. It is essential to consider the capital composition to be employed in every enterprise. A company can obtain capital internally via retained earnings and depreciation, and externally via creditors. A crucial issue for financial managers is identifying the appropriate sources and costs of funds to

optimize corporate value. This optimal trajectory can be attained with the implementation of a suitable amalgamation of equity and long-tern debt.
Determining an optimal capital structure aids organizations in achieving strategic proportions of debt and equity essential for profitable operations. Growing interest of the investing public in the capital market and willingness of potential investors to allocate cash for investments have rendered capital structure a significant determinant in investment decisions. A company can achieve an optimal capital structure by lowering the weighted average cost of capital (WACC) and maximizing return on equity.
It is essential to consider the components of the funds utilized to achieve the minimal weighted average cost of capital (WACC)-a critical financial indicator. Loan and equity capital typically have to posses features that reduce WACC and enhance firm value. Thus, an ideal capital structure can be attained while balancing risks and returns, hence enhancing stock prices.

Capital structure consists of debt and equity capital utilized by a firm to finance it's business transactions. Baker and Martin (2011) characterized it as mix of debt and equity capital, a corporation employs in funding its productive assets, operations, and prospective growth. It is a fundamental issue in corporate finance, as it aims to ascertain if and to what degree it affects firm value. Watson and Head (2016) asserted that, capital structure indicates composition of debt and equity utilized by a typical firm to fund it's operations. Ogbulu and Emeani (2012) defined capital structure as ideal combination of total equity and long-term debt employed by firms to finance their operations. From a managerial perspective, the essence of the finance function is the firms' ability to identify the optimal source of money for various investment opportunities, hence maximizing the firm value as reflected in the stock price (Raharjo & Wahyuni, 2023).

In corporate finance, the importance of capital structure is such that, it has elicited considerable interest from academics and practitioners over time. Formulating the best capital structure is germane for a firm seeking to augment its value and that of its stockholders. This is attributable to its substantial influence on managerial decision-making, especially with the cost of capital. Achieving an effective capital structure may allow firms to strategically concentrate on balanced debt and equity ratios. Should the capital or equity borrowing level be inadequate; the firm addresses this by issuing debt securities, such notes or bonds. The corporation will issue shares if the loan interest rate exceeds the target as compared to capital or equity (Bradley, Jarrell, and Kim, 1984).

Modigliani and Miller (1958), stated that, capital structure does not influence a firm's financial performance. Meanwhile,the notion of optimal capital structure originated from the trade-off theory, which considers impacts of corporation tax, financial distress, and agency question, due to presence of imperfect market conditions. Conversely, recognizing information asymmetry results in the

development of pecking order theory and signaling hypothesis, which overlook the notion of optimal leverage.

The valuation of a firm can be assessed using several financial criteria, including revenue growth, profitability, ROA, ROE, EPS, book value to market value ratio, and Tobin's Q, among others. Additionally, non-financial metrics like brand equity, share of the market, product quality, optimization, and value of output are employed to assess corporate valuation.

Determining appropriate capital structure that enhances firm value is at the centre of this research, especially for consumer goods oriented businesses in Nigeria. This is the central problem this work is meant to address. The focus of this paper is germane in view of the long standing lack of consensus on what constitutes an optimal capital structure.

Nigeria's capital market operates in a well-defined financial ecosystem that is influenced by macroeconomic policies and an evolving financial sector. Thus, examining influence of capital structure on firm value of selected consumer goods firms quoted on The Nigerian Exchange (NGX) may provide significant insights that can enhance capital structure theory. Independent variables utilized in the empirical analysis are long-term debt ratio, total debt-to- total assets ratio, equity-to-total assets ratio, GDP growth rate, and rate of inflation. Firm size and firm age function as control variables, while Tobin's Q is the dependent variable.

Scope of the study is confined to the consumer goods sector of The Nigerian Exchange (NGX) as of December 31, 2009 for companies that were quoted as of December 31, 2023. Their selection was predicated on the accessibility of financial data, particularly audited financial statements of the tested enterprises and World Bank publications regarding GDP and inflation rates. The paper is structured as follows: introduction; literature review;-research methodology; findings , conclusions and recommendations.

Literature review

Theoretical Framework

Numerous theories proposed by scholars offer a theoretical foundation to elucidate the concept of capital structure. Examples of these comprise:

Modigliani and Miller

Their 1958 seminal proposition, referred to as M & M theorem posits that, in a perfect market scenario marked by absence of taxes, no transaction cost in securities trading, possibility of bankruptcy without associated expenses, and perfect information symmetry;the capital structure of firms do not affect their aggregate value. That is to say, alterations in structure of debts and equities does not affect the value of a firm. Thus, firm valuations remain impervious to differing

levels of leverage. In 1963, they amended their theorem to incorporate tax-deductible interest payments on debt and urged firms to augment borrowing, as increased leverage might enhance company value.

Trade-off Model

Kraus and Litzenberger introduced the theory in 1973. It asserts that, the capital structure decisions of firms entails balance amongst the tax benefits of debt and costs related to financial stress. Static trade-off hypothesis posits that, ideal capital structure is attained so long as marginal tax benefits of debt is balanced alongside costs linked to financial distress.

Pecking-order Theory

Myers and Majluf (1984), in their seminal proposition asserted that managers prioritize internal financing, then debt, with equity being the least preferred alternative. According to the theory, when a company opts for funding, it initially issues debt followed by stock.

Agency-Based Models

Jensen and Meckling (1976), analyzed influence of capital structure on board governance via agency-based models. The concept consistently agrees with the trade-off theory, having been developed from previous models. Agency issues generally involve three stakeholders: shareholders, managers, and creditors. The theories discussed differ about the ideal capital structure of firms, as these results depend on unique agency relationships inside each company and the related agency costs.

Signalling Theory

Ross (1977) proposed the signalling theory, asserting that, preference between debt and equity is rarely based on optimality of capital structure, but rather represents intentional actions by a firm to communicate certain information to investors. Occasionally, profitable corporations seek to enhance their stock prices by elevating their debt over the suitable limit, thus deceiving the market about their inflated future prospects. The hypothesis asserts that additional expenses related to debt issuance will discourage less profitable firms from leveraging more than their more successful counterparts, despite managerial efforts to deceive the public (Ross et al., 2013). Also, Myers and Majluf (1984) posited that, managers are reluctant to opt for issuance of shares when it is viewed as undervalued, as investors frequently take such stock issuance as a negative indicator. Contrastingly, it is believed that managers tend to issue stocks to the public when they are either fairly valued or overvalued. Signalling theory indicates a favorable relationship amidst debt financing and performance of firms.

It is noteworthy that; trade-off, pecking order, and agency theories proposed adverse association between gearing and company performance, but M&M (1963) and signaling theories supports favourable relationship between borrowing and firm value.The underpinning theory for this investigation is the pecking order theory.

Empirical review

Numerous empirical investigations have been conducted in the past to ascertain which capital structure theory corresponds with market realities; yet, no consensus has been reached. This may be due to the intricacies of real marketplace dynamics, which depend on multiple interconnected factors. A multitude of quantitative research investigating influence of capital structure on firm value came up with diverse outcomes over the years. Sunandar and Sugiarti (2023), examined how asset structure, profitability, and liquidity were influenced by the capital structure of Indonesia's manufacturing sector, utilizing sample of fifteen food and beverage enterprises publicly traded on the Indonesian Stock Exchange between 2019 and 2021. The study suggests that asset structure and profitabileness negatively influence composition, but liquidity positively affects it.

Ahmed, Rahman, Rehman, Imran, Dunay, and Hossian (2024) conducted a study utilizing panel data from 2017 to 2021, encompassing seventy-eight companies registered on the Dhaka Stock Exchange, to investigate association amongst firm performance and capital structure. Evidence from this study indicated that, short and long term and overall debt ratios adverse effect on ROA at one percent level of significance was remarkable. By contrast, short-term-to-total debt and total debt-to-total assets ratios exhibited significant positive connection with return on equity at 1% level of significance. Effect of long-term total debt on return on equity was negative and statistically negligible. A key discovery from the research revealed that, liquidity ratio had no substantial influence, underscoring the complex relation betwixt capital structure and performance of tested enterprises.

Moh. Amin (2021) examined how capital structure, corporate growth, and profitability affects the value of firms on the IDX, utilizing a sample of twelve companies from the consumer products sector of the exchange. Findings from the study revealed that, capital structure and profitability exert minimal negative influence on IDX's consumer goods sector business value.

Yildirim and Celik (2021) investigated validity of the pecking order theory for industrial goods biased companies on the Borsa Istanbul stock exchange from 2000 to 2018. Findings from this study demonstrated that, pecking order theory is applicable to enterprises sampled from Borsa Istanbul. In addition, sensitivity to internal financing and debt intensifies with rising investment levels. The study indicated that small businesses conform to pecking order theory. However, it's

not applicable to high and low leveraged enterprises, as highly geared businesses favour equity financing at higher levels of investment, especially in a situation where self-generated finance is not sufficient to meet capital spending. Contrariwise, firms with little leverage favor borrowing as their principal choice. Ultimately, enterprises that produce food, beverages, tobacco products, chemicals, petroleum, rubber, plastic goods, etc evince pecking order behavior.

Ngatno, Endang, and Arief (2021) investigated mediating influences of corporate governance systems on correlation between capital structure and firm profitability in a sample of microfinance banks. Evidence from this study indicate that capital structure financing decisions have favorable effect on financial performance, particularly for short term debt. In contrast, long term debt showed detrimental but marginal impact on return on assets and return on equity. This result buttress pecking order theory.

Abdullah and Tursoy (2021) carried out empirical analysis on the interactions between capital structure and the output of quoted non-financial firms in Germany for the period 1993 through 2016. Findings from the work revealed that over 60% of total assets of German non-financial firms were financed by way of debt. This signifies that they are considerably more leveraged than similar nations. The results confirm a positive correlation between capital structure and corporate value. Use of IFRS was observed to have improved the performance of the chosen firms while concurrently reducing the association amongst capital structure and organizational output. A probable rationale for good link amid capital structure and firm value is advantages of tax shield, and diminished cost of debt issuance as compared with that of equity.

Tabe, Lapian, Murni, and Maramis (2022) examined the influence of firm size, investment opportunities and capital structure on firm value by analyzing financial statements from banks quoted on the Indonesian stock market over a decade. The study's results demonstrated that size of business and investment opportunity set greatly influence the value of firms. However, capital structure did not reflect similar effect.

Saka and Fatogun (2021) analyzed influence of capital structure on valuation of ten enterprises that are into production in six sectors of the Nigerian economy. Findings utilizing preferred Random Effect estimator at a 5% significance threshold demonstrate that, capital structure indicators, like debt-to-equity ratio and debt-to-total assets ratio, exert no influence on business value as symbolized by Tobin's Q. This outcome aligns with the Modigliani and Miller theorem, asserting that, capital structure do not influence commercial returns in the context of stock market efficiency.

Khairina, Natsir, and Yusbardini Yusbardini (2019) investigated how capital structure and business size influence firm value, utilizing profitableness as a

mediating variable. Findings indicated that firm size and capital structure influenced firm value notably. These results demonstrated that, profitability diminished influence of business size along with capital structure on firm value.

These varied findings underscore the intricate relationship mid capital structure and firm value, requiring further examination and comprehension of the fundamental elements that account for the differing results.

Empirical studies on the interrelationship amongst capital structure and corporate valuation such as Zeitun and Haq (2015), Dang et al. (2019), and Nguyen et al. (2023) is a clear evidence of lack of consensus on the subject. This lack of agreement regarding capital structure theory creates a gap in literature that justify our investigation. Industry selection was intentional, as the demand for consumer products is somewhat inelastic and relevant to human welfare. Furthermore, consumer goods are vital to industrialization and economic advancement. Therefore, it is advisable to evaluate the ideal capital structure for the sector.

Methodology

This study applied after the fact research approach which is suitable for examining influence of capital structure on firm value, as it utilises historical data without variable manipulation. Ex post facto research is especially appropriate for financial and economic analysis where variables such as leverage, profitability, and business value have already transpired and are beyond the control or modification of the researcher. This design allows the study to examine trends and linkages grounded in actual financial performance rather than experimental intervention, so ensuring that the findings reflect real world firm financial decisions. The research population sample is made up of all twenty-five consumer goods firms quoted on NGX. Nonetheless, owing to challenges related to accessibility and data availability, a sample of 15 firms was chosen. The selection criterion was predicated on completeness of financial data in the annual financial statement of sampled firms for the period covered by this study. The research employed non-primary data obtained from audited financial statements of chosen enterprises spanning 2009 to 2023, as well as macroeconomic papers from the World Bank Group. These reports furnish essential financial indicators required for evaluating influence of capital structure on firm value, hence ensuring dependability and accuracy of data used for the research.

Model Specification

Building upon the research of Jin & Xu (2022), Ayuba et al. (2019), and Aggarwal & Padhan (2017), the study employed a model to evaluate correlation between capital structure and firm value.

The model's functional form is delineated as follows:

$TQ = f(LTR, TAR, ET, FSZ, FA, GR, IR)$.....(1)

TQ denotes Tobin's Q (an indicator of company value), while independent variables comprises of Long-Term Debt-Ratio (LTR), Total-Debt-to-Total Assets Ratio (TAR), Equity-to-Total Assets Ratio (ET), Firm Size (FSZ), Firm Age (FA), GDP growth rate (GR), and inflation rate (IR).

Considering the panel structure of the data, the functional model was converted into an econometric format as follows:

$TQ_{it} = \beta_0 + \beta_1 LTR_{it} + \beta_2 TAR_{it} + \beta_3 ET_{it} + \beta_4 FSZ_{it} + \beta_5 FA_{it} + \beta_6 GR_{it} + \beta_7 IR_{it} + \mu_{it}$.....(2)

i signify firms, t symbolize time, β_0 stand for intercept, $\beta_1 - \beta_7$ are coefficients of independent variables, and μ_{it} is error term that addresses unobserved heterogeneity. The incorporation of firm-specific and macroeconomic data ensured thorough evaluation of the factors influencing firm value.

Measurement and Description of Variables

Variablesutilized during the investigation are outlined in the figures below, encompassing their measurement and anticipated sign according to previous literature.

Table 1:Variable Measurement and Description

Variable	Description	Measurement	Expected Sign
TQ	Tobin's Q (Firm Value)	Market value of Equity + Book value of Liabilities / Total Assets	Dependent Variable
LTR	Long-Term Debt-Ratio	Long-term Debt / Total Assets	±
TAR	Total-Debt-to-Total Assets Ratio	Total Debt / Total Assets	±
ET	Equity-to-Total-Assets Ratio	Shareholders' Equity / Total Assets	+
FSZ	Firm Size	Natural log of total assets	+
FA	Firm Age	Number of years since incorporation	+
GR	GDP growth rate	Annual GDP growth rate (%)	+
IR	Inflation Rate	Annual inflation rate (%)	-

Source: Authors Computations

Anticipated indications for the explanatory variables were derived from economic theory and prior empirical research. Certain variables, including the equity-to-total assets ratio, firm size, along with GDP growth rate, were predicted to positively impact firm value, whilst others, such as the inflation rate, were expected to negatively affect it. The impact of leverage factors (LTR and TAR)

may be either advantageous or detrimental, contingent upon trade-off between cost of financial distress and the tax advantages of debt funding.

Estimation Technique

This study included both descriptive and inferential statistical techniques to data analysis. Correlation analysis was conducted to examine relationships between variables and to detect any multicollinearity issues. The study employed panel data regression technique; namely fixed and random effects models. Fixed effect model mitigated unobserved heterogeneity by clarifying time-invariant firm features, whereas random effect model assumed that, firm-specific effects were not correlated with the regressors. Hausman test was employed to ascertain the ideal model. This test identified the suitable choice between fixed and random effect models by assessing the association between individual firm effects and independent variables. If null hypothesis of no association was rejected, fixed effect model was used; otherwise, random effect model was utilised. This study employed estimation methods to ensure robust and reliable conclusions about impact of capital structure on firm value in the Nigerian consumer goods sector.

Analysis and Discussion

Table 2: Descriptive Statistics

	TOBINSQ	LTR	TAR	ET	FSZ	FA	GR	IR
Mean	1.860	0.144	0.625	0.409	7.777	35.000	3.500	14.240
Median	1.145	0.110	0.600	0.390	7.886	37.000	3.300	12.500
Maximum	13.670	0.810	2.350	1.240	9.187	58.000	8.000	28.920
Minimum	0.060	0.000	0.190	0.020	5.973	2.000	-1.800	8.000
Std. Dev.	1.932	0.129	0.268	0.176	0.657	11.844	2.941	5.323
Skewness	2.308	2.019	3.097	0.577	-0.552	-0.782	-0.172	1.313
Kurtosis	11.182	8.872	18.957	4.793	2.817	3.199	2.277	4.449
Jarque-Bera	6.914	5.836	11.416	3.092	2.399	1.644	4.811	3.470
Probability	0.453	0.287	0.453	0.265	0.102	0.289	0.090	0.329
Observations	180	180	180	180	180	180	180	180

Source: Authors Computations

Firm Value (Tobin's Q): Mean value of 1.860 indicates that firms in the sample possess a market value beyond their book value, indicating investor perceptions of profitability and sustainability. Standard deviation of 1.932 points to significant degree of dispersion, signifying that firm values exhibit considerable variability within the sample. The maximum value of 13.670 signifies that certain firms have substantially elevated market valuations, whereas minimum value of 0.060 imply that, others are undervalued. Positive skewness (2.308) and elevated kurtosis (11.182) indicate that the distribution is right-skewed with heavy tails, signifying

the presence of a limited number of firms exhibiting exceptionally high Tobin's Q values.

Long-term Debt Ratio (LTR):LTR is 0.144, indicating that, on average, 14.4% of sampled firms capital structure comprises of long-term debt. The maximum LTR of 0.810 indicates that certain firms depend heavily on long-term financing, whereas the minimum of 0.000 implies that other firms possess no long-term debt. The skewness (2.019) and kurtosis (8.872) denote a right-skewed and leptokurtic distribution, implying the existence of outliers, with certain enterprises exhibiting disproportionately elevated amounts of long-term liabilities.

Total-Debt-to-Total-Assets Ratio (TAR):TAR of 0.625 indicates that, on the average, firms finance about 62.5% of their assets with debt, reflecting a considerable dependence on leverage. The elevated maximum value (2.350) indicates that certain firms carry very high debt obligations. The skewness (3.097) and kurtosis (18.957) signify a markedly skewed and peaked distribution, underscoring the existence of severe leverage levels among a subset of enterprises.

Equity-to-Total-Assets Ratio (ET): Mean ET of 0.409 indicates that equity financing comprises around 40.9% of total assets, reflecting a reasonable level. Standard deviation of 0.176 shows moderate variability in equity financing among sampled firms. The distribution exhibits positive skewness (0.577);indicating that certain firms possess substantially higher equity proportions than their counterparts.

Firm Size (FSZ): Mean firm size quantified as log of total assets, is 7.777, accompanied by moderate standard deviation of 0.657, indicates minor variability in firm size within the sample. The negative skewness (-0.552) implies that few enterprises are considerably smaller than the mean, whereas the kurtosis (2.817) signifies a distribution that approximates normality.

Firm Age (FA): The mean firm age of 35 years suggest that, majority of enterprises in the sample have been in existence for an extended period. The minimum firm age of 2 years and maximum of 58 years indicates a broad spectrum of operating experience. The negative skewness (-0.782) suggests higher prevalence of younger enterprises in the sample compared to older firms.

GDP Growth Rate (GR): The mean GDP growth rate of 3.5% indicates a comparatively weak economic expansion during the analysed period. The negative skewness (-0.172) suggests that lower GDP growth rates occur more frequently, potentially indicating economic difficulties impacting firms performance.

Inflation Rate (IR): The mean inflation rate of 14.240% is considerably elevated, indicating macroeconomic instability in Nigeria. The standard deviation (5.323) indicates considerable fluctuations in inflation during the period, however the positive skewness (1.313) implies that elevated inflation rates occur more frequently than diminished rates.

Correlation Analysis

Table 3: Correlation Matrix

	TOBIN_S_Q	LTR	TAR	ET	FSZ	FA	GR	IR
TOBIN_S_Q	1							
LTR	0.292	1						
TAR	0.261	0.209	1					
ET	-0.013	-0.484	-0.350	1				
FSZ	0.410	0.332	-0.038	-0.356	1			
FA	-0.361	0.222	-0.013	-0.096	0.218	1		
GR	0.312	0.075	0.125	0.055	-0.120	-0.232	1	
IR	-0.336	0.011	0.159	-0.235	0.213	0.237	-0.365	1

Source: Authors Computations

The correlation analysis provides insights into the connection between firm value (Tobin's Q) and capital structure, firm attributes, and macroeconomic factors. The positive correlation between Tobin's Q and long-term debt ratio (LTR) (0.292) and the total debt to total assets ratio (TAR) (0.261) indicates that enterprises with elevated debt levels generally possess higher market valuations. This findings aligns with trade-off theory, which postulated that, moderate debt utilisation can yield tax advantages and convey assurance to investors. The weak negative correlation between equity to total assets ratio (ET) along with Tobin's Q (-0.013) indicates that equity financing may have a negligible influence on firm value, maybe reflecting investors' preference for firms that adeptly employ leverage to increase profitability.

Firm characteristics and macroeconomic factors also exhibit notable relationships with Tobin's Q. Firm size (FSZ) is positively correlated with firm value (0.410), indicating that, bigger firms tend to have higher market valuations, presumably attributable to economies of scale and stronger market positioning. In contrast, firm age (FA) exhibits a negative correlation with Tobin's Q (-0.361), suggesting that younger firms may attain higher market value, possibly due in part to their growth prospects and innovative capabilities. The GDP growth rate (GR) exhibits a positive association with firm value (0.312), underscoring the notion that economic expansion enhances corporate performance. Nevertheless, the inflation rate (IR) demonstrates a negative association with Tobin's Q (-0.336), suggesting that elevated inflation may diminish company value by escalating expenses and decreasing profitability. The findings indicate that capital structure,

firm characteristics, and macroeconomic variables jointly affect valuation of Nigerian firms, highlighting the necessity for strategic financial management.

Panel Regression

Table 4: Hausman Test

Correlated Random Effects - Hausman Test			
Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	8.609	7	0.338

Source: Authors Computations

Hausman test is used to ascertain a suitable model choice between fixed model and random effect models. The test produced a Chi-square statistic of 8.609 and p-value of 0.338. Given that computed p-value exceeds traditional 5% significance threshold (0.05), we do not reject null hypothesis. This signifies that, random effect model is better than fixed effect model.The implication is that, enterprise-specific impacts are not correlated with explanatory variables,hence justifying use of random effects model to estimate influence of capital structure on firm value.

Table 5 Random Effect Regression

Dependent Variable: TOBIN_S_Q				
Method: Panel Least Squares				
Variable	Coefficient	Std. Error	T-Statistic	Prob.
C	8.363	3.480	2.403	0.017
LTR	-2.284	1.032	-2.214	0.028
TAR	-3.129	1.450	-2.158	0.035
ET	2.393	0.875	2.734	0.008
FSZ	1.002	0.488	2.051	0.043
FA	-1.319	1.492	-0.884	0.378
GR	0.131	0.041	3.180	0.002
IR	-0.078	0.024	-3.314	0.001
	Effects Specification			
R-Squared	0.579	Mean dependent var		1.860
Adjusted R-Squared	0.532	S.D. dependent var		1.932
F-Statistic	12.319	Durbin-Watson stat		1.804
Prob(F-Statistic)	0.000			

Source: Authors Computations

Outcomes of random effects regression yield significant insights into impact of capital structure, firm characteristics, along with macroeconomic factors on firm value, as quantified by Tobin's Q. The model demonstrates moderate explanatory power, with an R-Squared value of 0.579, signifying that, around 57.9% of variation in firm value was accounted for by independent variables. F-statistic (12.319) with p-value of 0.000 imply that, the model is statistically important, affirming collective explanatory capability of the included variables.

The results reveal that the LTR and TAR exerts negative and statistically significant influence on Tobin's Q, as evidenced by coefficients of -2.284 (p = 0.028) and -3.129 (p = 0.035), respectively. This suggests that companies with elevated debt levels generally exhibit diminished market valuation, reinforcing the notion that excessive leverage can result in financial distress, heightened risk perception, and waning investor confidence. However, equity-to-total assets ratio (ET) exhibits positive and considerable impact (2.393, p = 0.008), indicating that firms with a more robust equity base are likely to attain higher firm value, presumably due to diminished financial risk and enhanced stability.

Firm size (FSZ) exhibits positive correlation with Tobin's Q, as revealed by coefficient of 1.002 (p = 0.043), implying that, bigger firms generally possess higher market valuations. This aftermath aligns with practical realities, because bigger firms frequently enjoy gains from economies of scale, enhanced market presence, along with superior access to finance. Firm age (FA) is insignificant (-1.319, p = 0.378), indicating that the duration of a typical firm's operations do not significantly impact its valuation. This suggest that, market perception and corporate performance may be more critical in ascertaining firm value than mere longevity.

The GDP growth rate (GR) exerts positive and statistically consequently influence on Tobin's Q (0.131, p = 0.002), suggesting that economic expansion elevates firm value by promoting business growth and enhancing investor sentiment. Conversely, the inflation rate (IR) adversely affects firm value (-0.078, p = 0.001), indicating that escalating inflation diminishes firm valuation by inflating operating expenses and decreasing real profitability.

The regression findings highlight that capital structure decisions significantly influence firm value in Nigeria, where excessive debt diminishes firm value, whereas equity financing increases it. Moreover, firm size and macroeconomic factors, especially GDP growth and inflation, substantially affect firm valuation. These findings underscore the significance of strategic financial management, appropriate capital structure decisions, and a stable macroeconomic environment in improving firm performance and market valuation.

Discussion of Findings

Results of the regression analysis offer substantial insights into how capital structure influence firm value. This is corroborated by both theoretical frameworks and previous empirical research. Negative and statistically remarkable coefficients of LTR and TAR suggest that enterprises with increased leverage are likely to witness a reduction in Tobin's Q. This outcome corresponds with the research by Zeitun and Haq (2015), Dang et al. (2019), and Nguyen et al. (2023), which indicated that elevated debt levels adversely impact firm value, especially in developing economies. This aligns with pecking order theory, which asserts that firms favour internal funding over debt because of the dangers linked tofinancial crisis and insolvency. Habibu et al. (2019) similarly discovered that long-term debt negatively impacts the worth of Nigerian insurance companies, advising that these organisations should prioritise short-term financing. This indicates that in Nigeria's economic context, elevated leverage may heighten financial susceptibility instead of augmenting corporate value.

This study's findings demonstrate that, contrary to the Modigliani and Miller (1963) tax shield hypothesis, which posits that debt financing increases firm value via tax benefits, elevated debt levels negatively impact firm valuation in Nigeria. This may result from elevated interest expenses, macroeconomic instability, and fragile financial market frameworks that render excessive leverage a liability rather than a value-augmenting instrument. The large positive coefficient of equity to total assets ratio (ET) corroborates the trade-off theory, indicating that firms equilibrate debt and equity financing to boost their value. The importance of firm size (FSZ) in the model supports findings of Khairina as well as Yusbardini (2019), who determined that, firm size positively affects business value, as larger firms gain advantages from economies of scale, enhanced access to capital, and market domination. The insignificance of firm age (FA) corresponds with the conclusions of Ogbulu and Emeani (2012), who posited that longevity alone does not dictate firm value; instead, elements such as financial strategy and industry dynamics are crucial.

The macroeconomic variables in the model further substantiate the correlation between external economic conditions and firm value. The favourable and substantial influence of GDP growth rate (GR) on Tobin's Q aligns with the conclusions of Nur et al. (2019), who illustrated that economic expansion offers firms growth chances and improves profitability, thereby elevating firm valuation. The adverse and considerable impact of the inflation rate (IR) on business value corroborates the assertions of Elena et al. (2018), who noted that elevated inflation diminishes firm profitability by escalating operational expenses and diminishing purchasing power. In an inflationary context like Nigeria, companies may contend with escalating input expenses and volatile financial circumstances, which negatively impact market valuation.

Conclusion and Recommendation

This paper posited that independent variables-Long-term-Debt Ratio (LTR), Total-Debt- to-Total Assets Ratio (TAR), Equity-to-Total Assets Ratio (ET), GDP Growth Rate (GR), and Inflation Rate (IR), along with control variables-Firm Size (FSZ) and Firm Age (FA) could influence corporate value of the sampled consumer goods firms utilised in the research. A comprehensive review of existing theoretical and empirical literature was undertaken during our investigation.Subsequently,the model was systematically constructed. Descriptive statistics and correlation analysis were performed, and Hausman tests was conducted in order to decide on the appropriate model selection between fixed and random effects models.

Random effects regression was performed on the variables. Findings from the work show that, leverage ratios of long-term debt ratio, total debt to total assets ratio, company age (control variable), and inflation rate (macroeconomicvariable) negatively impacted Tobin's Q (proxy for firm value).This entails significant financial risk and even insolvency, particularly due to the negative externalities linked to operating in a frontier economy such as Nigeria. Conversely, equity-to-total assets ratio, GDP growth rate, along with firm size positively influenced value of firms as seen in positive link among macroeconomic indicators,equity financing,business age,and firm value.

The study advises that consumer goods-oriented enterprises should prioritise internal financing and minimise debt in line with pecking order theory, or maintain balanced approach to debt and equity as proposed by trade-off theory. This is due to elevated funding costs, macroeconomic policy uncertainties, and inadequate infrastructure. These recommendations are substantiated by the reality that consumer goods-oriented organisations operate with substantial revenues but minimal profit margins; hence, higher loan rates, many taxes, and high operational costs could render these businesses unprofitable.

References:

1. *Abdullah, H. & Tursoy,T. (2021). Capital structure and firm performance:Evidence of Germany under IFRS. Review of managerial science. Volume 15, pages 379-398.*
2. *Abimbola, A. J., & Roseline, O. A. (2025). Capital structure decisions on a firm's value: A study of manufacturing companies in Nigeria. Department of Accountancy, Federal Polytechnic Ilaro, Ogun State, Nigeria.*
3. *Ahmed, F., Rahman, M.U., Rehman, H.M., Imran, M., Dunay, A., & Hossai, M.B (2024). Corporate capital structure effects on corporate performance pursuing a strategy of innovation in manufacturing companies. Heliyon, Volume 10, Issue 3, e24677.*
4. *Aggarwal, D., & Padhan, P. C. (2017). Impact of capital structure on firm value: Evidence from Indian hospitality industry. Theoretical Economics Letters, 7(4).*

5. *Amin, M.(2021). The Regression effect of capital structure and firm growth on the firm value. Golden Ratio of Finance Management. Vol. 1(1), 33.50.*
6. *Ayuba, H. B., Ja'afaru, A. M., Aminu, S., & Abdulwahab, S. (2019). Effects of financial performance, capital structure, and firm size on firms' value of insurance companies in Nigeria. Journal of Finance, Accounting & Management, 10(1).*
7. *Baker, H.K. and Martin, G.S. (2011). Capital structure and corporate financing decisions: Theory, evidence, and practice (Vol. 15). John Wiley & Sons, Hoboken.*
8. *Berger, A. N., & Bonaccora, D. P. E. (2006). Capital structure and firm performance: A new approach to testing agency theory and an application to the banking industry. Journal of Banking & Finance, 30(4), 1065-1102.*
9. *Bradley, M., Jarrell, G.A. & Kim, E.H. (1984). On the existence of optimal capital structure: Theory and evidence. The Journal of Finance, Vol. 39, No.3. pp. 857-878.*
10. *Dang, H.N., Vu,T.T.,Ngo,X.T., & Hoang,H.T.V. (2019). Study of the impact growth,firm size, capital structure, and profitability on enterprise value: Evidence of enterprises in Vietnam. The Journal of Corporate Accounting & Finance. Volume 30, Issue 1.*
11. *Denzil, W., & Head, A. (2019). Corporate finance: Principles and practice. Pearson.*
12. *Din, S., Khan, M.A., Khan, M.J., and Khan, M.Y. (2022). Ownership structure and corporate financial performance in an emerging market: A dynamic panel data analysis. International Journal of Emerging Markets.Volume 17 Issue 8.*
13. *Elena, A. N., Georgeta, V., & Stefan, C. G. (2018). The impact of capital structure on risk and firm performance: Empirical evidence for the Bucharest Stock Exchange listed companies. Department of Finance, The Bucharest University of Economic Studies.*
14. *Ezirim, C. B., Ezirim, U. I., & Momodu, U. A. (2017). Capital structure and firm value: Theory and further empirical evidence from Nigeria. International Journal of Business, Accounting & Finance, 11(1).*
15. *Jin, G & Xu, J. (2022). Does intellectual capital affect financial leverage of Chinese agricultural companies? Exploring the role of firm profitability. Department of Economics and Management, Qingdao Agricultural University, Qingdao 266109, China.*
16. *Habibu, A., Abdu, J. B., Murtala, A. I., & Sulaiman, A. S. (2019). Effects of financial performance, capital structure, and firm size on firms' value of insurance companies in Nigeria. Journal of Finance, Accounting and Management, 10(1), 57-74.*
17. *Hirdinis, M. (2019). Capital structure and firm size on firm value moderated by profitability. International Journal of Economics and Business Administration.*

18. *Huang, G., & Song, F. M. (2006). The determinants of capital structure: Evidence from China. China Economic Review, 17, 14-36.*
19. *Igbinovia, E. L., & Ogbeide, D. O. (2017). Capital structure and firm value of selected quoted manufacturing firms in Nigeria. Dutse Journal of Economics and Development Studies (DUJEDS), 7(2).*
20. *Jin, X. (2012). Profitability and capital structure: Evidence from import penetration. Journal of Financial Economics, 106(2), 427-446.*
21. *Khairina, N. & Yusbardini, Y. (2019). The effect of capital structure and firm size on firm value through profitability as intervening variable. 8th International Conference of Entrepreneurship and Business Management Untar (ICEBM 2019).*
22. *Khan, M. Y., & Jain, P. K. (2018). Financial management: Text, problems and cases (8th ed.). McGraw Hill Education.*
23. *Kraus, A., & Litzenberger, R.H. (1973). A State-preference model of optimal financial leverage. The journal of finance. Vol. 28, No.4, pp.911-922.*
24. *LUU, D. Huu (2021). The impact of capital structure on firm value: A case study in Vietnam. The Journal of Asian Finance, Economics and Business. Volume 8 Issue 5.*
25. *Maryam, A. F., & Abdolkarim, M. (2015). The effect of capital structure on firm value, the rate of return on equity, and earnings per share of listed companies in Tehran Stock Exchange. Research Journal of Finance and Accounting, 6(15).*
26. *Mathew, S. (2016). Firing costs and capital structure decisions. The Journal of The American Finance Association, 17(5), 2239-2286.*
27. *Modiglani, F., & Millier, M.H. (1958). The cost of capital, corporation finance and the theory of investment. The American Economic Review. Vol. 48, No. 3, pp. 261-297.*
28. *Ngatno, Endang, P.A, & Arief, Y.(2021). Moderating effects of corporate governance mechanism on the relation between capital structure and firm performance.Cogent & Management.*
29. *Nur, A. R., Hengky, L., & Grace, T. S. (2018). Determinants of capital structure and firm financial performance-A PLS-SEM approach: Evidence from Malaysia and Indonesia. The Quarterly Review of Economics and Finance, 71(5).*
30. *Obaid, U. R. (2016). Impact of capital structure & dividend policy on firm value. Journal of Poverty, Investment and Development, 21.*
31. *Oboh, S. C., Isa, E. F., & Adekoya, A. C. (2012). Corporate capital structure and corporate market value: Empirical evidence from Nigeria. International Journal of Economics and Finance, 4(12).*
32. *Ogbulu, O. M., & Emeani, F. K. (2012). Capital structure and firm value: Empirical evidence from Nigeria. International Journal of Business and Social Science, 3(19).*

33. *Putri, I. G. A. P. T., & Rahyuda, H. (2020). Effect of capital structure and sales growth on firm value with profitability as mediation. International Research Journal of Management, IT and Social Sciences, 7(1), 145–155.*
34. *Raharjo & Wahyuni, (2023). Impact of capital adequacy ratio(CAR) and Mudharabah on the Return on asset (ROA) on Sharia general banks registered in the financial services authority (OJK). Journal of Waqf and Islamic Economic Philanthropy. Vol 1(1):1-12*
35. *Ramli, N.A., Latan, H., & Solovida, G.T. (2019). Determinants of capital structure and firm financial performance—A PLS-SEM approach:Evidence from Malaysia and Indonesia. The Quarterly Review of Economics and Finance. Vol. 71.*
36. *Ross, S.A. (1977). The determination of financial structure: The incentive-signaling approach. The Bell Journal of Economics.Vol. 8, No. 1, pp. 23-40.*
37. *Saka, K.A., & Fatogun, O.I. (2021). Capital structure and valuation of Nigerian manufacturing companies. Journal of Economics and Financial Analysis. Vol. 5, Issue 1.*
38. *Sunandar, N., & Sugiarti, E. (2023). The effect of asset structure, profitability and liquidity on the capital structure of the manufacturing industry sector. Budapest International Research and Critics Institute-Journal (BIRCI-Journal). Vol 6, No 1.*
39. *Tabe, R., Lapian, S.L.C.J., Murni, S., & Maramis (2022). The effect of firm size, investment opportunity set and capital structure on firm size. World Journal of Research and Review, 7(3), 1-10.*
40. *Watson, D., & Head, A. (2016). Corporate finance: Principles and practice (7th ed.). Pearson Education.*
41. *Yildirim, D., & Celik, A.K. (2021). Testing the pecking order theory of capital structure: Evidence from Turkey using panel quantile regression approach. Borsa Istanbul Review. Volume 21, Issue 4.*
42. *Zeitun, R., & Haq, M.M. (2015). Debt maturity, financial crises and corporate performance in GCC countries: a dynamic-GMM approach. Afro-Asian Journal of Finance and Accounting. Vol. 5, No. 3.*