



Moderating Impact of Inflation Rate on the Relationship Between Capital Structure and Financial Performance of Nigerian Consumer Goods Companies

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ABSTRACT

The study looked at the relationship between listed consumer companies in Nigeria's capital structure and financial performance, as well as the moderating effect of inflation. While debt to equity was utilised as a capital structure variable, return on asset (ROA) was used as a gauge of financial success. The 13 sampled organisations' audited annual reports covering the 10-year period from 2013 to 2022 were where the study's data came from. Robust fixed effect regression was used in the study as a method of analysis and hypothesis testing. The outcome demonstrates that inflation has a negative moderating effect on capital structure and ROA as well as a negative and significant negative impact on return on assets. According to the study's findings, high leverage businesses in Nigeria's consumer goods industry will struggle financially. The negative impact of debt in the capital structure on the financial performance of listed consumer goods firms in Nigeria is also exacerbated by inflation. According to the report, management of publicly traded consumer goods companies should evaluate their capital structure in light of rising inflation and develop a comprehensive financial strategy that takes their long-term goals and objectives into account. This could entail managing debt levels, optimising capital structure, and giving investments with long-term returns first priority.

INTRODUCTION

Capital structure, or the ratio of debt to equity financing, is an important strategic consideration for every business, including consumer products companies. Therefore, a company's capital structure describes how it acquires working capital, whether through debt, equity, or a combination of the two. Because of this, businesses can choose between two methods of financing their operations (Mukumbi et al., 2020). If the company doesn't have enough money to pay for its operating expenses and maintain its fixed assets, it might not be able to function. Decisions about the capital structure of a business cannot be made without it.

Profitability, risk, and value are only few of the financial metrics that can be affected by a company's capital structure. Reason being, it has an influence on the firm's worth and bottom line. To improve the firm's performance and reach the primary goal of the firm, which is profit maximisation, capital structure decisions should be carefully considered and deliberated over (Mutegi, 2016). The capital structure the company adopts affects the allocation of operating cash flows between shareholders and debt holders on a period-to-period basis. A company's financial health can be gauged by looking at its debt-to-equity ratio.

To what extent a business is successful economically can be gauged by looking at its financial performance (Verma, 2022). Capital structure and its impact on a company's performance is a topic of study for academics around the world (Anozie, 2023; Vuong et al., 2017; Hung & Cuong, 2020). What effect do you think a company's debt-to-equity ratio might have on its bottom line?

Revenue and net profit for businesses across Nigeria's many industries, but especially its manufacturing and financial ones, have been negatively impacted by recent events. Companies in Nigeria have had wildly fluctuating financial fortunes over the years. Furthermore, consumer goods companies are essential to the economy, and the capital structure of consumer goods companies can have a major effect on the financial success of these companies. At the close of business on the NGX's final trading day of 2018, the Consumer Goods sector's market cap amounted to 11.79 percent of the exchange's overall market cap. In 2021, the consumer products industry added N116 billion, or 4.62%, to the NGX market capitalization (Akamu, 2022).

Numerous studies have examined the correlation between capital structure and economic results. The impact of capital structure on financial performance in the United Kingdom was studied, for instance, by Vuong et al. (2017). The results of the study imply that an organization's bottom line could suffer if its leverage levels were increased above a healthy range. The relationship between capital structure and the economic success of Nigerian enterprises has been the subject of numerous studies over time. Regarding how much these companies' financing arrangements affect their bottom lines, perspectives are divided. In the case of Nigerian consumer products firms, for instance, Abdulkarim et al. (2019) and Egbunike (2018) found that capital structure positively influenced financial performance, whereas Anozie et al. (2023) found the opposite to be true.

Inflation, on the other hand, may dampen the association between capital structure and financial results. The effects of inflation on businesses' bottom lines have been the subject of a few studies. Inflation, for instance, has been shown to have a negative but mild effect on the financial performance of consumer products in a study conducted by Egbunike (2018). Few studies, however, have examined how inflation affects the association between capital structure and the financial success of companies selling consumer goods. It was also reported that in 2021, due to the country's high inflation rate, especially the rise in food inflation, consumer goods prices rose sharply. As a result of inflation, consumers have to spend more of their money to buy fewer things. Because of the discrepancy between these empirical findings, there is a pressing need for more research in this field of literature. Capital structure and financial performance of listed consumer goods corporations in a developing nation like Nigeria should be studied to determine the impact of inflation on this connection. A subset of the companies listed on the Nigerian stock exchange could provide useful data for the study. Insights into the best capital structure for consumer goods enterprises in the context of inflation may be gained from this study, which could have practical implications for their management. It's possible that this research will add to what's already been written about how inflation affects the link between capital structure and financial performance, especially for developing economies.

LITERATURE REVIEW

Capital Structure

The three most prevalent forms of capital used to finance a company are ordinary share capital, preference share capital, and loan capital (Akinsulire, 2011). Capital structure, as defined by Velnampy and Niresh (2012), is "the process by which a company determines the mix of equity, debt, and other investment vehicles through which it seeks to finance its operations. Capital structure, as defined by Brigham (2004), is the method through which a company raises money for its operations, be it through debt or stock. Similarly, Pandey (2005) cited capital structure as a way to quantify the equity-to-debt ratio, which provides insight into how many times a company's equity is sufficient to service its debt over a given time frame for a financial management. This is an attempt by the capital structure to identify the level of leverage used by the company to fund its operations. Capital structure, according to Muzdmer (2017), is the mix of equity and long-term debt that determines a company's leverage. The leverage establishes the relative exposure of shareholders and creditors to risk and reward.

Agency Theory

Another theory that attempts to link capital structure and corporate performance is agency theory. Managers and stockholders have a "agency problem," according to Jensen and Meckling (1976). Shareholders can utilise debt financing as a tool to influence management's actions and lessen tensions with the board (Boodhoo, 2009). When companies begin taking out loans from

financial institutions, managers must adhere to the debt discipline. This has the potential to better align the interests of shareholders and management, leading to greater transparency and longer-term viability. According to the agency hypothesis, debt can have both positive and bad consequences on profitability. Increasing a company's leverage can boost its performance by decreasing agency costs and enhancing administrative efficiency (Jensen, 1986). When a principle and an agent have to pay an agency cost, a beneficial result arises. Agency expenses between creditors and stockholders give rise to the opposite correlation.

Capital Structure and Financial Performance

A study on the effect of capital structure on the financial performance of Nigerian oil and gas businesses was undertaken by Anozie (2023). The study took into account a number of variables, including return on assets(ROA), total debt to total equity, total debt to total assets, and short-term debt to total assets. Using descriptive statistics and panel regression analysis, secondary data from annual financial reports of five Nigerian oil and gas companies for the years 2011 to 2020 were examined. The results showed that long-term debt to total assets had a negative and significant influence on return on assets, but total debt to total equity and short-term debt to total assets both had positive but minor effects.

The goal of Opoku-Asante et al. (2022) was to examine the connection between capital structure and financial performance while taking loan maturity into account. The study examined 425 cross-sectional firm-year samples from 2014 to 2019 as well as data from Ghana and Nigeria. Research has found a strong negative correlation between them. The maturity of the loan had no impact on the performance.

A study on the effect of capital structure on the financial performance of non-financial enterprises listed on the Nairobi Securities Exchange was undertaken by Mukumbi et al. in 2020. The study focused on 16 non-financial companies that traded on the NSE and operated in Kenya between 2013 and 2017. The results showed that changes in debt in the capital structure had a direct impact on the financial performance of companies listed on the Nairobi market, with financial performance increasing as changes in debt rose.

Assessment of the funds structure, financial performance, and business value of the Jakarta Islamic Index in 2022 by Ferriswara et al. From 2015 through 2021, annual data for the study were analysed using partial least squares (PLS). The results showed that while corporate governance and capital structure did not directly affect business value, financial performance had a significant impact on it. On financial performance, however, corporate governance has both positive and negative consequences. The study gave special attention to how capital structure and corporate governance may improve financial performance and business value, which may be seen favourably by investors.

Shaferi et al. (2020) examined the impact of leverage on the financial performance of the industrial and service sectors using a sample of 468 data

items from 156 listed companies on the Indonesian Stock Exchange between 2015 and 2017. Using the pooled data regression approach, the finding demonstrates that leverage significantly has a inverse influence.

In her research, Deepanjali (2018) examined the impact of capital structure on the ten-year financial performance of nine Indian infrastructure companies. They investigated the relationship between capital structure and financial performance using ratio analysis and a correlation matrix and came to a number of conclusions. The study found that the capital structures of the companies had a slight debt-to-equity balance, and the kind of analysis used may be the cause of the study's contradictory results.

Sokang and Ratanak (2018) looked into how the capital structure and growth of local commercial banks in Cambodia affected their profitability. They used a sample of ten banks and the panel least squares (PLS) approach to carry out their analysis between 2005 and 2013. The results showed that the debt-to-equity ratio had a substantial negative influence on financial performance as indicated by ROA and ROE.

In a five-year study, Kumah and Mensah (2018) investigated how the capital structure of Ghanaian insurance businesses affected their financial performance. Their investigation revealed that the debt-to-equity ratio had a favourable and statistically significant impact on financial success. According to the report, profitable insurance companies are more likely to accrue debt. A similar conclusion was made by Abdulkarim, et al. (2019), who discovered that the total-debt equity ratio significantly improved ROE.

Ekwueme and Atu (2018) studied financial structure of listed insurance companies in Nigeria and their financial performance. They performed a correlation analysis to examine the connection between the debt-to-assets ratio and financial performance as determined by return on equity using a sample of 22 insurance companies over a 14-year period. The study came to the conclusion that the variation in ROE was significantly influenced by the firm's capital structure.

The effect of Nigeria's overall debt ratio on financial performance was looked into by Ajibola et al. (2018) .Their research shows that return on equity, a metric of financial success, is positively and statistically significantly impacted by the overall debt ratio. They did learn, though, that return on assets suggested total debt had a very small effect on financial success.

Hung and Cuong (2020) looked into how capital structure affected the financial performance of pharmaceutical companies listed on the Vietnamese stock exchange. They employed regression analysis with self-financing and ROE. Controlling factors such business size, fixed asset ratio, and growth were also taken into account in the study. The results showed that while there was a positive link between financial leverage and business performance, self-financing had a negative impact on ROE. The report recommends that the Vietnamese government give de-escalating the general atmosphere priority in order to support businesses.

Using Nigerian manufacturing sector, a study was undertaken by Oyedokun et al. (2018). They examined data from 2007 to 2016 using a sample

of 10 manufacturing firms registered on the Nigerian Stock Exchange. Capital structure had both substantial and non-significant effects on performance indicators.

Le (2017) used the audited financial statements of 219 industrial businesses listed on the Vietnam stock market from 2010 to 2015 to examine the effect of capital structure on financial performance. Panel data were used in both the regression and correlation analyses of the study. Return on equity (ROE) was the dependent variable, and the independent factors were size, capital structure, solvency, asset structure, and growth rates. The study's findings showed that capital structure affected company performance favourably across all production categories.

Vuong et al. (2017) investigated the effect of capital structure on the financial performance of UK enterprises from 2006 to 2015 using a sample of 739 very large and large UK businesses listed on the London Stock Exchange. The growth rates of total assets, long-term liabilities, and short-term liabilities are used as independent variables in the calculation of the two capital structure ratios. The study discovered that whereas long-term liabilities have a negative link with an organization's financial performance.

Inflation and Financial Performance

In Nigeria's manufacturing sector, Ifeanyi and Chukwuma (2016) conducted research on the correlation between firm value and inflation. They discovered a substantial inverse link between inflation and business value using multiple regressions and analysis of variance. There was little correlation between inflation and return on assets. The study also discovered that inflation understates the underlying value of the firm, even at modest levels. Egbunike (2018) investigated how several macroeconomic variables interacted in the Nigerian manufacturing companies listed on the Nigerian Stock Exchange's consumer products sector. Multiple linear regression was utilised in the study, which discovered a strong relationship between inflation rate and return on assets (ROA). Beyond the link between the inflation rate and ROA, the study's conclusions are not described in detail. Ali and Ibrahim (2018) examined how Malaysian manufacturing enterprises fared as a result of inflation. The study used correlation analysis and a sample of fifty manufacturing firms. The results showed a correlation between gross profit and inflation rate that was favourable. The study came to the conclusion that inflation had a positive impact on manufacturing company earnings rather than negatively. But the gap that this study fills is that none of these other studies assess the indirect relationship between inflation, capital structure, and financial performance.

METHODOLOGY

The 21 consumer products companies listed on the Nigeria Exchange Group as at December 31, 2022, comprised the study's sample. The study spans a ten (10) year period from 2013 to 2022. One filter criterion was used to modify the population. The study include companies that weren't listed as at January 1, 2013, until December 31, 2022. 13 firms were chosen as a sample for the study. In addition, secondary data from the NXG website (capital structure and

financial performance) and the CBN bulletin (with regard to inflation) were used in the study. Regression analysis and descriptive statistics were employed in the study as analytical methods. The assumptions of the classical linear regression model (CLMR) were validated by diagnostic tests. Using STATA's multiple regression analysis, the acquired data was analysed and then summarised using descriptive statistics.

Model Specification

The model is stated below as

$$ROA_{it} = \beta_0 + \beta_1 TDTA_{it} + \beta_2 INFL_{it} + \beta_3 TDTA_{it} \cdot INFL_{it} + \beta_4 FAG_{it} + \varepsilon_{it}$$

Where:

ROA_{it} = Return on asset for the company i in year t

β_0 = Coefficient of the constant variable

TDTA_{it} = debt to asset ratio for the company i in year t

Inflation_{it} = inflation rate in year t

FAGE = firm age for the company i in year t

β_1, β_4 , = Regression coefficients of independent variables

ε_{it} = error term.

Table 1. Variables Measurement

Variables	Abbreviation	Type	Measurement	Source
Return on asset	ROA	Dependent	Profit after tax/total asset	Young et al.(2017)
Capital structure	TDTA	Independent	Total debt/total asset	Ajibola, et al.(2018)
Inflation	INFL	Moderating	Annual inflation rate	Egbunike (2018)
Firm age	FAG	Control	Year of incorporation	Ghafoorifard, et al.(2014)

RESULTS

Table 2. Descriptive Statistics of the Variables

Variables	Obs	Mean	Std Dev.	Min	Max
ROA	130	0.063	0.078	-0.129	0.303
TDTA	130	0.571	0.190	0.101	1.504
INFL	130	13.396	4.09	8.06	21.34
FAG	130	37.35	13.58	5	58

Source: Descriptive Statistics STATA, 2023

The data pertaining to the study variables and the control variables are summarised in Table 2. The study's dependent variable, ROA, ranges from a minimum value of -0.129 to a high value of 0.303. This minimum demonstrates the existence of a company whose loss after tax increased to 128% of its total assets during the study period. The average value of 0.063 indicates that the businesses are effective at turning a profit from the assets they are given, and the standard deviation of 0.078 indicates that the data are widely dispersed from the mean.

Table 2 also shows that the average value of the total debt to total assets (TDTA) is .57, with a standard deviation of .19, and that the minimum and maximum values are .101 and 1.504, respectively. The standard deviation indicates that the variable is not widely distributed from the mean. The sampled average of TDTA of the sample firms, which is 57.1% of their total assets, revealed that listed enterprises in Nigeria are heavily leveraged. It demonstrates that the majority of the selected enterprises used a greater proportion of debt in their capital structure.

The table also shows that the inflation moderating variable has a mean value of 13.34%. 21.34% is the highest inflation rate. The chart also shows that the oldest company to float on the Nigerian stock exchange, with a listing age of 58 years, is the youngest at 5 years old. 37 years old on average, with a standard deviation of 4.

Table 3. Correlation Analysis

Variables	ROA	TDTA	INFL	FAG
ROA	1.000			
TDTA	-0.242	1.000		
INFL	-0.101	0.008	1.000	
FAG	-0.027	-0.038	0.146	1.000

The correlation between the variables under research is shown in table 3 of the correlation analysis. The correlation coefficient of -0.242 indicates that there is a weak and negative connection between TDTA and ROA. The table also shows that ROA and inflation (INFL) have a correlation coefficient of -0.101, which is negative. This indicates a bad association between TDTA and INFL and the ROA of consumer goods companies listed on the Nigeria Exchange Group.

Additionally, the coefficient value of -0.027 indicates a modest and unfavourable correlation between the age of the enterprises (FAG) and ROA. To prevent cases of multicollinearity, it is assumed that the independent variable, moderating variable, and control variable should have weak relationships with one another. According to Gujarati (2004), all variables with a correlation coefficient of less than +0.80 are secure and can be included in the same regression model because there is no interdependency among the independent variables.

Results of Diagnostic Test

Tests for heteroskedasticity and the Hausman specification are conducted on the data and their results are reported and discussed below.

Normality of Data

The normality of the error terms is a tenet of the traditional OLS regression model. At the 5% level of significance, the Jacque Bera test was used to examine the residual for signs of non-normality.

Table 4. Normality Test

Model	Obs	Chi2	Prob>z
Direct Model	130	10.68	0.005
Moderated Model	130	10.49	0.005

Source: Jacque Bera normality test

The residual reveal a significant p-value for both models (0.005 and 0.005) which is less than 5% level of significance. This suggest that the residual is not normal distributed.

Heteroscedasticity Test

Table 5. Heteroscedasticity Test and Autocorrelation Test

Test	Chi2	P-value
Direct Model	1.03	0.311
Moderated model	0.94	0.322

Source: Stata output, 2023

Heteroscedasticity Test

Breusch- Pagan and cook- Weisberg tests for heteroscedasticity were used to monitor this assumption. Table 4 shows that the prob>chi2 is more than the 5% level of significance when testing the null hypothesis of constant variance (i.e., when the distribution is Homoskedastic) using the Breusch-Pagan or cook-Weisberg test. This demonstrates that the models do not contain heteroskedasticity.

Panel Analysis Diagnostic Test

Table 6. Hausman Specification Test Effects

Model	Chi2	P-Value
Direct Model	6.08	.048
Moderated model	13.13	0.011

Source: Stata output, 2023

Hausman Specification Test

After running a fixed and random effect model, we used the Hausman specification test to determine the nature of the effect. At the 5% level, the results demonstrate that the prob>chi2 is 0.048 for the direct model and 0.011 for the moderated regression. The Hausman test clearly favours the fixed effect model for both Models, as seen by the large P-value. As a result, the study was interpreted using a robust fixed effect model. Data non-normality and other potential model problems were addressed by using a Fixed Effect Regression Model with Driscoll-Kraay standard errors, as demonstrated in this paper.

Table 7. Fixed Effect Regression Models

Variable	Direct Model		Moderated model			
	Coefficients	t-value	p-value	Coefficients	t-value	p-value
TDTA	-0.175	-8.84	0.000	0.0729	2.35	0.043
FAG	-0.082	-2.73	0.023	0.012	5.18	0.001
INFL				-0.020	-7.67	0.000
DTA*INFL				-0.075	-2.42	0.039
CONST	0.451	4.68	0.001	0.282	2.87	0.018
R2 within	29.46			35.73		
f-statistic	192.96			69.52		
p-value	0.000			0.000		

Source: Robust Fixed effect model Result* denote statistical significance at 5%

Interpretation

Table 7 shows the findings from the study using the Hausman specification test to choose which model to use for the fixed effects. The control variables company age and the debt to total asset ratio explain 29.46% of the variation in ROA for the listed consumer products in Nigeria, as shown by the regression result. The chi square F-statistic returns a value of 192.96, which is statistically significant at the 5% level of confidence. That the model is adequate and healthy is demonstrated here. Together, the variables have a substantial impact on the financial results of Nigerian consumer products companies that are publicly traded.

In addition, table 7 shows that the moderated regression analysis has an R2 of 35.73%, which indicates that variations in the ROA of the listed consumer's goods in Nigeria can be explained by the debt ratio, inflation, firm age, and the interaction of debt and inflation. There is statistical significance at

the less than 5% level, as indicated by the F-statistic chi square value of 35.73 and the p-value of 0.000. That the model is adequate and healthy is demonstrated here. Together, the variables have a substantial impact on the financial results of Nigerian consumer products companies that are publicly traded.

DISCUSSION

From the tests carried out on the data collected and the analyses of the results, these findings are discussed below.

Capital Structure and Financial Performance

This research found that during the study period, the ratio of a company's total debt to its total assets, a measure of capital structure leverage, had a negative and statistically significant effect on ROA for listed consumer goods companies in Nigeria. The -.175 sign of the coefficient and the 0.000 p-value, which is statistically significant at the 5% level, confirm this. This again indicates how much an increase in the TDTA ratio will affect the ROA. Since interest costs are proportional to the amount of debt, rising debt in the capital structure would likely result in lower profits for the companies. The agency theory predicts an inverse relationship between debt and financial success due to the agency cost between creditors and shareholders, hence these results make sense. Sokang and Ratanak (2018) and Young et al. (2017) found that leverage has a detrimental effect on performance, therefore our findings are in line with theirs. In addition, these findings go counter to the findings of Abdulkarim, et al. (2019), who found a favourable relationship between debt ratio and financial performance.

Moderating Effect of Inflation on Capital Structure and Financial Performance

Inflation-moderated capital structure has a inverse coefficient of -0.075 and a P-value of 0.039, according to Table 6. This shows that the capital structure of a company and the financial performance of listed consumer goods firms in Nigeria may be significantly and negatively moderated by inflation. This suggests that a high rate of inflation makes the detrimental effects of capital structure on financial performance even more pronounced. This may be because high inflation can raise interest rates, which can raise the cost of borrowing for businesses. A firm's profitability and financial performance may suffer as a result of greater interest payments, particularly if the company has a significant debt load. Additionally, since the nominal worth of debt declines in real terms when inflation is high, leverage might rise. By borrowing more money, businesses may take advantage of this, increasing their leverage and risk in the case of a recession. This is consistent with findings from Ifeanyi and Chukwuma (2016) and Egbunike (2018) that found a strong inverse relationship between inflation and performance. In contrast, Ali and Ibrahim (2018) discovered that inflation has a beneficial impact on performance.

CONCLUSIONS AND RECOMMENDATIONS

This research looks at how Nigerian consumer goods companies' capital structures and financial performances are affected by inflation from 2013 to 2023. The model's results show that capital structure significantly improves the financial performance. Inflation also acts as a brake on investment and overall financial performance. The research shows that companies in Nigeria's consumer goods industry that use a lot of debt would fail financially. Debt in the capital structure has a detrimental impact on the financial performance of listed consumer products companies in Nigeria, and inflation exacerbates this effect.

The study recommends that management of the listed consumer goods enterprises in Nigeria to take into consideration debt restructuring by renegotiating loan conditions, extending payback periods, or achieving lower interest rates. This recommendation is in keeping with the study's findings and conclusions. This could ease current financial strains and enhance cash flow. In addition, the management of the listed consumer goods companies should assess the capital structure of the company in the context of high inflation and create a thorough financial plan that takes into account the long-term aims and objectives of the company. This could entail managing debt levels, optimising capital structure, and giving investments with long-term returns first priority. In order to overcome the difficulties brought on by rising inflation, they should also continue to have solid connections with their suppliers. Work closely with suppliers to agree on fair prices and terms of supply.

FURTHER STUDY

This research still has limitations so further research on the topic still needs to be carried out "Moderating Impact of Inflation Rate on the Relationship Between Capital Structure and Financial Performance of Nigerian Consumer Goods Companies."

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