

Comparative Analysis of Financial Mix and Financial Performance of Listed Firms in Nigeria

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Abstract

This study compared the financial composition and financial performance of 15 Nigeria Exchange Group-listed consumer and industrial products corporations from 2013 to 2022. Panel data from annual reports and accounts of consumer and industrial goods firms was based on variables: financial mix was proxied by STDF, LTDF, TDF, DTEF, and INCR, and financial performance was proxied by ROA. Ex-Post Facto research was utilised to determine the current status of the phenomena and define 'what exists' with respect to variables or conditions in a context that fits the topic under study. This study design occurs after the event. E-VIEW (version 9.0) statistical tool was used to analyse panel data using descriptive statistics, correlation matrix, diagnostics tests, and regression analysis. STDF has a negative and significant effect on ROA of listed consumer goods firms while positive and insignificant on ROA of listed industrial goods firms in Nigeria; LTDF has a positive and significant effect on ROA of listed consumer goods firms while negative and insignificant on ROA of listed industrial goods firms; and TDF has a negative and insignificant effect. Financial mix has conflicting effects on Nigeria's listed consumer and industrial products sectors, according to the report. Therefore suggests that Nigerian consumer and industrial goods businesses apply STDF to short-term business proposals to maximise their impact on financial mix decisions, which effect ROA.

Key Words: *Financial, Mix, Debt, Equity Interest, and Performance.*

Introduction

Financial mix has been a contested problem in finance theory in recent years (Alhassan, 2021). The financial mix is how a firm uses capital to operate and grow, according to Mukumbi, Eugene, and Jinghong (2020). Working capital is financed by short-term debt. Ordinary stock, preference shares, and retained earnings constitute equity, while bonds and long-term notes payable are debt (Owonye, 2023). The financial mix of a corporation may include long-term, short-term, ordinary, and preference shares. Analysts use debt-to-equity ratios to assess financial mix and risk (Alhassan, 2021). Management wants the best debt-equity ratio. Corporations have unpredictable financial mixes. Managers seek the right short- and long-term financial mix (Kanhuna & Waweru,

2015). Selecting the correct financial mix helps finance managers maximise firm performance and shareholder return (Dabo, 2020).

Investment and finance alternatives have risen due to economic globalisation (Singh & Bagga, 2019). Most Nigerian firms lack equity or loan capital. Organisations evaluate performance using financial mix (Ajibola, Okere & Qudus, 2018). The financing mix is equity or debt. Firms can use internal and external funds. Although a company can use only stock, debt, or both. A firm's performance depends on foreign debt (Murikwa, 2017). In Nigeria exchange group, numerous enterprises in consumer goods, industrial products, oil and gas, banking, and agriculture are listed. This study examines how these industries finance their operations to improve financial performance. Companies have debt and equity finance. Perfect financial combination has been debated for decades. Debt efficiency lowers the weighted average cost of capital, increasing net returns (Owonye, 2023). Debt financing for consumer and industrial products firms is higher. Debt improves consumer and industrial goods companies (Kenn-Ndubuisi & Onyema, 2018).

Owonye (2023) cites Ahmadu (2015), who says corporate managers strategically chose loan-equity combinations. Capital from tax shield may help consumers and industrial products companies since interest is non-taxable and reduces profit and tax. It can also fund the company's project (Imeokparia, et al., 2021). Finance alternatives affect earnings, hence Altahtamouni (2015) suggested weighing the risks of debt, equity, or both. Firm financing is optimised by finance (Ahmad, 2017). For debt and equity financing, companies employ financial mix. Debt is bank and lending market loans, equity is stock sales. The company can cut costs and boost returns with debt, equity, or hybrid instruments. Asaolu (2021). Therefore, consumer and industrial products enterprises' financial management maximises shareholder wealth as the key performance indicator. In Nigerian consumer and industrial products companies, financial mix affects financial performance and shareholder value maximisation.

Nigerian scholars are concerned about financial mix and performance, but there is no evidence. For profitability, Nigerian enterprises must choose their financial structure. Investors in Nigeria rarely evaluate financial mix complexity and corporate success. Financial restraints have hurt emerging-market companies, especially Nigeria. Financial market development and strengthening in Nigeria prepare business sectors for the finest financial combination. According to Kennon (2019), the corporate sector has many businesses in a competitive, deregulated market. Since 1987, financial globalisation has given Nigerian financial managers more latitude to select their financial mix. The financial decision will hurt the company's profitability. Debt/borrowed cash costs interest. Debt-heavy consumer and industrial product companies have lower profits/net income. The association between financial mixing and financial performance in Nigerian listed firms was mixed (Asaolu, 2021; Owonye, 2023; Okonkwo, Adigwe, Ezu, and Oko, 2020; Oyakhire, 2019, etc. Researchers disagree about how financial mixes affect Nigerian businesses' success. This study adds knowledge and closes gaps. An examination of all Nigeria Exchange Group consumer and industrial goods companies will be unique. The financial composition (STDF, LTDF, TDF, DTEF, INCR) and ROA of Nigeria Exchange Group-listed consumer and industrial products enterprises differ, according to empirical research.

Literature Review

Conceptual Review

Financial Mix

Financial mix is a key company factor. A company's financial mix is the careful balance of equity and debt it uses to fund assets, operations, and growth (Kateri, 2014). Corporate financial mixes include several securities (Gallegos-Mardones & Ruiz-Cuneo, 2020). Kenon (2019) separates equity and debt. Good corporate governance and management require a capital structure that balances shareholder risk and reward. Each capital type has merits and cons. A ratio of debt to equity is financial mix. Equity includes paid-up share capital, share premium, reserves, and surplus or retained earnings, whereas debt involves long-term loans like debentures (Owolabi & Inyang, 2012). Companies must carefully select financial makeup. The decision is vital since a company must optimise profits for several stakeholders and compete. A company can employ fixed financial charges to enhance earnings per share before interest and tax using debt. Corporate earnings before interest and tax and earnings per share will change without fixed-cost securities. Financial leverage exists when a corporation has no fixed financial costs, such as dividends and interest (Pandey, 2019). EBIT and EPS can be increased via leverage (Saleem, Rahman, & Sultana, 2014). Businesses can increase shareholder equity via debt. Increase owners' claims through common shares, retained earnings, or borrowing to meet financial demands. A company's capital structure depends on its debt and stock usage. The stock-to-debt ratio is "capital structure". Common shares, preference shares, reserves, bank loans, debentures, convertible loan stock, etc. are long-term investments, while banking overdrafts and trade creditors are short-term (Nirajini and Priya, 2018). Financial leverage is a loan or borrowing reinvested to affect dividends, according to Seyed and Fatemeh (2019). Leverage depends on business funding (Alkhatib, 2016). Large-borrowing corporations default more in recessions, raising indebtedness and bankruptcy risk. Remember that debt increases financial leverage. Okoye (2019) defined financial leverage as debt reinvested to produce a higher return than interest. Levered enterprises have loans and equity, while unlevered have simply equity (Andy, Chuck, & Alison, 2016). Leveraging boosts investor returns. Loss of investment value increases the risk of loan principal and accumulated interest repayment (Andy et al., 2016). Nwanna and Ivie's 2017 analysis indicated that high-leverage companies should publish more information to help creditors monitor their accounts cheaper. Credit officers want more data to control risk. Njeri & Kagiri (2016) say leverage boosts debt, sales, and profit, improving owner returns. Higher interest rates restrict borrowing, raise interest payments, and lower firm returns, they say.

Financial Performance

Company financial success is its ability to accomplish goals (Yahaya & Lamidi, 2015). A firm's financial performance depends on how well it uses its assets to generate profits, according to Kajirwa (2015). Financial performance measures a company's ability to earn and grow funds. Most financial analysts compare companies in the same or other industries using financial performance. This is crucial for sensible investment decisions. Profit-driven businesses prioritise financial performance (Yahaya & Lamidi, 2015). Performance management is "a way by which an organisation manages its performance to match with its corporate and financial strategy and objectives." Corporate value rewards stockholders (Rouf, 2011). Financial statements measure

business success. A successful organisation encourages management to be honest (Hasan, Ahsan, Rahaman & Alam, 2014). Financial success is a significant company metric. Firm profitability depends on activity and capacity. Financial management's ability to identify the cheapest/best funds to finance the firm's assets called business capacity. Accounting-based financial performance measurements are popular (Gentry & Shen, 2018). Accounting measures short-term financial performance, while market indicators evaluate long-term profitability (Kajirwa, 2015). On the link between past/short-term and future/long-term performance, Gentry & Shen (2018) found no consensus. The above suggests this study employed ROA instead of ROE.

Theoretical Review

Pecking Order Theory (POT)

Myers' (1984) POT said that corporations prefer internal finance and modify their goal dividend payout percentages to their investment possibilities, progressively adapting to worthwhile investment options. According to Myers (1984), corporations issue debt first, then convertible debt, and last stock. Myers advised companies to concentrate internal financing and adopt a finance hierarchy. For outside finance, debt is better than stock. Myers proposed the pecking order theory to explain industrial profitability's negative inverse relationship with debt ratio. The concept did not adequately explain industrial capital structure disparities. According to Chaplinsky and Niehaus (2016), corporations favour long-term investment funding. A firm should use internal resources first (retaining earnings), then debt, and finally equity. According to Huang and Song (2015), a profitable company will borrow less because it will have more funds for investing. When internal funds are low, he urged corporations to get bank loans or corporate bonds. New stock capital is the final and least preferred financing source after internal, bank, and corporate bonds. According to the POT (Chaplinsky and Niehaus, 2016), businesses choose internal financing over equity depending on least effort or opposition, raising equity last. Asymmetric information costs are addressed by this theory. After internal funds are expended, debt is used, and equity is employed when debt is no longer feasible. Asymmetric knowledge affects new security mispricing and there is no target debt ratio, according to pecking order theory (Myers & Majluf, 1984). Underpricing might be so severe that stockholders lose a lot. Companies first employ retained earnings, then debt, and lastly external equity financing to alleviate information asymmetry (Chaplinsky and Niehaus; 2016). New shares frequently suggest overvaluation, says Damodaran (2013). News makes investors react unfavourably and less inclined to finance new equity without price reductions due to knowledge asymmetry. Managers must reject strong net present value investments or take on too much debt that could harm the company. After these inequalities, these reasons follow. Okoye (2019) states that Holmes and Kent (2016) and Quan (2016) believed the POT was a good description of Medium Sized Enterprises' financing practices because debt is the main source of financing and managers usually own the company and don't want to dilute their ownership. They also agreed that businesses prefer debt over shares for external finance. Therefore, a corporation should prioritise retained earnings, external equity, and debt. Internal resources are employed first, then debt when depleted, and equity when debt is no longer feasible (Uremadu and Onyekachi, 2019). Asymmetric knowledge influences new instrument mispricing, as shown by Myers and Majluf's 1984 POT adaptation, which retains no target debt ratio. Investors believe management has price-sensitive knowledge. When prices are high, investors want management to issue hazardous assets. Companies frequently borrow first from retained earnings,

then debt and equity (Olawaju, 2019). Information imbalance is avoided. This analysis uses POT because consumer and industrial products industries fund new investments with retained earnings, debt, and equity. Financial mix fails to predict performance.

Empirical Review

From 2011 to 2020, Owonye (2023) studied how financial mix (FM) affects Nigerian firms, specifically the 10 NSE-listed OGCGSs, financial performance (FP). Research-based panel data is included in company annual reports and OGCGS accounts. On tabulated secondary data, E-VIEW (version 9.0) performs descriptive statistics, panel unit root test, Pedroni residual cointegration test, correlation matrix, and regression analytical technique. LTDR has a negligible positive effect on the ROA of listed OG firms and a significant positive effect on listed CG firms in Nigeria, TDR has a negligible negative effect, and DTER and STDR have positive and significant effects on listed OG firms and negative and significant effects on listed CG firms, respectively. The study found inconsistent FM-FP connections in Nigerian OGCGSs. Nigerian OGCGS companies should approach short-term business ideas as STD to increase their importance in FM decisions that affect ROA. Companies should employ equity.

According to Obumneme, Taiwo, Victor, and Nurudeen (2023), capital structure affects Nigerian oil and gas companies' finances. A post-hoc analysis used short-term, long-term, total, and return on asset as capital structure and financial performance proxies. Simple sampling was used to acquire secondary data based on availability. The 2011–2020 data came from five Nigerian oil and gas companies' annual financial reports. We evaluated data via descriptive statistics and panel regression. Return on assets increased with total debt to equity and short-term debt to total assets, but fell with long-term debt. Results show oil and gas managers should restrict long-term debt because it hurts performance. Carefully select the capital structure.

Ehiedu, Onuorah, and Mbagwu examined financial leverage and Nigerian oil and gas companies' 2011–2020 performance in 2022. STDR, LTDR, and TDR assessed listed Nigerian oil and gas firms' financial leverage and performance. The ROA evaluated financial performance. The study analysed panel data from ten oil and gas enterprises using descriptive statistics, a correlation matrix, a panel unit root test, a Pedroni panel cointegration test, and a panel multiple regression model. STDR affected ROA more than LTDR, TDR, DTER. Financial leverage did not impair Nigerian listed oil and gas companies' performance, the study found. This study suggests attributing Nigerian oil and gas companies' short-term indebtedness to short-term business concepts to optimise their relevance in financial leverage decisions that could affect ROA. More firms should employ stock capital. Long-term loans should improve Nigerian oil and gas earnings and provide reasonable debt returns. Equity financing should be the key defensive.

Opoku-Asante, Winful, Sharifzadeh, and Neubert (2022) examined loan maturity-affected sectorial capital structure and financial performance. Loan maturity, capital structure, and financial performance are evaluated in 425 Ghanaian and Nigerian cross-sectional firm-year samples from 2014 to 2019. Data showed a negative correlation between capital structure and financial success. Capital structure and financial outcomes were unaffected by debt maturity. Industry affects capital structure and finances. Debt maturity impacts capital structure but not the market. This study uses sectorial and loan maturity data to review Ghanaian and Nigerian firm capital structure and financial performance. Finance managers can maximise performance by considering financially acceptable heterogeneities like industry and funding source when making financing decisions.

Capital structure harmed Alhassan (2021) Nigerian consumer goods firms. The study examined 15 Nigerian stock exchange-listed consumer products companies' 2011–2020 annual reports. Capital structure and firm performance were analysed using fixed effect regression. ROA, ROE, and EPS measured business performance, whereas short-term debt, equity shares ratio, and long-term debt measured capital structure. Many Nigerian consumer products companies used long-term loans and equity. The study found that consumer products businesses' performance and market capitalization can improve with higher profit after tax, retained earnings, and low-interest long-term debt.

Ahmadu (2021) examined how financial leverage affects financial performance using yearly reports from seven listed Nigerian oil and gas businesses and daily NSE listings from 2005 to 2018. Financial leverage indicators including STDR, LTDR, and TDER affected ROE in this descriptive statistics and random effects panel estimator study. Regression shows that STDR and LTDR have no impact on financial performance, while TDER has a significant negative impact on ROE. Analysts concluded that Nigeria's listed oil and gas companies' financial leverage affects shareholder wealth. To maximise utility, oil and gas companies should carefully assess debt vs equity capital structure.

In 2021, Olayemi and Fakayode examined how capital structure affects Nigerian listed industrial enterprises' finances. From 2013 to 2019, twelve companies were examined. We tested the assumption with panel data. TDTAR, LDTAR, SDTAR, and TDTER are independent variables; ROA and ROE are dependent. SDTAR and LDTAR moderately improved ROA, whereas TDTAR significantly decreased it. TDTAR and TDTER lower ROE. The study indicated that TDTAR affects ROA more than SDTAR, LDTAR, and TARTER. Thus, this study urged companies to avoid debt that lowers value and performance.

Asaolu (2021) claims capital structure impacts US manufacturing and oil & gas. The study estimated 2010–2019 utilising NYSE/NASDAQ and E-View 9.0 secondary data. Panel least squares estimation and sectoral analysis evaluated hypotheses. Debt structure improved corporate performance, but overleveraging likely hurt all firms. Interest and dividend growth, non-debt tax shield, asset tangibility, and directors' shares/inside ownership. These attributes improve business success across all industries, and competitive tax shelter-securing enterprises exceed others. After considering its pros and downsides, the research recommends debt for capital financing.

Research Methodology

Ex-Post Facto study was used. This is a post-event research design. Secondary data from annual reports and accounts of fifteen consumer and industrial goods businesses were assessed using relevant technologies. In this investigation, quantitative data analysis was used. Descriptive statistics were employed to analyse the variable spread among the organisations, minimum and maximum values. To determine if an increase or decrease in financial mix (independent variables) affects financial performance (dependent variable), the correlation matrix was used to test the independent variables in relation to the dependent variables. Panel unit root test was performed to determine data stationary, and Pendronic cointegration test will determine long-term association. Given the research hypotheses, the Panel Multiple Regression Model will be used for data analysis. This tool will be preferred for analysis because the research is empirical and uses balance panel data. Analysis will use Ordinary Least Square (OLS), Random Effects Model (REM), and Fixed Effects Model. We compared OLS to previous empirical investigations. However, classical OLS

alone may cause erroneous regression and statistical bias. Hausman's Specification test will suggest REM or FEM for the study, which will be used using the E-VIEW 9.0 statistics programme. The model stated that financial performance proxied with Return on Assets (ROA) significantly influences financial mix variables proxied with STDF, LTDF, TDF, DTEF, and INCR.

ROA = f (STDF, LTDF, TDF, DTEF, INCR)

$$ROA_{it} = \beta_0 + \beta_1 STDF_{it} + \beta_2 LTDF_{it} + \beta_3 TDF_{it} + \beta_4 DTEF_{it} + \beta_5 INCR_{it} + \varepsilon \dots (6)$$

Where; ε = Error Term, β_0 = Intercept, β_1 – β_5 = Coefficient of the Independent Variables and the a priori expectation is $\beta_1, \beta_2, \beta_3, \beta_4, \beta_5$ is lesser or greater than 0.

Table 3.1: Measurement of Variables

Variables	Formula	Expected Signs	Type of Variable
ROA	Net Profit/Total Asset		Dependent Variable
STDF	Short-term debt divided by total capital (total debt plus equity)	+/-	Independent Variable
LTDF	Long-term debt divided by total capital (total debt plus equity)	+/-	Independent Variable
TDF	Total debt (long-term and short-term debt) divided by total capital (total debt plus equity)	+/-	Independent Variable
DTEF	Total debt (long-term and short-term debt) divided by Equity	+/-	Independent Variable
INCR	Earnings before interest and tax divided by the total interest expenses.	+	Independent Variable

Source: Authors Basis for Computation, 2023.

Results and Discussion

This study made use of descriptive statistics for the purpose of detailed description of the panel data gotten from the annual reports and accounts of the 10 companies each listed in the consumer and industrial goods sectors in the Nigeria Exchange Group (NEG). The descriptive statistics of comprises of the minimum, maximum, mean and Std. Dev. Values

Table 4. 1: **Descriptive Statistics**
Descriptive Statistics for Consumer Goods Firms

	ROA	STDF	LTDF	TDF	DTEF	INCR
Mean	0.074136	0.405248	0.183401	0.547700	1.668332	-0.623087
Median	0.069874	0.343097	0.151373	0.529767	1.126609	-0.035815
Maximum	0.297832	2.501740	1.882400	4.384140	47.92299	0.247773
Minimum	-0.340632	-0.013399	0.006876	-0.504471	-2.982845	-54.63877
Std. Dev.	0.095528	0.382592	0.212679	0.501113	4.846010	5.463673
Skewness	-0.863266	3.483485	5.505437	4.975772	8.861233	-9.809035
Kurtosis	6.065540	17.75740	42.62625	37.43278	84.76089	97.47026
Jarque-Bera	51.57687	1109.665	7047.829	5352.707	29162.21	38789.57
Probability	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
Sum	7.413580	40.52482	18.34012	54.77000	166.8332	-62.30872
Sum Sq. Dev.	0.903434	14.49127	4.478005	24.86033	2324.897	2955.320
Observations	150	150	150	150	150	150

Descriptive Statistics for Industrial Goods Firms

	ROA	STDF	LTDF	TDF	DTEF	INCR
Mean	-6.167013	0.237922	0.681188	2.363343	0.508819	0.151785
Median	0.029331	0.110413	0.696838	2.058642	0.539965	0.008439
Maximum	13.35961	1.801022	1.375801	15.90025	1.072479	6.513081
Minimum	-260.3597	0.000671	0.056357	-13.04063	0.069330	-3.308286
Std. Dev.	37.27195	0.298048	0.211198	2.935466	0.243503	1.121484
Skewness	-6.335375	2.601325	0.302214	-0.626433	-0.108587	2.574657
Kurtosis	42.69527	12.24209	5.249751	13.86354	2.033071	18.26353
Jarque-Bera	7234.427	468.6823	22.61129	498.2758	4.092150	1070.399
Probability	0.000000	0.000000	0.000012	0.000000	0.129241	0.000000
Sum	-616.7013	23.79221	68.11879	236.3343	50.88192	15.02671
Sum Sq. Dev.	137530.7	8.794454	4.415866	853.0791	5.870080	123.2571
Observations	150	150	150	150	150	150

Source: E-VIEW Version 9.0 Output, 2023.

Table 4.1 compares representative ROA, STDF, LTDF, TDF, DTEF, and INCR figures for 15 NEG consumer and industrial goods businesses. The 15 consumer goods firms' ROA averaged 0.0741 from 2013 to 2022, with maximum and minimum values of 0.2978 and -0.3406, and a Std. Dev. value of 0.0955. This indicates 9.55% ROA volatility. The mean ROA for the ten industrial products enterprises was 1.1670, with maximum and minimum values of 13.3596 and 12.1360, and Std. Dev. of 0.7072. This indicates 70.72% ROA volatility. From 2013 to 2022, the ten

industrial enterprises had the largest volatility of 70.72%. STDF consumer goods enterprises had a minimum of -0.0134, a maximum of 2.5017, an average of 0.4052 and a Std. Dev. of 0.3826. This reveals that STDF volatility is 38.26% compared to the industrial goods sector, with a minimum of 0.0007, maximum of 1.8010, average of 0.2379, and Std. Dev. of 0.2980. This indicates 29.80% STDF volatility. It implies that consumer goods firms' STDF has increased far more than industrial goods firms'. LTDF is long-term debt/total assets. According to the descriptive statistics above, the 15 consumer goods enterprises LTDF have a minimum value of 0.0069, a maximum of 1.8824, an average of 0.1834 and a Std. Dev. of 0.2127 This indicates LTDF volatility at 21.27%. The 15 industrial goods enterprises LTDF have a minimum of 0.0564, a maximum of 1.3758, an average of 0.6812, and a Std. Dev. of 0.2112. This indicates 21.12% LTDF volatility. This shows that the 15 consumer goods firms from 2013 to 2022 had the highest volatility of 21.27%, meaning LTDF in consumer goods firms has increased significantly compared to industrial products firms. TDF consumer products enterprises had a minimum of -0.5045, a maximum of 4.3814, an average of 0.5477, and a Std. Dev. of 0.5011. TDF volatility is 50.11%, compared to the industrial goods sector's minimum value of -13.0406, maximum value of 15.9002, average value of 2.3633, and Std. Dev. value of 2.9355. TDF volatility is 293.55%, implying that industrial goods enterprises have a far higher TDF than consumer goods firms. Additionally, DTEF consumer products enterprises had a minimum value of -2.9828, a high of 47.9230, an average of 2.9597, and a Std. Dev. of 4.8460 In contrast to the industrial goods sector, DTEF volatility is 484.60%, with a low of 0.0693, a maximum of 1.0725, an average of 0.5088, and a Std. Dev. of 0.2435. This shows consumer goods firms' DTEF volatility at 484.60%. It implies that consumer goods firms' DTEF has increased far more than industrial products firms'. Finally, INCR consumer goods enterprises had a minimum of -54.6388, a maximum of 0.2478, an average of -0.6231, and a Std. Dev. of 5.4637. Compared to the industrial goods industry, INCR volatility is 546.37%, with a minimum of -3.3083, a maximum of 6.5131, an average of 0.1518, and a Std. Dev. of 1.1215. Industrial goods enterprises have 112.15% INCR volatility. It implies that consumer goods firms' DTEF has increased far more than industrial products firms'. In conclusion, the Std. Dev. demonstrates that INCR is the most volatile variable in consumer goods companies and ROA in industrial products enterprises.

Table 4.2: Correlation output
Correlation Output for Consumer Goods Firms

	ROA	STDF	LTDF	TDF	DTEF	INCR
ROA	1.000000					
STDF	-0.506154	1.000000				
LTDF	-0.242963	0.358915	1.000000			
TDF	-0.463052	0.701874	0.720154	1.000000		
DTEF	-0.478682	0.549831	0.814242	0.803847	1.000000	
INCR	-0.058745	0.080809	-0.037055	0.113031	0.036508	1.000000

Correlation Output for Industrial Goods Firms

	ROA	STDF	LTDF	TDF	DTEF	INCR
ROA	1.000000					
STDF	-0.125124	1.000000				

LTDF	0.091451	-0.024743	1.000000			
TDF	0.058526	-0.140406	0.234633	1.000000		
DTEF	0.281045	-0.410034	0.622509	0.178463	1.000000	
INCR	0.023190	0.039212	-0.054986	-0.024057	-0.128261	1.000000

Source: E-VIEW Version 9.0 Output, 2023.

In Table 4.2, which showed the correlation output for consumer and industrial goods firms from 2013 to 2022, STDF ($r=-0.5062$), LTDF ($r=-0.2430$), TDF ($r=-0.4631$), DTEF ($r=-0.4787$), and INCR ($r=-0.0587$) are negatively correlated with ROA. All coefficients for consumer and industrial products firm variables are below 0.7, indicating no multi-collinearity.

Table 4.3: Variance Inflation Factors Multicollinearity Test

Variable	Consumer Goods Firms		Industrial Goods Firms	
	Coefficient Variance	Centered VIF	Coefficient Variance	Centered VIF
C	1.103524	NA	172.3182	NA
STDF	0.852440	1.272622	208.8837	1.368271
LTDF	3.539042	2.024296	576.5466	1.898371
TDF	0.000384	1.268425	1.698351	1.080169
DTEF	3.829333	2.273202	511.8506	2.222789
INCR	0.002347	1.039378	11.04479	1.018593

Source: EVIEW, 9.0 Outputs, 2023.

In Table 4.3, the multicollinearity test was performed on panel data to see if it was present. Two or more highly correlated independent variables in multivariate regression models indicate multicollinearity. To ensure the validity of this study's results, the variance inflation factor (VIF) was computed as shown in Table 4.3.2. The Centred Variance Inflation Factor (CVIF) statistics for all independent variables consistently lie between 1.2726, 2.0243, 1.2684, 2.2732, and 1.0394 for STDF, LTDF, TDF, DTEF, and INCR for consumer goods firms and 1.3683, 1.8984, 1.0802, 3.6988, and 8.3435 for STD for The variables under consideration have no multicollinearity issues because their VIF values are below 10. When VIF exceeds 10, multicollinearity is suspected.

**Table 4.4: Data Validity Test
Consumer Goods Firms**

Breusch-Godfrey Serial Correlation LM Test:

F-statistic	1.120448	Prob. F(2,14)	0.3537
Obs*R-squared	2.897549	Prob. Chi-Square(2)	0.2349
		Durbin-Watson stat	1.660951

Heteroskedasticity Test: Breusch-Pagan-Godfrey

F-statistic	1.822188	Prob. F(4,16)	0.1739
Obs*R-squared	6.572435	Prob. Chi-Square(4)	0.1603
Scaled explained SS	2.691619	Prob. Chi-Square(4)	0.6107

Durbin-Watson stat 1.428003

Ramsey RESET Test

Equation: UNTITLED

Specification: LADSMEs C NMS BMS INTR MPR

Omitted Variables: Squares of fitted values

	Value	Df	Probability
t-statistic	4.865551	15	0.1302
F-statistic	23.67358	(1, 15)	0.2102
Likelihood ratio	19.88924	1	0.1240

Industrial Goods Firms

Breusch-Godfrey Serial Correlation LM Test:

F-statistic	1.180403	Prob. F(2,91)	0.3118
Obs*R-squared	2.503405	Prob. Chi-Square(2)	0.2860

Heteroskedasticity Test: Breusch-Pagan-Godfrey

F-statistic	1.586685	Prob. F(5,93)	0.1715
Obs*R-squared	7.781457	Prob. Chi-Square(5)	0.1687
Scaled explained SS	123.5253	Prob. Chi-Square(5)	0.9254

Ramsey RESET Test

Equation: UNTITLED

Specification: ROA C STDF LTDF TDF DTEF INCR

Omitted Variables: Squares of fitted values

	Value	Df	Probability
t-statistic	2.198808	92	0.0704
F-statistic	4.834757	(1, 92)	0.0804
Likelihood ratio	5.070523	1	0.0743

Source: E-VIEW, 9.0 Outputs, 2023.

The serial correlation LM test in Table 4.4 shows that the models have no serial correlation because the p-values of the f-statistics are insignificant at 5% for all variables for NEG firms listed in the consumer and industrial goods sector. The models have no heteroskedasticity issues because the p-values of the f-statistics are insignificant at 5% for all variables for NEG enterprises listed in consumer and industrial products. Finally, five parameter probability values above 0.05 indicate that the model is homoskedastic. Ramsey test results show that our model is correctly stated and stable for regression analysis for all variables for NEG consumer and industrial products enterprises.

Table 4.5: Panel Unit Root Test Result

Consumer Goods Firms					
Variable s	Method	Statistic s	Probabilit y	@Ist Diff.	Check for Stationar y
ROA	Levin, Lin & Chu Test	- 6.24749	0.0000	1(1)	Stationary
	Im Pesaran and Shin W-Test	- 2.81823	0.0024	1(1)	Stationary
	Augmented Dicker-Fuller's Test	45.0933	0.0011	1(1)	Stationary
	PP Fisher Test	94.0442	0.0000	1(1)	Stationary
SDF	Levin, Lin & Chu Test	- 0.62771	0.0451	1(1)	Stationary
	Im Pesaran and Shin W-Test	- 0.51696	0.0026	1(1)	Stationary
	Augmented Dicker-Fuller's Test	27.7344	0.0158	1(1)	Stationary
	PP Fisher Test	67.4039	0.0000	1(1)	Stationary
LTDF	Levin, Lin & Chu Test	- 5.85313	0.0000	1(1)	Stationary
	Im Pesaran and Shin W-Test	- 1.78392	0.0372	1(1)	Stationary
	Augmented Dicker-Fuller's Test	36.9519	0.0119	1(1)	Stationary
	PP Fisher Test	77.6351	0.0000	1(1)	Stationary
TDF	Levin, Lin & Chu Test	- 11.4614	0.0000	1(1)	Stationary
	Im Pesaran and Shin W-Test	- 3.23164	0.0006	1(1)	Stationary
	Augmented Dicker-Fuller's Test	50.7451	0.0002	1(1)	Stationary
	PP Fisher Test	73.1452	0.0000	1(1)	Stationary
DTEF	Levin, Lin & Chu Test	- 4.37271	0.0000	1(1)	Stationary
	Im Pesaran and Shin W-Test	- 1.99186	0.0232	1(1)	Stationary
	Augmented Dicker-Fuller's Test	40.1714	0.0048	1(1)	Stationary
	PP Fisher Test	97.5381	0.0000	1(1)	Stationary
INCR	Levin, Lin & Chu Test	- 10.8533	0.0000	1(1)	Stationary

	Im Pesaran and Shin W-Test	- 4.59866	0.0000	1(1)	Stationary
	Augmented Dicker-Fuller's Test	62.1792	0.0000	1(1)	Stationary
	PP Fisher Test	89.1666	0.0000	1(1)	Stationary
Industrial Goods Firms					
ROA	Levin, Lin & Chu Test	- 13.2194	0.0000	1(1)	Stationary
	Im Pesaran and Shin W-Test	- 5.73364	0.0000	1(1)	Stationary
	Augmented Dicker-Fuller's Test	73.9746	0.0000	1(1)	Stationary
	PP Fisher Test	91.5354	0.0000	1(1)	Stationary
SDF	Levin, Lin & Chu Test	- 8.16974	0.0000	1(1)	Stationary
	Im Pesaran and Shin W-Test	- 4.65259	0.0000	1(1)	Stationary
	Augmented Dicker-Fuller's Test	63.2308	0.0000	1(1)	Stationary
	PP Fisher Test	87.2838	0.0000	1(1)	Stationary
LTDF	Levin, Lin & Chu Test	- 12.0562	0.0000	1(1)	Stationary
	Im Pesaran and Shin W-Test	- 6.54780	0.0000	1(1)	Stationary
	Augmented Dicker-Fuller's Test	83.5567	0.0000	1(1)	Stationary
	PP Fisher Test	112.491	0.0000	1(1)	Stationary
TDF	Levin, Lin & Chu Test	- 10.5586	0.0000	1(1)	Stationary
	Im Pesaran and Shin W-Test	- 6.27968	0.0000	1(1)	Stationary
	Augmented Dicker-Fuller's Test	80.5769	0.0000	1(1)	Stationary
	PP Fisher Test	122.730	0.0000	1(1)	Stationary
DTEF	Levin, Lin & Chu Test	- 12.4482	0.0000	1(1)	Stationary
	Im Pesaran and Shin W-Test	- 8.05029	0.0000	1(1)	Stationary
	Augmented Dicker-Fuller's Test	95.3220	0.0000	1(1)	Stationary
	PP Fisher Test	114.552	0.0000	1(1)	Stationary

INCR	Levin, Lin & Chu Test	- 10.5586	0.0000	1(1)	Stationary
	Im Pesaran and Shin W-Test	- 6.27968	0.0000	1(1)	Stationary
	Augmented Dicker-Fuller's Test	80.5769	0.0000	1(1)	Stationary
	PP Fisher Test	122.730	0.0000	1(1)	Stationary

Source: E-Views 9.0 Output (2023).

Table 4.5 summarises the panel unit root test for the independent variables STDF, LTDF, TDF, DTEF, and INCR and the dependent variable ROA for the ten NEG consumer and industrial goods companies. Reject the null hypothesis if the Levin, Lin & Chu Test, Im Pesaran and Shin W-Test, Augmented Dicker-Fuller's Test, and PP Fisher Test yield probability values below the critical value at any significance level. Table 4.3a shows that Levin, Lin & Chu Test, Im Pesaran and Shin W-Test, Augmented Dicker-Fuller's Test, and PP Fisher Test for 15 consumer and industrial goods businesses have probability values below 0.05. The data is not stationary and the data series are normally distributed and suited multiple regression.

Table 4.6: Pedroni Panel Cointegration Test Results

Consumer Goods Firms					
Panel Statistics			Group Statistics		
Panel	Statistics	Probability	Group	Statistics	Probability
v-Statistic	-1.729924	0.9582	rho-Statistic	5.027670	1.0000
rho-Statistic	3.065252	0.9989	PP-Statistic	-4.766158	0.0000
PP-Statistic	-3.036246	0.0004	ADF-Statistic	0.207680	0.0223
ADF-Statistic	3.020930	0.0087			
Industrial Goods Firms					
Panel Statistics			Group Statistics		
Panel	Statistics	Probability	Group	Statistics	Probability
v-Statistic	-0.433495	0.6677	rho-Statistic	3.502333	0.9998
rho-Statistic	1.958174	0.9749	PP-Statistic	-5.814478	0.0000
PP-Statistic	-17.96553	0.0000	ADF-Statistic	-3.205148	0.0007
ADF-Statistic	-8.315307	0.0000			

Source: E-VIEW, 9.0 Outputs, 2023.

Table 4.6 shows that Pedroni panel cointegration test results for panel and group statistics with denotes statistical significance at 5% (0.05). The coefficients of panel statistics for v, panel PP, panel ADF, and group PP statistics and ADF were significant at 5%. Since panel v, panel PP, and group PP were statistically significant, the null hypothesis of no cointegration between variables

was rejected in all situations. Panel cointegration tests indicate a long-term link between the variables, indicating stationary data suitable for multiple regressions.

Table 4.4.1: Multiple Regression Result

Panel Least Squares Regressions for Consumer Goods Firms

Dependent Variable: ROA

Method: Panel Least Squares

Date: 08/20/23 Time: 08:10

Sample: 2013 2022

Periods included: 10

Cross-sections included: 10

Total panel (balanced) observations: 150

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.098145	0.015894	6.174857	0.0000
STDF	-0.065125	0.030854	-2.110740	0.0374
LTDF	0.174707	0.070078	2.493026	0.0144
TDF	-0.019815	0.033547	-0.590664	0.5562
DTEF	-0.011212	0.003387	-3.310480	0.0013
INCR	0.000162	0.001479	0.109446	0.9131
R-squared	0.357359	Mean dependent var	0.074136	
Adjusted R-squared	0.323176	S.D. dependent var	0.095528	
S.E. of regression	0.078590	Akaike info criterion	-2.191015	
Sum squared resid	0.580583	Schwarz criterion	-2.034705	
Log likelihood	115.5507	Hannan-Quinn criter.	-2.127753	
F-statistic	10.45430	Durbin-Watson stat	1.939342	
Prob(F-statistic)	0.000000			

Panel Least Squares Regressions for Industrial Goods Firms

Dependent Variable: ROA

Method: Least Squares

Date: 08/20/23 Time: 07:14

Sample: 1 100

Included observations: 150

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-20.43843	13.12700	-1.556976	0.1229
STDF	4.471941	14.45281	0.309417	0.7577
LTDF	-28.05791	24.01138	-1.168525	0.2456
TDF	0.400062	1.303208	0.306982	0.7595
DTEF	61.13189	22.62411	2.702068	0.0082
INCR	2.162990	3.323371	0.650842	0.5168

R-squared	0.095988	Mean dependent var	-6.229543
Adjusted R-squared	0.047385	S.D. dependent var	37.45636
S.E. of regression	36.55816	Akaike info criterion	10.09438
Sum squared resid	124294.4	Schwarz criterion	10.25166
Log likelihood	-493.6717	Hannan-Quinn criter.	10.15801
F-statistic	1.974939	Durbin-Watson stat	1.828396
Prob(F-statistic)	0.089569		

Source: E-VIEW Version 9.0 Output, 2023.

The consumer and industrial products firms' STDF p-values are 0.0374 and 0.7577, respectively, less than 0.05 but greater than 0.05. STDF has a negative trend with consumer goods ROA and a positive trend with industrial products ROA in Nigeria. STDF helps companies fund working capital, manage cash flow, and seize growth opportunities. However, significant short-term loan use may raise interest costs, affecting profitability and ROA. STDF influences ROA vary by industry, company rules, and market. To make intelligent STDF decisions, Nigerian consumer and industrial products companies must thoroughly examine their financial mix, credit access, and financial needs, considering both positives and downsides. Overreliance on short-term debt may increase lender and credit rating agency risk. The company's capacity to acquire excellent financing may suffer, affecting ROA. This finding is supported by Obumneme, Taiwo, Victor, and Nurudeen (2023), Abubakar (2020), Kithandi and Katua (2020), Olarewaju (2019), and Alamgir, Abdullah & Khalid (2019), but not by Owonye (2023).

Consumer and industrial products companies have LTDF p-values of 0.0144 and 0.2456, respectively, below 0.05 and above 0.005. In Nigeria, LTDF has a positive trend with consumer goods ROA and a negative trend with industrial products ROA. LTDF helps companies maintain their financial mix, reducing refinancing risks and enhancing stability. If companies fail to make enough money from their long-term investments or face adverse market conditions, long-term debt can reduce profitability and ROA. This conclusion corresponds with Oke and Fadaka (2021), Kithandi and Katua (2020), Adegboyega, Jayeola, Kajola & Asaolu (2019), Obumneme, Taiwo, Victor, and Nurudeen (2023), but not Owonye, Abubakar, Zachary, James, and James (2019).

TDF p-values for consumer and industrial products enterprises are 0.5562 and 0.7595, respectively, above 0.05. TDF coefficients are -0.0198 and 0.0585 for consumer and industrial goods firms in Nigeria, respectively, demonstrating a negative trend with ROA for consumer goods firms and a positive trend for industrial goods firms. Consumer and industrial goods companies must balance short-term and long-term debt based on financial needs, risk tolerance, and profitability. Optimisation of ROA in Nigeria's dynamic business climate needs a prudent loan mix and continuous monitoring of liquidity, interest rate changes, and market conditions. The contrary was found by Owonye (2023), Abubakar (2020), Okonkwo, Adigwe, Ezu, and Oko (2020), Aziz & Abbas (2019).

Consumer and industrial products firms had DTEF p-values below 0.05: 0.0013 and 0.0082. DTEF coefficients of 2.2732 and 61.1319 for Nigerian consumer and industrial products companies imply positive ROA. Debt financing can fund investments with higher returns than loans. If firms employ debt to finance productive assets or activities and returns exceed interest payments, ROA can improve. This increases financial risk and must be managed to avoid issues. Equity capital allows management discretion. Equity money has no repayment or interest conditions. This

flexibility lets companies spend money according to strategic goals, potentially enhancing ROA. Equity financing influences ROA differentially by industry, development expectations, and financial management. Market conditions and economic stability may also effect results. Thus, to identify how equity financing affects Nigerian consumer and industrial products enterprises, ROA must be studied. We agree with Owonye (2023), Okonkwo, Adigwe, Ezu, and Oko (2020), Oke and Fadaka (2021), Kithandi and Katua (2020), Adegboyega, Jayeola, Kajola, & Asaolu (2019), but not Abubakar, Zachary, James (2019).

INCR p-values for consumer and industrial products enterprises are 0.9131 and 0.5168, respectively, exceeding 0.05. Consumer and industrial products firms' INCR coefficients are 0.0002 and 2.1630, respectively, demonstrating a positive ROA trend in Nigeria. Temporary debt has higher interest rates than permanent debt. Higher borrowing costs may harm consumer and industrial goods manufacturers' ROA. Higher interest costs reduce net income and ROA. TDF may raise interest costs, decreasing profitability and ROA. This backs Asaolu (2021) but contradicts Dabo (2020).

Conclusion

A balanced financial mix optimises a firm's capital structure and boosts financial performance. The company's cost of capital and financial risk depend on its debt-equity ratio. This study compared the financial composition and financial performance of 15 Nigeria Exchange Group-listed consumer and industrial products corporations from 2013 to 2022. STDF has a negative and significant effect on ROA of listed consumer goods firms while positive and insignificant on ROA of listed industrial goods firms in Nigeria; LTDF has a positive and significant effect on ROA of listed consumer goods firms while negative and insignificant on ROA of listed industrial goods firms; and TDF has a negative and insignificant effect. Financial mix has conflicting effects on Nigeria's listed consumer and industrial products sectors, according to the report.

Recommendations

The paper suggests using STDF to short-term business plans in Nigerian consumer and industrial goods companies to enhance their visibility in financial mix decisions, which can impact ROA.

ii). Nigerian consumer and industrial products enterprises' long-term business plans should use LTDF to maximise earnings and produce reasonable debt utility.

TDF has a negative and positive effect on firms' ROA, according to this study's panel regression. Choosing the right debt mix can boost consumer and industrial products enterprises' performance.

iv) NEG-listed consumer and industrial goods corporations should enhance their equity debt-equity mix to boost ROA. Firms should strive for the appropriate blend to meet their overall goal.

v) NEG-listed consumer and industrial goods enterprises should decrease their usage of STDF in financial choices since it draws high interest rates and lowers ROA.

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