FUDMA Journal of Accounting and Finance Research, 4(2). ISSN: 2992-4693 (Online); 2992-2704 (Print)

Effect of tax on the profitability of listed consumer goods firms in Nigeria

Romanus Chukwuma Ike[1]*, Barnabas Maduabuchi Ibekwe[2]
[1]*Department of Accounting, Business Administration and Economics, Admiralty University of Nigeria, Ibuza, Delta State*
[2]*Department of Maritime Economics and Finance, College of Maritime and Offshore Studies, Federal University of Petroleum Resources, Effurun, Warri, Delta State, Nigeria*
**Corresponding author: ikeromanus406@gmail.com*
https://doi.org/10.33003/fujafr-2026.v4i2.336.74-91

Abstract
Purpose: This study examined the effect of taxation on the profitability of listed consumer goods firms in Nigeria over the period 2015–2024.
Methodology: An ex-post facto research design was adopted. A purposive sampling technique was used to select 13 firms out of the 21 listed consumer goods firms, resulting in a balanced panel dataset of 130 firm-year observations. The study relied solely on secondary data obtained from published annual reports and audited financial statements of firms listed on the Nigerian Exchange Group. Profitability was measured using return on assets (ROA), while taxation was proxied by company income tax (CIT), effective tax rate (ETR), withholding tax (WHT), and tax incentives (TINC), with firm size as a control variable. Data was analyzed using descriptive statistics, correlation, and panel regression (Fixed and Random Effects), with the Hausman test guiding model selection.
Results and conclusion: Findings showed moderate profitability and no multicollinearity. The Fixed Effects Model was preferred. CIT, WHT, tax incentives, and firm size had positive significant effects on ROA, while ETR had a negative significant effect. The study concluded that taxation significantly influenced profitability.
Implication of findings: Sustained tax incentive policies are essential for enhancing profitability and growth.

Keywords: Company income tax, Consumer goods firms, Effective tax rate, Nigeria, Profitability, Taxation, Tax incentives, Withholding tax.

1. Introduction

Taxation constitutes a fundamental component of fiscal policy and serves as a major source of government revenue for financing public infrastructure, social services, and economic development. In developing economies such as Nigeria, corporate taxation plays a critical role in shaping business operations, investment behaviour, and firm performance. Empirical evidence suggests that corporate taxes significantly influence firms' financial outcomes, although the magnitude and direction of this influence vary across sectors and tax structures. For instance, Christiana and Francis (2025) reported that company income tax had a positive and statistically significant relationship with the financial performance of consumer goods firms in Nigeria, while withholding tax also showed a significant positive effect, whereas capital gains tax exhibited a negative but insignificant relationship. Similarly, Mauda and Saidu (2019) found that tax incentives such as capital allowance and loss relief positively and significantly affected firm performance.

The consumer goods sector remains strategically important to Nigeria's economy due to its contribution to employment, industrial output, and household consumption. However, firms in this sector operate within a complex tax environment involving company income tax, withholding tax, and other statutory levies, which can directly or indirectly influence profitability. While some studies highlight the benefits of taxation through improved institutional frameworks, others emphasize its cost implications. For example, Edemeka and Umo (2024) found that tax incentives and debt tax shields significantly enhanced return on assets, whereas effective tax rate had a negative but insignificant effect. Conversely, Olanisebe

et al. (2025) reported that effective tax rate and cash effective tax rate did not significantly influence financial performance. These mixed findings underscore the complexity of the taxation–profitability relationship.

Further evidence from related studies reinforces this inconsistency. Paul et al. (2025) observed that depreciation tax shield and thin capitalization improved return on capital employed, while effective tax rate maintained a negative but insignificant relationship with profitability. Etim et al. (2024) also found that tax holidays and tax credits positively influenced net profit margin, whereas investment allowance showed no significant effect. Beyond firm-level performance, broader fiscal and institutional dynamics also shape tax outcomes. Oyewumi (2025) demonstrated that infrastructural development significantly influenced taxpayers' satisfaction and compliance behaviour among SMEs in Lagos State, with satisfaction mediating this relationship. Similarly, Olumoh et al. (2026) found that tax innovation significantly enhanced the financial sustainability of the Nigeria Revenue Service, while capacity building played a moderating role.

In addition, firm-specific financial indicators remain relevant in explaining performance outcomes within the sector. Tirimisiyu et al. (2025) showed that accounting ratios such as earnings per share, return on assets, and current ratio explained about 36% of variations in stock prices of quoted consumer goods firms in Nigeria, highlighting the importance of financial fundamentals alongside macroeconomic variables.

Despite the growing body of empirical literature, notable gaps persist. Many studies focus on short periods, isolated tax variables, or broader sectors, thereby limiting their applicability to listed consumer goods firms. Moreover, the inconsistency in findings suggests that the relationship between taxation and profitability is neither straightforward nor uniform across tax instruments and firm characteristics. Consequently, there is a need for a comprehensive and updated investigation that jointly examines key taxation variables and profitability over an extended period. This study therefore examines the effect of taxation on the profitability of listed consumer goods firms in Nigeria from 2015 to 2024.

2. Literature review

Company income tax and profitability

Company income tax represents a direct charge on corporate profits and constitutes a major determinant of firms' net earnings. The relationship between company income tax and profitability has generated extensive debate in empirical literature, with evidence suggesting that the effect may be either positive or negative depending on the economic environment, tax administration efficiency, and utilization of tax revenues. From a cost perspective, higher company income tax reduces the residual profits available to firms. However, from a broader economic standpoint, tax revenues may support infrastructure development, market stability, and institutional efficiency, which can indirectly enhance firm profitability. Empirical evidence from Nigeria presents mixed findings. Christiana and Francis (2025) found that company income tax exerted a positive and statistically significant effect on the financial performance of consumer goods firms in Nigeria, suggesting that compliance with corporate tax obligations may be associated with improved operating conditions and enhanced firm performance. Similarly, Onigbinde et al. (2024) reported a significant relationship between corporate income tax and the financial performance of SME holders, reinforcing the relevance of company income tax to firm outcomes. Conversely, Adewole (2023) observed that company income tax had a negative and statistically significant impact on dividend per share of deposit money banks in Nigeria, indicating that the effect of company income tax on profitability-related outcomes may vary across sectors. These mixed results underscore the need for further empirical investigation within the consumer goods sector.

H1: Company income tax has no significant effect on the Return of Asset of listed consumer goods firms in Nigeria.

Effective tax rate and profitability

The effective tax rate captures the actual tax burden borne by firms after accounting for tax planning strategies, allowances, and incentives. As a comprehensive measure of tax exposure, ETR is widely used in empirical studies to assess the impact of taxation on profitability. A lower effective tax rate is generally expected to enhance profitability by reducing tax-related costs. However, empirical findings do not consistently support this expectation. Olanisebe et al. (2025) found that effective tax rate had no statistically significant impact on the financial performance of listed consumer goods firms in Nigeria, suggesting that reductions in ETR may not automatically translate into improved profitability. Similarly, Edemeka and Umo (2024) documented a negative but insignificant relationship between ETR and return on assets, while Paul et al. (2025) reported a negative and insignificant relationship between effective tax rate and return on capital employed. These findings imply that although ETR reflects tax planning outcomes, other factors such as operational efficiency, cost management, and market competitiveness may exert stronger influences on firm profitability than tax burden alone. Ike and Ibhawaegbele (2025) postulate that by enforcing arm's length principle, which ensures that inter-group transactions affect market price.

H2: Effective tax rate has no significant effect on the Return of Asset of listed consumer goods firms in Nigeria.

Withholding tax and profitability

Withholding tax is an advance payment of income tax deducted at source on qualifying transactions, including contracts, dividends, interest, and rent. While withholding tax does not represent an additional tax burden in principle, it affects firms' cash flow and liquidity, thereby influencing profitability indirectly. Efficient management of withholding tax credits and timely reconciliation are therefore critical for sustaining firm profitability. Empirical evidence suggests that withholding tax can have a significant relationship with profitability. Christiana and Francis (2025) found that withholding tax had a positive and statistically significant effect on the financial performance of consumer goods firms in Nigeria. This indicates that effective withholding tax administration may enhance financial reporting quality and tax compliance, thereby supporting profitability. However, delays in credit utilization or excessive deductions may constrain working capital and negatively affect firms with high transaction volumes. Thus, the impact of withholding tax on profitability depends largely on firms' tax management efficiency and regulatory compliance.

H3: Withholding tax has no significant effect on the Return of Asset of listed consumer goods firms in Nigeria.

Tax incentives and profitability

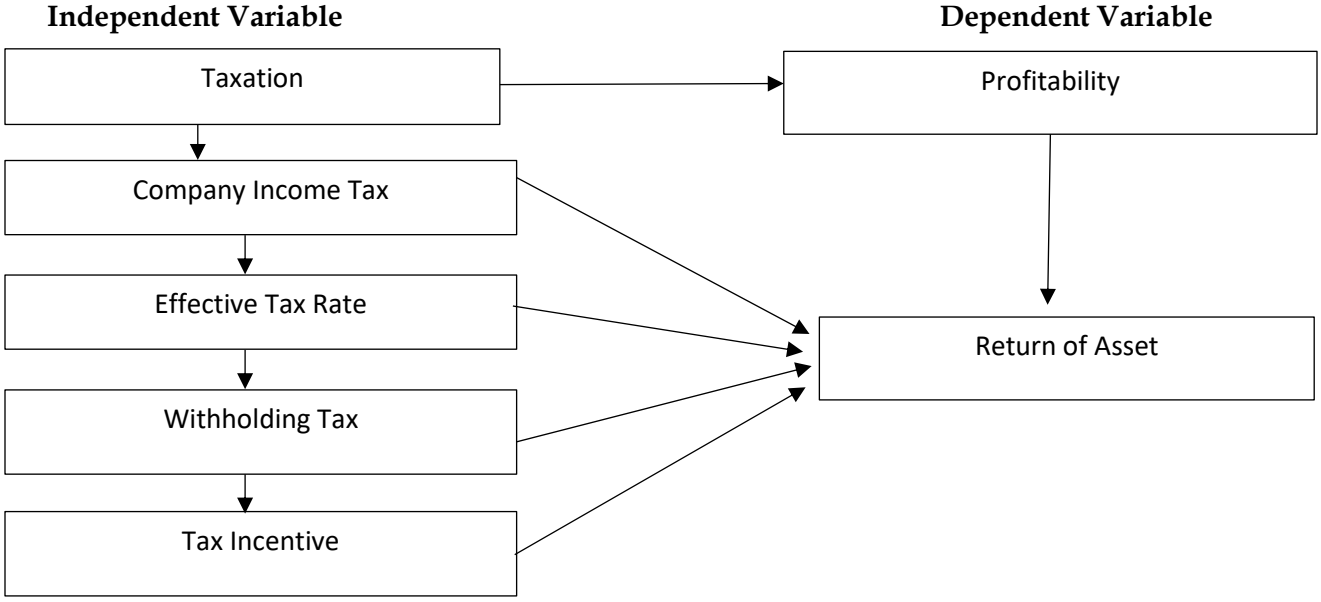
Tax incentives are fiscal policy instruments designed to reduce firms' tax liabilities and encourage investment, production, and economic growth. In Nigeria, tax incentives include tax holidays, capital allowances, investment allowances, tax credits, and loss reliefs. These incentives aim to improve firms' cash flows and profitability by lowering effective tax burdens. Empirical studies consistently highlight the positive role of tax incentives in enhancing firm profitability. Etim et al. (2024) reported that tax holidays and tax credits had positive effects on the net profit margin of manufacturing firms in Nigeria, while investment allowance showed no significant impact. Similarly, Mauda and Saidu (2019) found that capital allowance and loss relief significantly improved the financial performance of listed consumer

goods firms. Edemeka and Umo (2024) also observed that tax incentives exerted a significant positive effect on return on assets of listed consumer goods firms in Nigeria. These findings suggest that tax incentives constitute an important mechanism through which government fiscal policy can enhance firm profitability and promote sustainable industrial growth.

H4: Tax incentives have no significant effect on the Return of Asset of listed consumer goods firms in Nigeria.

Firm size and profitability

Firm size typically measured using total assets, total sales, or market capitalization, reflects the scale of a firm's operations and resource base and is widely recognized as an important determinant of profitability. Larger firms often benefit from economies of scale, diversified product lines, stronger market power, better access to capital, and enhanced managerial capabilities, which can positively influence financial performance. In the context of taxation, firm size may affect profitability through greater capacity for tax planning, utilization of tax incentives, and compliance with regulatory requirements, thereby mitigating the adverse effects of tax burdens (Omesi & Appah, 2021; Muhammed, 2022). Empirical studies present mixed evidence: Omesi and Appah (2021) reported a positive but insignificant relationship between firm size and firm value among listed consumer goods firms in Nigeria, while Muhammed (2022) observed positive but insignificant effects of size-related variables such as capital structure and capital intensity on financial performance. Conversely, Ebimobowei (2022) found that firm size, proxied through governance attributes, positively influenced bank value. In the consumer goods sector, firm size may moderate the effect of taxation on profitability, as larger firms are more likely to leverage tax incentives and internal controls to enhance performance, whereas smaller firms may face higher relative compliance costs and limited access to tax benefits. Consequently, this study incorporates firm size as a control variable to isolate the net effect of taxation on the profitability of listed consumer goods firms in Nigeria.



Theoretical review

The theoretical framework provides the foundation for understanding the relationship between taxation and the profitability of listed consumer goods firms. Several economic and corporate finance theories

explain how taxes influence firm behavior, performance, and decision-making. This study draws on three major theories: the Ability-to-Pay Theory, the Benefit-Received Theory, and the Agency Theory, each of which offers insights into taxation and corporate profitability.

The Ability-to-Pay Theory, rooted in classical fiscal economics, posits that taxes should be levied based on the taxpayer's capacity to pay. In the corporate context, this implies that firms with higher earnings, larger asset bases, or greater profitability should bear a proportionately higher tax burden. The theory emphasizes fairness in tax administration and recognizes that firms' financial resources determine their capacity to comply with tax obligations without compromising operational efficiency. Applied to the Nigerian consumer goods sector, the Ability-to-Pay Theory suggests that taxation should be structured to reflect firms' earnings and financial capacity, ensuring that tax compliance does not excessively erode profitability. Empirical studies support the relevance of this theory in understanding the link between taxation and profitability. Christiana and Francis (2025) observed that company income tax and withholding tax had significant effects on the financial performance of listed consumer goods firms in Nigeria, implying that firms' ability to meet tax obligations influences profitability outcomes. Similarly, Onigbinde et al. (2024) noted that firms with stronger financial capacity were better positioned to comply with corporate tax requirements and benefit from fiscal incentives, thereby sustaining profitability. Thus, the Ability-to-Pay Theory provides a conceptual basis for examining how tax structures affect firm earnings and financial performance.

The Benefit-Received Theory argues that taxes should correspond to the benefits or services received by taxpayers from government expenditures. In essence, firms pay taxes in exchange for infrastructure, security, regulatory support, and public goods that enhance their operational environment. According to this theory, the financial performance of firms is expected to improve when taxation is efficiently deployed to provide benefits that support business activities. In the Nigerian context, listed consumer goods firms operate in an environment where government investments in infrastructure, power, and regulatory frameworks can significantly influence profitability. Christiana and Francis (2025) and Mauda and Saidu (2019) reported that taxes collected from firms contribute indirectly to improved market conditions, which enhance firm performance. Similarly, Etim et al. (2024) highlighted that firms benefit from tax incentives, including tax holidays and capital allowances, which are government initiatives designed to encourage investment and productivity. The Benefit-Received Theory therefore underpins the notion that taxation is not merely a cost to firms but a mechanism that, if effectively managed, can contribute to profitability.

Agency Theory, developed by Jensen and Meckling (1976), examines the relationship between principals (shareholders) and agents (managers) and highlights potential conflicts of interest that may arise when managers pursue personal objectives at the expense of shareholders. In the context of taxation, managers may engage in tax planning, avoidance, or aggressive tax strategies to reduce liabilities, sometimes conflicting with the firm's long-term profitability objectives or regulatory compliance requirements. Empirical studies reveal that agency considerations influence how taxation affects profitability. Tanko (2020) found that profitability moderated the relationship between ownership structure and tax avoidance, indicating that managers' decisions on tax compliance can affect firm earnings. Similarly, Olanisebe et al. (2025) and Edemeka and Umo (2024) showed that effective tax planning strategies, when aligned with shareholder interests, can enhance profitability by optimizing tax liabilities without breaching legal requirements. Agency Theory thus provides a lens through which taxation, managerial behavior, and firm profitability can be jointly analyzed, highlighting the role of internal governance and oversight in achieving financial performance. Furthermore, agency theory believes that managers

(agents) may act and make informed decisions in an opportunistic manner which may conflict with the objectives of the owners and therefore destroy shareholders value (Ike, Adeneye and Anuolam 2024)

Synthesis

The three theories collectively provide a robust conceptual foundation for this study. The Ability-to-Pay Theory emphasizes fairness and firms' capacity to meet tax obligations; the Benefit-Received Theory underscores the productive value of taxation in improving the operational environment; and Agency Theory highlights managerial discretion and governance in tax planning. Together, these theories explain how taxation influences profitability, justifying the selection of company income tax, effective tax rate, withholding tax, and tax incentives as independent variables, and profitability as the dependent variable in this study.

Empirical review

Christiana and Francis (2025) examined company income tax, capital gains tax, and withholding tax on financial performance in five Nigerian consumer goods firms (2019–2023). Company income tax (Coeff = 0.4283; p = 0.005) and withholding tax (Coeff = 0.1923; p = 0.000) had positive and significant effects, while capital gains tax was negative but insignificant. The study recommended educating firms on tax management strategies. Olanisebe et al. (2025) assessed corporate tax planning in 16 listed consumer goods firms (2015–2024) and found that Effective Tax Rate (ETR) and Cash Effective Tax Rate (CETR) had insignificant impacts on financial performance, suggesting firms focus on operational efficiency rather than solely reducing ETR/CETR. Paul et al. (2025) investigated tax savings and financial performance in 24 listed non-financial firms (2014–2023). Thin capitalization and depreciation tax shield positively influenced profitability, while effective tax rate had an insignificant negative effect. Capital intensity significantly improved performance.

Etim et al. (2024) analyzed tax incentives in three industrial firms (2013–2023) and found tax holidays positively affected net profit margin, tax credits had moderate positive effects, while investment allowance was insignificant. Mauda and Saidu (2019) similarly reported that capital allowance and loss relief significantly enhanced performance, while investment allowance was insignificant. Edemeka and Umo (2024) studied 18 listed consumer goods firms (2013–2022). Tax incentives and debt tax shield significantly increased return on assets, while effective tax rate and capital intensity had insignificant effects. Onigbinde et al. (2024) examined SMEs in Oyo State and found corporate income tax and capital allowance significantly influenced financial performance, reinforcing the value of targeted tax incentives. Adewole (2023) analyzed company income tax, education tax, and profit after tax on dividend policy in five Nigerian banks (2012–2020). Company income tax and education tax negatively affected dividends, while profit after tax positively influenced dividends, suggesting careful tax planning and use of tax reliefs.

Kodzo and Sarpong (2024) studied corporate taxation planning and financial performance in Ghanaian banks (2012–2021). Tax planning had no significant effect on performance, indicating that reducing tax liabilities did not automatically enhance profitability. Tsegba et al. (2021) analyzed tax incentives on investment performance in 12 listed Nigerian manufacturing firms (2015–2019). Tax-exempt income significantly improved return on investment, while loss relief negatively affected investment outcomes. Omesi and Appah (2021) examined corporate tax planning in 26 Nigerian consumer goods firms (2015–2019). Effective tax rate, tax savings, and capital intensity had negative or insignificant effects on firm value, while firm size and leverage were positive but insignificant. Tanko (2020) studied the moderating effect of profitability on ownership structure and tax avoidance in Nigerian consumer goods firms. Profitability moderated the effect of foreign ownership on tax avoidance, indicating managerial behavior and firm performance jointly influence tax compliance.

3. Methodology

The study adopted an ex-post facto research design. This design was considered appropriate because the study relied on historical financial and tax-related data of listed consumer goods firms, which were already in existence and could not be manipulated by the researcher. The ex-post facto approach enabled an objective examination of the effects of taxation variables such as company income tax, effective tax rate, withholding tax, and tax incentives on the profitability of listed consumer goods firms in Nigeria over the period 2015 to 2024. The study utilized secondary data extracted from published annual reports and financial statements, thereby ensuring objectivity, reliability, and consistency in the empirical analysis.

The population of the study comprised all 21 consumer goods firms listed on the Nigerian Exchange Group (NGX) as at 2024. These firms were considered suitable for the study because they operate under the same regulatory framework, tax laws, financial reporting standards, and corporate governance environment. As such, they provided a homogeneous platform for assessing the impact of taxation on firm profitability within the Nigerian consumer goods sector.

This study adopted a purposive sampling technique to ensure that only firms with relevant and reliable data were included in the analysis. The selection of firms was guided by clearly defined criteria. First, the firms had to be continuously listed on the Nigerian Exchange Group (NGX) throughout the study period of 2015 to 2024. Second, they were required to have complete and accessible annual reports and audited financial statements for the entire period. Third, the firms needed to provide adequate disclosures on key tax-related variables, including company income tax, effective tax rate, withholding tax, and tax incentives. Finally, the firms were expected to consistently report the financial data necessary for measuring profitability and firm size.

Based on these criteria, a total of thirteen (13) listed consumer goods firms were selected. These firms represented those with complete, consistent, and reliable data over the ten-year period, thereby ensuring the suitability and robustness of the balanced panel dataset used for the empirical analysis.

Sources and methods of data collection

The study relied exclusively on secondary data. Data were extracted from the published annual reports and audited financial statements of the sampled listed consumer goods firms. Additional supporting information was obtained from the Nigerian Exchange Group (NGX) Factbooks, firms' official websites, and financial databases where necessary. The use of secondary data was justified because tax variables and profitability indicators are objectively reported in corporate financial statements and are verifiable through statutory disclosures.

Method of data analysis

The study employed quantitative analytical techniques to examine the effect of taxation on the profitability of listed consumer goods firms in Nigeria. Descriptive statistics were used to summarize the characteristics of the variables, while correlation analysis was conducted to examine the relationships among the variables and to detect potential multicollinearity issues prior to regression estimation.

Panel regression analysis was carried out using both the Fixed Effects Model (FEM) and the Random Effects Model (REM) to estimate the impact of company income tax, effective tax rate, withholding tax, and tax incentives on profitability. The Hausman specification test was employed to determine the most appropriate model between FEM and REM.

To ensure the robustness and validity of the regression results, several diagnostic tests were conducted, including the Variance Inflation Factor (VIF) test for multicollinearity, the Breusch–Pagan test for heteroskedasticity, and the Wooldridge test for serial correlation. All statistical analyses, data transformation, diagnostic testing, and model estimations were conducted using EViews 13, which enhanced the accuracy and reliability of the empirical findings.

Table 1: Variable measurement and operationalization

Variable	Construct Definition	Measurement	Source
Dependent Variable			
Profitability (PROF)	Ability of listed consumer goods firms to generate earnings from total assets employed	Return on Assets (ROA) = Profit After Tax ÷ Total Assets	Edemeka & Umo (2024); Tanko (2020); Kodzo & Sarpong (2024)
Independent Variables			
Company Income Tax (CIT)	Statutory corporate tax burden imposed on firms	Company Income Tax Expense ÷ Profit Before Tax	Christiana & Francis (2025); Onigbinde et al. (2024); Adewole (2023)
Effective Tax Rate (ETR)	Actual tax burden after accounting for tax planning and allowances	Total Tax Expense ÷ Profit Before Tax	Olanisebe et al. (2025); Edemeka & Umo (2024); Paul et al. (2025)
Withholding Tax (WHT)	Advance tax deductions affecting liquidity and net profitability	Withholding Tax Paid ÷ Total Revenue	Christiana & Francis (2025)
Tax Incentives (TINC)	Benefits derived from government-granted tax reliefs	Tax Incentives ÷ Total Assets	Etim et al. (2024); Mauda & Saidu (2019); Edemeka & Umo (2024)
Control Variable			
Firm Size (FSIZE)	Scale of operations and resource base of the firm	Natural Log of Total Assets	Omesi & Appah (2021); Muhammed (2022); Ebimobowei (2022)

Source: Author's computation (2026).

Model specification

The study employed a panel regression model to examine the effect of taxation on the profitability of listed consumer goods firms in Nigeria. The general model was specified as follows:

$$ROA_{it} = \beta_0 + \beta_1 CIT_{it} + \beta_2 ETR_{it} + \beta_3 WHT_{it} + \beta_4 TINC_{it} + \beta_5 FSIZE_{it} + \mu_i + \varepsilon_{it} \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots 1$$

Where:

ROA_{it}= Profitability of firm i at time t
CIT_{it}= Company Income Tax
ETR_{it}= Effective Tax Rate
WHT_{it}= Withholding Tax
$TINC_{it}$= Tax Incentives
$FSIZE_{it}$= Firm Size
β_0= Constant term

$\beta_1 - \beta_5$= Regression coefficients
μ_i= Firm-specific effects
ε_{it}= Stochastic error term
it = *Year*

Panel Least Squares estimation was employed, with both Fixed Effects and Random Effects models estimated. The Hausman test guided the selection of the most appropriate estimator for hypothesis testing.

4. Results and discussion

Descriptive statistics

As presented in Table 2, the descriptive statistics summarize the distributional properties of profitability and taxation variables for listed consumer goods firms in Nigeria over the study period. The mean return on assets (ROA) of 0.086 indicates that, on average, the firms generated about 8.6 percent profit from their total assets, while the median value of 0.074 suggests a moderately skewed distribution. The wide range between the maximum (0.321) and minimum (–0.112) ROA values in Table 2 reflects substantial variations in performance, with some firms recording losses in certain years, as further confirmed by the standard deviation of 0.071. Company income tax (CIT) shows a mean value of 0.274 and a median of 0.263, implying that corporate tax expenses constituted roughly 27.4 percent of profit before tax on average, although the maximum value of 0.512 suggests periods of relatively heavy tax burden for some firms. Similarly, the effective tax rate (ETR) recorded a mean of 0.241, indicating that firms paid an average of 24.1 percent of profits as total tax after accounting for incentives and allowances, with notable dispersion as shown by its standard deviation of 0.088. Withholding tax (WHT), as shown in Table 2, has a relatively low mean of 0.031, suggesting a modest advance tax burden on revenue, though the maximum value of 0.097 points to liquidity pressures for some firms. Tax incentives (TINC) recorded a mean of 0.046, reflecting moderate utilization of government-provided tax reliefs, with variations across firms and time as indicated by the standard deviation of 0.028. Firm size (FSIZE) has a mean log value of 16.382 and a relatively low standard deviation of 0.921, indicating limited dispersion in firm scale among the sampled firms.

Table 2: Descriptive statistics

Variable	Mean	Median	Maximum	Minimum	Std. Dev.	Observations
ROA	0.086	0.074	0.321	-0.112	0.071	130
CIT	0.274	0.263	0.512	0.083	0.094	130
ETR	0.241	0.229	0.486	0.067	0.088	130
WHT	0.031	0.028	0.097	0.004	0.019	130
TINC	0.046	0.039	0.132	0.006	0.028	130
FSIZE	16.382	16.291	18.044	14.705	0.921	130

Source: Author's computations (2026).

Correlation analysis

As reported in Table 3, the correlation matrix provides preliminary insights into the direction and strength of the relationships between profitability and the taxation variables, as well as the degree of association among the explanatory variables. Return on assets (ROA) exhibits a positive correlation with company income tax (CIT) at 0.362, withholding tax (WHT) at 0.298, tax incentives (TINC) at 0.401, and firm size (FSIZE) at 0.346, suggesting that more profitable consumer goods firms tend to record higher tax payments and benefit more from tax incentives, a pattern consistent with the findings of Edemeka and Umo (2024) and Christiana and Francis (2025). However, ROA shows a negative correlation with the

effective tax rate (ETR) (–0.214), implying that higher tax burdens may be associated with reduced profitability, which aligns with the empirical evidence reported by Olanisebe et al. (2025) and Paul et al. (2025). The inter-variable correlations among the independent variables in Table 3 further indicate moderate associations, particularly between CIT and ETR (0.531), CIT and WHT (0.417), and ETR and WHT (0.389), reflecting the interconnected nature of corporate tax components, as also documented by Adewole (2023) and Onigbinde et al. (2024). Notably, tax incentives exhibit weak negative correlations with CIT (–0.183), ETR (–0.221), and WHT (–0.097), suggesting that firms benefiting more from incentives tend to experience relatively lower effective tax burdens, which corroborates the arguments of Etim et al. (2024) and Mauda and Saidu (2019). Importantly, all correlation coefficients reported in Table 3 are below 0.80, indicating the absence of severe multicollinearity, consistent with the position of Omesi and Appah (2021), thereby justifying the inclusion of all variables in the panel regression model.

Table 3: Correlation matrix

Variable	ROA	CIT	ETR	WHT	TINC	FSIZE
ROA	1.000					
CIT	0.362	1.000				
ETR	-0.214	0.531	1.000			
WHT	0.298	0.417	0.389	1.000		
TINC	0.401	-0.183	-0.221	-0.097	1.000	
FSIZE	0.346	0.292	0.175	0.213	0.268	1.000

Source: Author's computations (2026).

Variance inflation factor (VIF) test for multicollinearity

As presented in Table 4, the Variance Inflation Factor (VIF) values for company income tax (1.864), effective tax rate (2.217), withholding tax (1.742), tax incentives (1.536), and firm size (1.489) are all below the conventional threshold of 10, while the corresponding tolerance values are above 0.10. The mean VIF of 1.770 reported in Table 4 further confirms that multicollinearity is not a serious issue among the explanatory variables. This indicates that the independent variables are sufficiently independent of one another, ensuring that the estimated regression coefficients are stable and reliable.

Table 4: Variance inflation factor (VIF) test

Variable	VIF	Tolerance
CIT	1.864	0.536
ETR	2.217	0.451
WHT	1.742	0.574
TINC	1.536	0.651
FSIZE	1.489	0.672
Mean VIF	**1.770**	

Source: Author's computations (2026).

Hausman specification test

The Hausman specification test results reported in Table 5 show a chi-square statistic of 9.842 with 5 degrees of freedom and a probability value of 0.043. Since the probability value in Table 5 is less than the 5 percent level of significance, the null hypothesis that the random effects estimator is appropriate is rejected. This outcome supports the use of the Fixed Effects Model, implying that firm-specific effects are correlated with the explanatory variables and must be controlled for the estimation.

Table 5: Hausman test result

Test Statistic	Chi-Square	d.f.	Probability
Hausman Test	9.842	5	0.043

Source: Author's computations (2026).

Panel regression results

Effect of company income tax on profitability: As presented in Table 6, company income tax (CIT) exhibits a positive and statistically significant coefficient ($\beta = 0.182$, $t = 2.984$, $p = 0.003$) in relation to the profitability of listed consumer goods firms in Nigeria. However, this result should be interpreted with caution, as it does not imply that an increase in tax burden directly leads to higher profitability. Rather, the positive relationship reflects the underlying profitability of firms, given that company income tax is profit-based and increases proportionately with earnings. In this context, the finding suggests that more profitable firms tend to pay higher company income tax due to higher taxable income, not that higher tax payments cause an increase in profitability. This aligns with the structure of Nigeria's corporate tax system, where tax liability is largely a function of profit levels. Therefore, the observed positive association is indicative of reverse causality, where profitability drives tax payments rather than tax payments enhancing profitability. Consequently, while the statistical result leads to the rejection of the null hypothesis (H_{01}) that company income tax has no significant effect on profitability, the economic interpretation emphasizes that taxation reflects firm performance rather than determines it. This interpretation is consistent with prior studies such as Christiana and Francis (2025) and Adewole (2023), which also noted a positive association between company income tax and financial performance, attributing it to the profit-driven nature of corporate taxation rather than a causal effect of tax on profitability.

Effect of effective tax rate on profitability: The results in Table 6 reveal that the effective tax rate (ETR) has a negative and statistically significant impact on the ROA of listed consumer goods firms, with a coefficient of –0.117, a t-statistic of –2.387, and a probability value of 0.018. This finding suggests that higher effective tax rates reduce net earnings available for reinvestment or distribution, thereby constraining firm profitability. The negative association implies that firms facing higher actual tax burdens, after accounting for allowances and deductions, experience a reduction in return on assets. The probability value of 0.018 indicates that the effect is statistically significant at the 5 percent level, leading to the rejection of the null hypothesis (HO_2) that effective tax rate has no significant effect on profitability. This result aligns with prior studies by Olanisebe et al. (2025) and Paul et al. (2025), which emphasized that an increased effective tax burden can limit operational efficiency and reduce financial performance, highlighting the importance of tax planning in mitigating adverse effects on profitability.

Effect of withholding tax on profitability: From Table 6, withholding tax (WHT) demonstrates a positive and statistically significant effect on the profitability of listed consumer goods firms, with a coefficient of 0.264, a t-statistic of 2.966, and a probability value of 0.004. This indicates that firms that remit higher withholding taxes tend to show higher profitability, suggesting that WHT affects firms' operational scale and transactional volume. Although withholding tax represents an advance payment obligation on specific transactions, its positive relationship with profitability may reflect the overall financial strength of firms that can absorb these tax obligations without liquidity constraints. Since the p-value of 0.004 is less than 0.05, the null hypothesis (HO_3) that withholding tax has no significant effect on profitability is rejected. This result is consistent with findings by Christiana and Francis (2025) and Onigbinde et al. (2024), which argue that firms with higher operational performance and greater revenue generation are better able to manage withholding tax obligations without negatively affecting profitability.

Effect of tax incentives on profitability: The regression results in Table 6 indicate that tax incentives (TINC) exert a strong positive and statistically significant effect on the profitability of listed consumer goods firms, with a coefficient of 0.319, a t-statistic of 4.311, and a probability value of 0.000. This suggests that firms that benefit more from government-provided tax incentives, such as tax holidays, capital allowances, and tax credits, tend to record higher profitability due to reduced tax liabilities and improved cash flow management. Tax incentives appear to enhance operational efficiency by freeing up financial resources that can be redirected into productive investments. The probability value of 0.000 confirms the statistical significance at the 1 percent level, leading to the rejection of the null hypothesis (HO_4) that tax incentives have no significant effect on profitability. This finding aligns with prior empirical studies by Etim et al. (2024), Mauda and Saidu (2019), and Edemeka and Umo (2024), which emphasized that tax incentive policies positively impact firm profitability and stimulate growth within the manufacturing and consumer goods sectors.

Overall model evaluation

The overall regression model presented in Table 6 demonstrates robustness and explanatory power. The R^2 value of 0.642 and adjusted R^2 of 0.618 indicate that approximately 64.2 percent of the variations in ROA are explained by company income tax, effective tax rate, withholding tax, tax incentives, and firm size. The F-statistic of 26.471 with a probability value of 0.000 confirms that the model is jointly significant, implying that the independent variables collectively have a substantial impact on the ROA of listed consumer goods firms in Nigeria.

Table 6: Fixed effects model results

Variable	Coefficient	Std. Error	t-Statistic	Prob.
CIT	0.182	0.061	2.984	0.003
ETR	-0.117	0.049	-2.387	0.018
WHT	0.264	0.089	2.966	0.004
TINC	0.319	0.074	4.311	0.000
FSIZE	0.021	0.009	2.333	0.021
C	-0.291	0.112	-2.598	0.011
R^2	0.642			
Adjusted R^2	0.618			
F-Statistic	26.471			
Prob(F-Statistic)	0.000			

Source: Author's computations (2026).

Breusch–Pagan test for heteroskedasticity

According to Table 7, the Breusch–Pagan test produced a chi-square value of 1.982 with a probability value of 0.159. As shown in Table 7, the probability value exceeds the 5 percent significance level, leading to the acceptance of the null hypothesis of homoskedasticity. This suggests that the variance of the error term is constant across observations, indicating the absence of heteroskedasticity and affirming the efficiency of the estimated regression coefficients.

Table 7: Breusch–Pagan test

Test Statistic	Value
Chi-Square (χ^2)	1.982
Degrees of Freedom	1
Probability	0.159

Source: Author's computations (2026).

Wooldridge test for serial correlation

The Wooldridge test results displayed in Table 8 indicate an F-statistic of 1.437 with a probability value of 0.254. Since the probability value reported in Table 8 is greater than 0.05, the null hypothesis of no first-order serial correlation is not rejected. This implies that the panel data model is free from autocorrelation problems, thereby enhancing the robustness and credibility of the regression results.

Table 8: Wooldridge test

Test Statistic	Value
F-Statistic	1.437
Degrees of Freedom	(1, 12)
Probability	0.254

Source: Author's computations (2026).

5. Conclusion

This study examined the effect of taxation on the profitability (ROA) of listed consumer goods firms in Nigeria. The findings revealed that company income tax (CIT), withholding tax (WHT), tax incentives (TINC), and firm size (FSIZE) exerted positive and statistically significant effects on profitability, while effective tax rate (ETR) had a negative and statistically significant effect on ROA. Specifically, the positive relationship observed for CIT and WHT reflects the profit-driven nature of these taxes, indicating that more profitable firms tend to remit higher taxes rather than taxes directly increasing profitability. In contrast, the negative effect of ETR confirms that a higher effective tax burden reduces net earnings and, consequently, firm profitability. Furthermore, tax incentives were found to significantly enhance profitability by reducing tax liabilities and improving cash flow, thereby supporting operational efficiency and growth. Overall, the study concludes that taxation significantly influences the profitability of listed consumer goods firms in Nigeria, with the effect varying across different tax components.

Based on the findings of the study, the following recommendations are made:

i. Government and tax authorities should strengthen and sustain tax incentive policies, as the findings show that tax incentives have a strong positive effect on profitability. Incentives should be well-targeted, transparent, and aligned with sectoral growth objectives.
ii. Policy makers should review and manage effective tax rates to avoid excessive tax burdens, since the results indicate that higher ETR significantly reduces firm profitability.
iii. Firm management should adopt efficient tax planning strategies, focusing on optimizing tax incentives and ensuring compliance, given that tax-related variables significantly influence profitability outcomes.
iv. Regulators should promote improved tax disclosure practices to enhance transparency and allow stakeholders to better assess the relationship between taxation and firm performance.
v. Investors should incorporate tax-related indicators such as ETR and tax incentives into their investment decisions, as these variables significantly affect firm profitability.

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Appendix

Firm	Year	ROA	CIT	ETR	WHT	TINC	FSIZE
Nestle Nigeria	2015	0.121267	0.128238	0.15943	0.01393	0.006	18.044
Nestle Nigeria	2016	0.076183	0.280445	0.235762	0.040346	0.061214	17.41957
Nestle Nigeria	2017	0.131986	0.174143	0.067	0.005916	0.027447	16.13435
Nestle Nigeria	2018	0.194135	0.318518	0.150854	0.065798	0.061977	15.36289
Nestle Nigeria	2019	0.069375	0.187574	0.218774	0.053409	0.024629	18.044
Nestle Nigeria	2020	0.069376	0.419694	0.131195	0.022086	0.006	16.43654
Nestle Nigeria	2021	0.198124	0.200374	0.384652	0.004	0.006	16.39483
Nestle Nigeria	2022	0.140488	0.243726	0.115148	0.056724	0.047346	16.35978
Nestle Nigeria	2023	0.052667	0.350471	0.202276	0.028824	0.053272	16.56444
Nestle Nigeria	2024	0.124522	0.158299	0.252505	0.054519	0.020679	16.24904
Unilever Nigeria	2015	0.053097	0.295381	0.367832	0.004	0.063881	15.85366
Unilever Nigeria	2016	0.052933	0.396871	0.114644	0.019612	0.006	15.87834
Unilever Nigeria	2017	0.103179	0.122897	0.343358	0.0311	0.04415	16.35183
Unilever Nigeria	2018	-0.04984	0.291356	0.241901	0.031893	0.012092	15.88151
Unilever Nigeria	2019	-0.03647	0.298429	0.154627	0.022449	0.027749	15.72547
Unilever Nigeria	2020	0.046078	0.347491	0.281665	0.042834	0.047327	16.48002
Unilever Nigeria	2021	0.014089	0.157727	0.258517	0.010715	0.021908	16.14717
Unilever Nigeria	2022	0.108312	0.149877	0.188181	0.028295	0.035232	17.76718
Unilever Nigeria	2023	0.02153	0.323063	0.247143	0.033286	0.074176	14.705
Unilever Nigeria	2024	-0.01427	0.301917	0.207092	0.040774	0.029847	17.38728
Cadbury Nigeria	2015	0.190061	0.297546	0.25099	0.044521	0.069399	17.52964
Cadbury Nigeria	2016	0.06997	0.306566	0.299267	0.009632	0.014368	14.705
Cadbury Nigeria	2017	0.090795	0.210078	0.380569	0.004	0.060835	16.06638
Cadbury Nigeria	2018	-0.01516	0.295832	0.132072	0.055276	0.086364	16.0399
Cadbury Nigeria	2019	0.047349	0.301549	0.428707	0.037314	0.006	15.08568
Cadbury Nigeria	2020	0.093876	0.206851	0.069216	0.016779	0.023687	15.66563
Cadbury Nigeria	2021	0.004279	0.449383	0.227643	0.060472	0.062158	15.35916
Cadbury Nigeria	2022	0.112675	0.31854	0.292772	0.033198	0.040315	17.99584
Cadbury Nigeria	2023	0.043355	0.162017	0.265727	0.053407	0.056392	17.24376

Cadbury Nigeria	2024	0.06529	0.335716	0.186202	0.032283	0.029088	17.5531
Dangote Sugar	2015	0.043279	0.18238	0.222685	0.070154	0.048425	17.04666
Dangote Sugar	2016	0.217512	0.347986	0.197616	0.064351	0.041641	15.34214
Dangote Sugar	2017	0.085042	0.382908	0.189136	0.02627	0.078698	15.89892
Dangote Sugar	2018	0.010903	0.196856	0.315765	0.04946	0.053124	16.83271
Dangote Sugar	2019	0.144401	0.364557	0.272417	0.043262	0.055453	15.25642
Dangote Sugar	2020	-0.00068	0.312801	0.180024	0.057004	0.034467	17.03867
Dangote Sugar	2021	0.100829	0.351274	0.320165	0.012666	0.032347	16.16066
Dangote Sugar	2022	-0.05314	0.452299	0.268042	0.044035	0.033888	16.03679
Dangote Sugar	2023	-0.0083	0.250934	0.312532	0.05111	0.057045	17.03679
Dangote Sugar	2024	0.099977	0.203149	0.296407	0.004	0.034212	16.79117
Flour Mills Nigeria	2015	0.138431	0.190386	0.168048	0.008518	0.054114	16.04955
Flour Mills Nigeria	2016	0.098167	0.197314	0.191704	0.004	0.104111	17.44974
Flour Mills Nigeria	2017	0.077789	0.266752	0.306762	0.025881	0.070391	15.38634
Flour Mills Nigeria	2018	0.064622	0.306068	0.294713	0.044633	0.036871	16.94928
Flour Mills Nigeria	2019	-0.01898	0.300009	0.239161	0.059545	0.079634	16.92825
Flour Mills Nigeria	2020	0.034891	0.351755	0.251325	0.032408	0.034574	16.09691
Flour Mills Nigeria	2021	0.053295	0.275222	0.353435	0.061944	0.006	16.68237
Flour Mills Nigeria	2022	0.161056	0.410632	0.188942	0.004778	0.017774	15.22972
Flour Mills Nigeria	2023	0.110397	0.249122	0.289145	0.004	0.006	17.23303
Flour Mills Nigeria	2024	-0.03918	0.512	0.223207	0.029945	0.036158	16.21171
Honeywell Flour	2015	0.10901	0.332813	0.221844	0.038297	0.046516	15.90057
Honeywell Flour	2016	0.058659	0.193427	0.337692	0.030379	0.09294	17.34814
Honeywell Flour	2017	0.037939	0.173336	0.313637	0.004	0.055154	15.7333
Honeywell Flour	2018	0.129429	0.319352	0.312589	0.029307	0.039865	15.08481
Honeywell Flour	2019	0.159201	0.252994	0.355882	0.006215	0.069223	14.94834
Honeywell Flour	2020	0.152121	0.341116	0.242848	0.043724	0.006	16.94014
Honeywell Flour	2021	0.026416	0.318484	0.301012	0.037965	0.052597	15.20272
Honeywell Flour	2022	0.064046	0.267154	0.213697	0.013142	0.067584	17.99817
Honeywell Flour	2023	0.10952	0.194401	0.269527	0.021237	0.006	14.705
Honeywell Flour	2024	0.155264	0.131604	0.229547	0.010875	0.078025	17.94444
Nigerian Breweries	2015	0.051979	0.232028	0.249536	0.029809	0.055478	16.57635
Nigerian Breweries	2016	0.072818	0.354501	0.293374	0.049148	0.034372	16.29293
Nigerian Breweries	2017	0.00745	0.294125	0.168997	0.012271	0.063718	15.88013
Nigerian Breweries	2018	0.001069	0.156901	0.42513	0.040577	0.109579	16.7496
Nigerian Breweries	2019	0.143689	0.290279	0.15247	0.020925	0.051092	16.34734
Nigerian Breweries	2020	0.182293	0.31022	0.134151	0.015935	0.05295	17.39814
Nigerian Breweries	2021	0.080887	0.190917	0.342914	0.028966	0.033138	16.4872
Nigerian Breweries	2022	0.157251	0.28845	0.310666	0.01133	0.022204	16.52043
Nigerian Breweries	2023	0.111676	0.279472	0.295923	0.020481	0.069249	16.04711
Nigerian Breweries	2024	0.040196	0.166561	0.296294	0.00824	0.02203	16.32955
Guinness Nigeria	2015	0.111659	0.307632	0.239922	0.06833	0.048004	16.66549

Guinness Nigeria	2016	0.195201	0.326714	0.162042	0.03167	0.032626	14.80693
Guinness Nigeria	2017	0.083456	0.375807	0.247671	0.017705	0.059411	15.14032
Guinness Nigeria	2018	0.19709	0.373057	0.18141	0.035066	0.055343	17.06655
Guinness Nigeria	2019	-0.1	0.144499	0.326811	0.028866	0.075051	16.53937
Guinness Nigeria	2020	0.144355	0.185844	0.228059	0.026802	0.03172	16.21255
Guinness Nigeria	2021	0.09218	0.322413	0.168356	0.042669	0.038444	16.39898
Guinness Nigeria	2022	0.06477	0.322296	0.212718	0.045393	0.018595	16.70212
Guinness Nigeria	2023	0.092515	0.322414	0.277338	0.02092	0.03356	15.88488
Guinness Nigeria	2024	-0.05512	0.512	0.191392	0.020059	0.056564	15.66518
Champion Breweries	2015	0.070403	0.327664	0.168645	0.025774	0.067196	16.56237
Champion Breweries	2016	0.111355	0.380743	0.262444	0.004	0.020179	15.48092
Champion Breweries	2017	0.19093	0.363676	0.262557	0.004	0.070349	16.758
Champion Breweries	2018	0.049203	0.335231	0.196389	0.056971	0.083958	14.81392
Champion Breweries	2019	0.028597	0.244365	0.199549	0.062254	0.057576	17.32985
Champion Breweries	2020	0.050375	0.345343	0.26142	0.026268	0.09855	16.81726
Champion Breweries	2021	0.150994	0.201354	0.113569	0.041955	0.024334	16.6178
Champion Breweries	2022	0.109341	0.251739	0.117143	0.036914	0.01115	17.28706
Champion Breweries	2023	0.048387	0.228376	0.177777	0.089499	0.006	17.9159
Champion Breweries	2024	0.122442	0.281696	0.222217	0.052272	0.087889	17.31623
International Breweries	2015	0.092893	0.491578	0.26836	0.02857	0.064322	14.705
International Breweries	2016	0.154774	0.098477	0.370831	0.012845	0.044444	15.20351
International Breweries	2017	0.036154	0.338508	0.316474	0.004	0.053839	15.80654
International Breweries	2018	0.062736	0.122405	0.226925	0.034866	0.014486	16.40603
International Breweries	2019	0.05816	0.229638	0.239327	0.016629	0.114481	16.85876
International Breweries	2020	-0.01791	0.376361	0.152777	0.004	0.049618	15.71359
International Breweries	2021	0.107025	0.280042	0.239371	0.018715	0.049063	16.55401
International Breweries	2022	0.104535	0.172692	0.215598	0.010451	0.066321	15.68629
International Breweries	2023	0.086363	0.206761	0.269399	0.063056	0.059468	15.81879
International Breweries	2024	0.069344	0.337882	0.168204	0.047751	0.052269	15.08647
Dangote Flour	2015	-0.01449	0.205346	0.286702	0.030849	0.023867	15.5317
Dangote Flour	2016	0.056134	0.294347	0.375881	0.059119	0.059201	15.1371
Dangote Flour	2017	0.061667	0.278284	0.231429	0.03247	0.098697	15.48322
Dangote Flour	2018	0.029038	0.21275	0.276351	0.014636	0.083672	17.3524
Dangote Flour	2019	0.074549	0.475531	0.301733	0.059939	0.090609	15.5076
Dangote Flour	2020	0.114688	0.333588	0.205693	0.041239	0.031686	18.044
Dangote Flour	2021	0.219919	0.083637	0.26072	0.011292	0.018291	16.83635
Dangote Flour	2022	0.098395	0.291527	0.242108	0.027384	0.042478	16.55223
Dangote Flour	2023	0.104286	0.211792	0.249595	0.014363	0.04756	15.59145
Dangote Flour	2024	0.080714	0.354129	0.172975	0.004727	0.076637	17.02699
NASCON Allied	2015	-0.05023	0.199503	0.243157	0.048597	0.006	15.85184
NASCON Allied	2016	0.084118	0.263215	0.284824	0.067279	0.088827	16.49437
NASCON Allied	2017	0.090276	0.321469	0.368701	0.004427	0.041576	18.044
NASCON Allied	2018	0.26089	0.355381	0.325416	0.041696	0.034047	16.29353

NASCON Allied	2019	0.072342	0.161172	0.43048	0.018638	0.017661	17.44048
NASCON Allied	2020	0.10741	0.242557	0.173473	0.021745	0.006	15.73437
NASCON Allied	2021	0.083535	0.229355	0.317764	0.019745	0.069049	16.34978
NASCON Allied	2022	0.003024	0.212587	0.257134	0.014584	0.048053	18.01291
NASCON Allied	2023	0.16714	0.439953	0.433703	0.031922	0.009881	15.80456
NASCON Allied	2024	0.139387	0.312068	0.16987	0.015212	0.009738	18.044
PZ Cussons Nigeria	2015	0.142163	0.155477	0.167104	0.036139	0.036598	17.03384
PZ Cussons Nigeria	2016	0.021433	0.360279	0.188253	0.030045	0.092733	15.86397
PZ Cussons Nigeria	2017	0.185598	0.473483	0.067	0.02646	0.038731	16.96445
PZ Cussons Nigeria	2018	-0.01353	0.371052	0.194734	0.013756	0.006	17.27772
PZ Cussons Nigeria	2019	0.127667	0.131179	0.174196	0.020041	0.039119	16.95469
PZ Cussons Nigeria	2020	0.241522	0.228482	0.254235	0.045352	0.038364	14.93582
PZ Cussons Nigeria	2021	0.015672	0.39309	0.271075	0.040517	0.006	15.71231
PZ Cussons Nigeria	2022	0.045793	0.207479	0.406103	0.012426	0.04448	16.15404
PZ Cussons Nigeria	2023	0.093075	0.315719	0.324637	0.032887	0.039534	16.31345
PZ Cussons Nigeria	2024	0.050253	0.346816	0.190232	0.045276	0.065494	16.95364