

Tax Aggressiveness and Financial Performance: Evidence from Quoted Consumer Goods Firms in Nigeria (2012–2023)

Running title: Tax Aggressiveness and Financial Performance of Consumer Goods Firms

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ABSTRACT

The conflicting interests between firms seeking to minimize tax liabilities and governments seeking to maximize tax revenue resulting in accusation of excessive taxation by firms on government while government complains of inappropriate tax payment by firms motivated the study. This study, evaluates the effect of corporate tax aggressiveness on the performance of consumer goods companies operating in Nigeria between 2012 and 2023. This is done through an ex-post-facto research design. Data was gathered from the annual reports of 19 organizations. The study utilized descriptive and inferential statistics and, after diagnosis, used Fixed Effect Robust Regression for the analysis. From the results, it becomes clear that CETR shows non-significant negative effects on ROA. This implies that both these kinds of tax aggressiveness do not significantly improve organizational performance. On the other hand, NDTS shows a significant positive effect on ROA. For the researchers, managers of consumer goods firms are advised not to solely depend on strategies that will aggressively reduce their tax burden in an effort to increase profits. At the same time, there is need to have better initiatives that help in making operations and capital management as effective as possible since this has been seen to contribute more to financial performance. There is need for consumer goods firms to capitalize on all possible avenues to make investments and take advantage of tax incentives, capital allowances and so forth.

Keywords: Tax Aggressiveness; Cash Effective Tax Rate; Non-Debt Tax Shield; Return on Assets; Consumer Goods Firms; Nigeria

Subject Categories: Accounting; Taxation; Corporate Finance

1. INTRODUCTION

1.1 Background to the Study

The financial performance of consumer goods companies in Nigeria from 2012 to 2023 has been affected by various economic variables such as inflation, volatility in exchange rates, foreign exchange shortages, insecurity, variations in the buying capacity of consumers, and government economic policy. Consumer goods companies are entities that are engaged in the manufacture of foods, beverages, personal care products, and household items. In general, consumer goods have been one of the busiest sectors in the Nigerian manufacturing industries.

From 2012 up until 2015, consumer goods companies in Nigeria witnessed financial stability because of increased consumer demand, market expansion, and conducive economic environment. For instance, firms like Nestlé Nigeria Plc, Nigerian Breweries Plc, and Dangote Sugar Refinery Plc recorded high sales revenues and profits. According to Aremu and Adeyemi (2021), the increase in consumer goods company sales can be attributed to an increase in the Nigerian population, urbanization, and household consumption. Notably, however, there was an economic recession that Nigeria experienced in 2016, and it greatly affected the performance of the consumer goods companies. The reduction in the price of crude oil in international markets led to a shortage of foreign exchange and naira devaluation, hence increasing the cost of production inputs. Consequently, many firms recorded declining profit margins and rising operating expenses. Enekwe et al. (2020) observed that exchange rate fluctuations significantly reduced profitability among manufacturing and consumer goods firms in Nigeria during the recessionary period.

Between 2017 and 2019, recovery was experienced within the industry as companies employed appropriate strategies such as procurement of materials locally, cost-saving techniques, and product diversification to survive. Some firms were able to perform better during this period through improved efficiency and financial management techniques. As observed by Odeniya (2022), company factors such as liquidity, leverage, and company size had an impact on the profitability and sustainability of listed consumer goods firms in Nigeria. Thereafter, the COVID-19 crisis of 2020 continued to affect the financial performance of consumer goods firms as lockdown, disruption of supply chains, and reduction in consumer income impacted production and sales. However, some firms remained financially stable due to higher demands of food and household necessities. According to Ozili (2021), the pandemic created uncertain times for businesses in Nigeria, especially for firms within the manufacturing and consumer goods industries.

The period between 2022 and 2023 brought serious macroeconomic challenges for consumer goods companies operating in Nigeria in terms of high inflation, rising interest rates, exchange rate uncertainty, and increasing foreign exchange losses. The depreciation of the naira contributed to higher costs of production for the companies which had to import substantial amounts of their raw materials and machinery. According to Nairametries (2024), consumer goods firms in Nigeria had to face more than ₦839 billion of foreign exchange losses in 2023. In turn, Vanguard News (2023) mentioned that the problem of inflation and difficulties with foreign exchange had a detrimental impact on profitability and efficiency of manufacturing firms in Nigeria.

However, despite all the challenges, there were some consumer goods firms that could show positive results in terms of increased turnover, caused by the growth in product prices and market demands. There was always a

high level of investment activity in the industry since it played an important role in meeting the demand of the population and supporting the growth of the economy.

Tax aggressiveness can be defined as all kinds of activities adopted by companies with an aim of minimizing taxes by using tax planning, loopholes, and other legitimate or questionable accounting methods. It entails an effort made by businesses to lower the level of taxable income in order to cut down the amount of tax payment to government institutions. Tax aggressiveness can vary from legitimate to controversial tax avoidance measures that often border the limits of the tax code. Hanlon and Heitzman (2010) describe tax aggressiveness as a wide-ranging set of activities designed to decrease the level of taxable income through tax planning activities. Companies adopt tax aggressiveness strategies in order to increase their after-tax income, improve cash flows, and enhance the wealth of their stockholders. Nonetheless, tax aggressiveness, in some instances, can lead to reputation risks, fines, and even regulatory action. According to Salaudeen and Ejeh (2022), recent research studies indicate that MNCs are more involved in tax aggressiveness because of complexities associated with their businesses and availability of tax experts. In developing countries like Nigeria, tax aggressiveness has been a major challenge to tax authorities since it lowers government incomes.

The Cash Effective Tax Rate (CETR) is a widely recognized measure used to measure the degree of tax aggressiveness and tax burden of corporations. CETR is computed as the cash tax divided by pre-tax accounting income. This tax aggressiveness measure determines how much cash tax a company pays after deducting its taxable income from total profit. Lower CETR values indicate a high degree of tax aggressiveness since the company pays less tax than its accounting income. CETR measures the actual amount of cash tax paid compared to accounting-based income. According to Dyreng et al. (2008), CETR gives a better indication of long-term tax aggressiveness since it uses cash taxes as a measure. Researchers have widely applied CETR in research to analyze and assess the effect of tax management practices among firms. In recent years, studies reveal that companies with corporate governance arrangements exhibit low tax aggressiveness and higher CETR values (Olaoye & Ekundayo, 2023). Besides, profitability, leverage, and firm size are among the variables that influence the level of CETR among publicly held companies.

The non-debt tax shield (NDTS) is a term referring to tax reductions or tax exemptions enjoyed by organizations from sources other than interest paid on debt financing. Such tax reductions result from tax deductions arising from expenditures like depreciation, amortization, investment tax credits, and capital allowances, which eventually reduce the level of taxable income and hence minimize taxes payable. The non-debt tax shield acts as a form of substitute tax benefit since there is a tax reduction resulting from sources apart from debt financing. In their study, DeAngelo and Masulis (1980) assert that organizations that have considerable amounts of NDTS would not need to depend greatly on debt finance since they benefit from considerable tax deductions from sources other than debt. One of the most prominent types of non-debt tax shields is the amount spent on the depreciation of fixed assets. Studies conducted recently reveal that companies having higher amounts of NDTS would be characterized by lower leverage because of tax reduction without using debt (Abubakar & Danjuma, 2021).

1.2 Statement of the Problem

Tax aggressiveness has become a key regulatory and corporate governance issue as it relates to transparency, revenues for governments, and the financial sustainability of firms. Many quoted consumer goods companies in Nigeria practice different forms of tax strategies intended to reduce their tax liabilities while increasing their after-tax incomes. Despite the positive effects of tax aggressiveness on the bottom-line incomes of quoted firms, excessive and uncontrolled tax aggressiveness may lead to regulatory problems, financial instability, and legal troubles for firms. These have caused worries about the impact of tax aggressiveness on the financial performance of quoted consumer goods companies in Nigeria.

For a long time now, there have been different tax controversies and disputes involving quoted consumer goods companies in Nigeria that have resulted from tax aggressiveness and transfer pricing issues. For example, Nestlé Nigeria Plc became embroiled in tax controversies and disputes concerning its operations, including those relating to its transfer pricing and tax assessments by the Nigerian tax authorities (FIRS, 2021). Likewise, Nigerian Breweries Plc has recorded increased taxes as a result of regulatory and policy changes in taxation (Nigerian Breweries Plc, 2023). In addition, Cadbury Nigeria Plc had previously faced financial reporting and tax compliance concerns that affected investor confidence and corporate reputation (Okafor & Ezeabasili, 2020). These cases indicate that aggressive tax strategies may create uncertainties capable of affecting firms' profitability, market value, and long-term financial performance.

Additionally, even though consumer goods is strategically important to the economic development of Nigeria, most companies within this sector have continued to experience low profit margins, high taxation, foreign exchange, and high cost of operation from 2012 to 2023. As indicated by Nairametries (2024), some of the leading consumer goods firms encountered serious problems associated with foreign exchange and taxation that influenced their earnings performance. Although there are several studies on the impact of tax aggressiveness and firm value, majority of the researches are limited to banks and industries and few studies are conducted on quoted consumer goods companies in Nigeria. Moreover, although there are conflicting results on the influence of tax aggressiveness on financial performance, some researchers have suggested positive impact whereas others found negative or no influence.

This, therefore, leaves a significant knowledge gap that must be addressed regarding the impact of tax aggressiveness on the financial performance of quoted consumer goods firms in Nigeria from 2012 to 2023.

1.3 Objectives of the Study

The general objective of this study is to evaluate the effect of tax aggressiveness on financial performance of consumer goods firms. In specific terms, the study wants to:

1. Assess the effect of cash effective tax rate on the return on assets of consumer goods firms in Nigeria; and
2. Explore the effect of non-debt tax shield on the return on assets of consumer goods firms in Nigeria.

1.4 Research Hypotheses

The following null hypotheses guide the study:

H⁰¹: Cash effective tax rate has no significant effect on the return on assets of consumer goods firms in Nigeria.

H⁰²: Non-debt tax shield has no significant effect on the return on assets of consumer goods firms in Nigeria.

2. REVIEW OF RELATED LITERATURE

2.1 Conceptual Review

Financial Performance

Financial performance can be defined as the effectiveness of a firm in using its resources to create income, maximize wealth for the benefit of the shareholders, and meet organizational goals. As indicated by Brigham and Houston (2022), financial performance refers to the overall effectiveness and profitability of a business, which is measured through return on assets, return on equity, and net profit margin. Similarly, the financial performance of firms is seen as the efficient management of financial resources to produce favorable returns and ensure sustainable growth as suggested by Nwaiwu and Oluka (2023). The term financial performance is widely applied by investors, creditors, and management to gauge the financial status and performance of businesses. For instance, Pandey (2021) contends that financial performance makes firms competitive and raises their market value while enhancing investor confidence. On the other hand, bad financial performance emanates from poor management practices, excessive operating costs, poor corporate governance, and adverse economic circumstances. Empirical research uses accounting measures such as ROA, ROE, and EPS to measure financial performance. In this study, financial performance refers to the extent to which a firm achieves its economic objectives through efficient utilization of resources to generate sustainable returns, improve value creation, and maintain financial stability over time.

Return on Assets (ROA)

Return on Assets (ROA) refers to a profitability ratio that is used to measure the degree of efficiency of a business in using its assets to create profits. Return on assets is determined by dividing the net income of a business by total assets. According to Gitman et al. (2021), ROA reflects the ability of management to efficiently use company assets to earn profits. In the same line, Kieso et al. (2020) defined ROA as a crucial financial ratio that is used to evaluate the efficiency of management in using corporate resources to generate profit. Higher ROA implies effective asset use and efficiency in management, whereas low ROA means ineffective operations and inefficient use of company assets. It should be noted that financial specialists have highlighted the relevance of ROA in analyzing manufacturing and consumer goods firms since the companies operating in the respective industries depend on fixed assets for creating revenue. According to Olaoye and Ashamu (2022), the use of efficient asset management practices can improve the profitability of businesses. The study views Return on Assets as a financial efficiency measure that indicates how effectively a firm converts its total asset base into net earnings.

Cash Effective Tax Rate (CETR)

Cash Effective Tax Rate (CETR) can be explained as the percentage of taxes paid through cash by a firm against the accounting income earned prior to taxes. Typically, the calculation of CETR involves dividing cash tax paid over profit before tax. CETR, as identified by Dyreng et al. (2008), represents a metric for identifying the amount of money a corporation actually loses in terms of cash due to tax payments and an indicator of tax aggressiveness. Additionally, Hanlon and Heitzman (2010) define CETR as a measure to assess the effectiveness of corporations' tax management and burden. In most cases, low CETR levels represent aggressive tax payments since companies pay lower taxes than their accounting profits. Aggressive tax planning is one of the strategies that are employed by organizations to reduce CETR levels in order to increase after-tax profits. As reported by Salaudeen and Ejeh (2022), a low level of CETR indicates high levels of advanced methods of tax reduction including transfer pricing and income shifting. Excessively low CETR levels might attract regulatory concerns, reputations, and even sanctions from tax authorities. Therefore, Cash Effective Tax Rate is a tax-related performance metric that measures the proportion of actual cash taxes paid relative to pre-tax accounting income over a given period.

Non-Debt Tax Shield (NDTS)

The Non-Debt Tax Shield (NDTS) is an umbrella term used to refer to the tax breaks or deductions offered by corporations that are unrelated to any interest charges on debt financing. This tax deduction is mostly obtained through depreciation, amortization, investment tax credit, or capital allowance, resulting in a reduction of taxable income. According to DeAngelo and Masulis (1980), the NDTS is an alternative tax benefit that firms obtain rather than the tax benefits associated with debt finance. Likewise, Ross et al. (2021) described NDTS as tax benefits obtained from expenses other than interest, and which lower tax liability. The significance of the NDTS in relation to financial decision making is that it offers corporations a way to reduce taxes without having to incur additional financial risk via debt financing. Many researchers suggest that corporations with higher NDTS do not require significant amounts of debt finance since they can take advantage of tax benefits from NDTS. As mentioned by Abubakar and Danjuma (2021), manufacturing organizations with fixed assets are known to make considerable depreciations, hence generating higher NDTS and lowering taxable incomes. In this study, Non-Debt Tax Shield refers to the total tax deductions and allowances that reduce taxable income without relying on interest expenses from debt financing.

Inflation

Inflation is the sustained increase in the price level of goods and services in an economy over time, hence, leading to a decrease in the value of money. As per Mankiw (2021), inflation is a sustained increase in prices of aggregate economic output over a certain period in the economy. Likewise, Samuelson and Nordhaus (2020) define inflation as a sustained upward trend in prices of goods and services such that people's incomes and purchasing power fall. High levels of inflation affect business expenses, costs of production, profitability, and decision-making processes. Academicians have highlighted that rising levels of inflation make raw materials, labor wage, and borrowing costs expensive, hence limiting firms' profit margins. In the Nigerian case study, inflation has been a significant macroeconomic issue for manufacturing firms and other consumer goods organizations. Adegbe and Fakile (2022) have highlighted that rising levels of inflation reduce firms' profitability through increased operating costs and weak purchasing power of consumers. However, some academics hold that moderate inflation improves firms' revenue generation capabilities if companies change the prices of their

products and services. The study defines inflation as the sustained increase in the general price level of goods and services in an economy over time, resulting in a decline in the purchasing power of money.

2.2 Theoretical Review — The Political Cost Theory

The Political Cost Theory is one of the main assumptions of the Positive Accounting Theory proposed by Ross Watts and Jerold Zimmerman in 1978. The assumption is that there will be an increased chance for any large and profitable company to become visible for the government, tax agencies, regulators, trade unions, consumer organizations, and the general public. As a result, political costs become much higher for these companies in the forms of taxation, regulation, surveillance, and other actions taken by the government. Thus, management becomes interested in using the financial or accounting policies that are oriented on reducing profitability to minimize political costs. The assumption of the Political Cost Hypothesis claims that firms with high earnings will use different activities to minimize the income reported in their statements in order to avoid political consequences. The concept can be used in the context of tax management as tax aggressiveness, tax avoidance techniques, tax planning, earnings manipulation, income smoothing, and others.

This theory is highly applicable to the issue of tax aggressiveness because tax forms one of the major political costs incurred by the firm. Profitable companies are likely to be under a lot of pressure from the government and the general public, and the only way for such companies to survive would be through tax aggressiveness, which is geared towards minimizing their effective tax rate.

The relevance of Political Cost Theory in the current study concerning quoted consumer goods companies in Nigeria can be seen in various aspects. To begin with, quoted consumer goods companies are among the most visible corporations in Nigeria since their products are utilized on a daily basis by millions of Nigerians. The nature and visibility of such companies make them likely targets for government agencies and tax authorities. In order to reduce their political cost, quoted consumer goods firms may engage in certain tax avoidance maneuvers so as to lessen their tax burden. The theory postulates that firms take measures that are intended to minimize political costs, and tax avoidance can be considered an example. Furthermore, the years spanning 2012–2023 were marked by fiscal challenges for the government of Nigeria, which included the dwindling of oil revenues, recession, foreign exchange volatility, and growing government spending. In such a situation, the government resorts to stricter tax measures so as to raise tax revenue. Thus, quoted consumer goods firms may be more inclined to engage in tax aggressiveness so as to reduce their tax liabilities. Lastly, the study will focus on the linkage between tax aggressiveness and financial performance. According to Political Cost Theory, firms adopt aggressive tax policies mainly in an effort to minimize tax expenditures and increase retained profits, thus increasing their financial performance by means of increased ROA, ROE, and EPS. This shows that the theory is relevant because it explains the possibility of a positive correlation between tax aggressiveness and financial performance.

Nevertheless, the theory acknowledges that tax aggressiveness may result in reputation costs, fines, sanctions, and lawsuits. These factors can negatively impact financial performance when they are discovered by tax authorities. Consequently, Political Cost Theory supports the advantages and disadvantages of tax aggressiveness, which makes it most appropriate for examining the effect of tax aggressiveness on financial performance in Nigerian quoted consumer goods companies.

2.3 Empirical Review

Studies concerning tax aggressiveness as well as their association with financial performance have been widely documented by different researchers within Nigeria and outside. In Nigeria, different researchers have emphasized on listed consumer goods and manufacturing firms as the firms' operations were highly influenced by corporate taxation and the need for importing materials. Within the Nigerian business context, studies conducted by Olaniyan et al. (2025) on tax planning and financial performance in listed consumer goods firms indicated that there was no statistical association between cash effective tax rate (CETR) as well as effective tax rate (ETR) and firm financial performance. This implies that tax aggressiveness does not necessarily lead to enhanced firm profitability. In addition, studies undertaken by Mohammed et al. (2025) on taxation and corporate performance among consumer goods firms showed that although tax compliance factors are statistically associated with firm return on assets (ROA), the correlation between them is quite low. This implies that operational efficiency is more likely to influence firms' profitability compared to tax avoidance strategies. On similar trend, Lawal et al. (2024) investigated the impact of corporate governance mechanisms on board heterogeneity and tax aggressiveness among Nigerian consumer goods firms.

On the other hand, another study conducted by Adebayo and Olatunji (2025) established that corporate tax factors like company income tax and withholding tax affect the financial performance of consumer goods companies in a dual manner. There is a possibility of benefit for the companies through tax planning; otherwise, there could be a reduction in profits due to expenses involved with tax compliance and penalties. According to the findings of the study conducted by Eneisik et al. (2023), there is no significant relationship between corporate tax factors and financial performance measures such as return on equity and return on capital employed among manufacturing companies in Nigeria. This implies that tax aggressiveness is not a robust determinant of the financial performance of firms in developing countries where inefficiency and macroeconomic instability are more prevalent than tax aggressiveness. In addition, Zubairu et al. (2022) conducted a study in Nigeria on industrial goods firms and established that tax aggressiveness is greatly affected by factors such as size and profitability of firms. Extending to a broader Nigerian context, Adegbite and Bojuwon (2019) found that corporate tax avoidance practices are widespread among listed firms, with leverage, firm size, and profitability serving as key drivers. However, they also noted that aggressive tax practices may expose firms to long-term financial risks, including penalties and reputational damage.

Empirical studies from international contexts have shown contradictory results on the connection between tax aggressiveness and performance of organizations. For example, Erawan et al. (2025) used a sample of FTSE All-Share companies in the United Kingdom for an examination of the relationship between financial constraints, tax avoidance, and firm performance in the financial and non-financial industries. The study revealed that financially constrained companies were engaged in more tax avoidance activities but showed variable effects on performance based on governance quality. This suggests that the effect of tax aggressiveness varies by industry type and organizational governance. Another empirical study by Na et al. (2025) used data from KoTaP in a cross-country analysis in which the objectives were an investigation into corporate tax avoidance, governance mechanisms, and firm profitability within different industrial sectors such as manufacturing, service industries, and consumer goods industries. The study identified CETR and other measures of tax aggressiveness as being significantly associated with performance measures such as Return on Assets (ROA) and Return on Equity

(ROE). However, the relationship is non-linear, suggesting that moderate tax avoidance may enhance financial performance, while excessive tax avoidance may reduce financial stability and long-term value creation.

Similarly, Kyere and Ausloos (2020) analyzed listed firms in the United Kingdom within various sectors ranging from manufacturing industries to consumer-based industries with the aim of establishing how corporate governance influences firm financial performance. They established that corporate financial performance indicators like ROA are more impacted by corporate governance rather than tax-related measures. This indicates that corporate tax aggressiveness is just one of the many factors influencing firm financial performance whose impact is surpassed by good governance practices. Lastly, Lawal et al. (2023) analyzed the effect of corporate tax aggressiveness on firm value and performance within quoted firms involved in manufacturing consumer goods that are listed in the Nigerian Exchange Group (NGX). It was found out that tax aggressiveness among firms dealing in consumer goods in Nigeria is influenced by board structure and audit committee characteristics. However, tax aggressiveness has varied effects on firm value since some firms may benefit from their tax aggressive policies in the short-run while others have uncertainties in the long-run.

2.4 Summary of Empirical Gap

Generally, it can be seen that there is no consensus about the effect of tax aggressiveness on financial performance. For example, Na et al. (2025) and Erawan et al. (2025) found that tax aggressiveness can improve financial performance metrics like ROA and ROE if the company operates in a supportive environment regarding governance and institutions. Nevertheless, this effect cannot be seen as stable since tax aggressiveness may lead to decreased financial performance due to the negative influence of excessive tax aggressiveness on financial stability (Na et al., 2025). At the same time, Kyere and Ausloos (2020) found that firm financial performance is influenced more by good governance than tax decisions, and, hence, the role of tax aggressiveness in the performance of corporations is marginal at best.

In terms of Nigeria, the impact of tax aggressiveness by listed companies, especially in the consumer goods industry, was found by Lawal et al. (2023) and Olaniyan et al. (2025) to show varying effects on the value and performance of firms; in some instances, it is beneficial to the firms' tax strategies while in other cases it might pose regulatory risks. Further, according to Mohammed et al. (2025), tax-based factors display relatively weak and inconsistent influences on the performance of quoted firms within the Nigerian consumer goods sector, suggesting that other factors may play more important roles.

It is worth noting that the majority of studies carried out in Nigeria have considered broadly manufacturing firms without singling out quoted firms in the consumer goods industry as the unique subject matter. Furthermore, the studies conducted have been relatively narrow-sighted with regard to the time horizons used. For instance, most research studies have examined only a period of time up to 2012, but not beyond 2012–2023. Indeed, as noted by Adegbite and Bojuwon (2019), this is an empirical gap in research on tax aggressiveness in Nigeria. Therefore, there is a clear need for a focused investigation on quoted consumer goods firms in Nigeria over a long-term period to better understand how tax aggressiveness influences financial performance under changing macroeconomic and regulatory conditions.

3. METHODOLOGY

The study adopts an ex-post facto research design. Secondary data were extracted from various years' annual reports of 19 out of a population of 21 firms, as two firms — Dunlop Nigeria Plc and Multi-Trex Integrated Foods Plc — were excluded due to the absence of data. Data were analysed using descriptive and inferential statistics. After a full battery of diagnostic tests — Pearson correlation (correlation matrix), the Shapiro-Wilk test for normality, the Variance Inflation Factor (VIF) for multicollinearity, the Breusch-Pagan/Cook-Weisberg test for heteroskedasticity, the xtserial test for panel autocorrelation, the Breusch and Pagan Lagrangian Multiplier test to choose between OLS and random effects, and the Hausman specification test to choose between fixed and random effects — Fixed Effect Robust Regression was found to be the appropriate technique and was used for the final data analysis.

3.1 Model Specification

The functional relationship between the dependent variable (ROA) and the independent variables (CETR, NDTs, and INFR) is presented as follows:

$$Y = f(X)$$

where Y is the dependent variable, X is the vector of independent variables, and f is the function.

The mathematical form of the model:

$$ROA = f(CETR + NDTs + INFR)$$

The econometric model is presented as follows:

$$ROA_{it} = \alpha + \beta_1 CETR_{it} + \beta_2 NDTs_{it} + \beta_3 INFR_{it} + \mu_{it}$$

Where: ROA = Return on Assets (a proxy for performance); CETR = Cash Effective Tax Rate (a proxy for tax aggressiveness); NDTs = Non-Debt Tax Shield (a proxy for tax aggressiveness); INFR = Inflation Rate (a control variable); α = constant; β_1 – β_3 = coefficients of the independent-variable proxies; μ = error term; i = firms; t = periods; f = functional relationship.

3.2 Variable Measurement and Justification

TABLE 1. Variable Definition and Justification

VARIABLE	TYPE	MEASUREMENT	JUSTIFICATION / SOURCE
Return on Asset (ROA)	Dependent	Ratio of profit for the year to total assets	Salaudeen (2017); Onwuzurike & Ugwu (2020); Ike & Ogbodo (2023)
Cash Effective Tax Rate (CETR)	Independent	Tax paid ÷ profit before tax	Olaniun et al. (2022)
Non-Debt Tax Shield (NDTs)	Independent	Depreciation + Amortisation ÷ total assets	Hanlon & Heitzman (2010)

VARIABLE	TYPE	MEASUREMENT	JUSTIFICATION / SOURCE
Inflation Rate (INFR)	Control	Year-on-year percentage change in inflation rates, per CBN Statistical Bulletin	Ike & Ogbodo (2023)

Source: Authors' Compilation (2026)

4. DATA ANALYSIS AND RESULTS

4.1 Univariate Analysis: Descriptive Statistics

TABLE 2. *Descriptive Statistics*

VARIABLE	OBS	MEAN	STD. DEV.	MIN	MAX
ROA	206	0.320	1.381	-1.366	10.924
CETR	210	0.179	0.553	-2.492	6.978
NDTS	206	0.027	0.051	0.000	0.446
INFR	228	13.933	4.661	8.060	24.660

Source: Researchers' Computation using STATA 15

Descriptive statistics of the study variables in Table 2 offer helpful information concerning the nature of quoted consumer goods firms in Nigeria during the study period. Some data were not found in the firms' financial reports, hence the variation in the number of observations. ROA has 206 data points and an average of 0.32. This means that, on average, quoted consumer goods firms were able to make a profit of 0.32 from one unit of asset used within the study period. The standard deviation of 1.381 shows variability of return across the samples, implying that while some firms made good use of their assets, other firms failed to do so. The minimum value of -1.366 demonstrates that certain firms registered losses relative to their total assets, while the maximum of 10.924 shows that certain firms made very high returns on their total assets.

The CETR used as an indicator of tax aggressiveness was measured based on 210 observations, showing a mean value of 0.179. This means that the selected firms were paying an estimated 17.9% of their taxable income in cash taxes. That the mean value is less than the statutory corporate rate in Nigeria may be interpreted as meaning that some firms are taking advantage of tax planning techniques and incentives provided in tax law. The standard deviation of 0.553 denotes variability among firms in their tax payments, with the minimum value of -2.492 denoting that some firms received tax refunds or were making losses at the pre-tax level, while the maximum of 6.978 denotes very high tax payments by some firms.

NDTS shows 206 observations, with a mean value of 0.027. This means that depreciation and other tax shields account for about 2.7% of the total assets held by firms. The standard deviation of 0.051 suggests moderate variation among firms regarding the amount of deductions they are able to claim. The minimum value of zero suggests that some companies did not benefit from non-debt tax shields at all during particular years, whereas the maximum value of 0.446 suggests that some companies benefited from rather high depreciation-based tax shields. This could be attributed to differences in asset composition and capital intensity between companies in the consumer goods industry.

As for the inflation rate variable (INFR), there are 228 observations in the data with an average value of 13.933%. Thus, the inflation rate in Nigeria was quite high on average — close to 13.9% — during the period under study. The standard deviation of 4.661 indicates certain volatility in the inflation rate variable. The minimum inflation rate is 8.06%, while the maximum is 24.66%, indicating different levels of inflationary pressure on the economy at different points in time.

4.2 Pearson Correlation Matrix

TABLE 3. *Correlation Matrix*

	ROA	CETR	NDTS	INFR
ROA	1.000			
CETR	-0.061	1.000		
NDTS	0.412	-0.020	1.000	
INFR	-0.021	0.034	-0.064	1.000

Source: Researchers' Computation using STATA 15

The correlation matrix presents the degree and direction of association among Return on Assets (ROA), Cash Effective Tax Rate (CETR), Non-Debt Tax Shield (NDTS), and Inflation Rate (INFR) for quoted consumer goods firms in Nigeria. There is a very weak negative relationship between ROA and CETR, as evidenced by the correlation coefficient (-0.061), implying that firms which paid high cash tax relative to their earnings reported slightly lower levels of profitability, and that the association between tax aggressiveness (as measured by CETR) and profitability is extremely weak. The correlation coefficient between ROA and NDTS is 0.412, showing a moderate positive relationship: firms with high non-debt tax shields, such as allowances for depreciation and amortization, recorded higher returns on assets, since non-debt tax shields can reduce taxable income and generate extra cash flows, thereby improving profitability. Finally, the correlation coefficient between ROA and INFR is -0.021, a very weak negative relationship, meaning high inflation levels were associated with slightly lower profitability among the firms studied.

The correlation coefficient between CETR and NDTS is -0.020, a very weak negative relationship, meaning companies with high non-debt tax shields tend to have slightly lower cash effective tax rates, though the relationship is close to non-existent. The correlation coefficient between CETR and INFR is 0.034, a very weak positive relationship, suggesting inflation has little bearing on consumer goods firms' cash tax burdens. The correlation coefficient between NDTS and INFR is -0.064, also a very weak negative relationship.

Generally, from the correlation results, there is no sign of a strong linear relationship among the independent variables, as all correlation coefficients are far below the conventional multicollinearity threshold of 0.80. This implies there will be no problem with multicollinearity in the regression analysis (Gujarati & Porter, 2009). The most notable correlation coefficient is that between NDTS and ROA (0.412), a moderate positive correlation signifying that non-debt tax shields may positively affect the financial performance of listed consumer goods companies in Nigeria. In contrast, the very weak correlations between CETR, INFR, and ROA imply that these variables may not individually have a significant effect on firm profitability.

4.3 Variance Inflation Factor (VIF) Test for Multicollinearity

By rule of thumb, a VIF greater than 10 (or an inverse VIF below 1) is suggestive of the presence of multicollinearity (Gujarati & Porter, 2009).

TABLE 4. *Result of VIF Test*

VARIABLE	VIF	1/VIF
INFR	1.01	0.995
NDTS	1.00	0.996
CETR	1.00	0.998
Mean VIF	1.00	—

Source: Researchers' Computation using STATA 15

The VIF test result in Table 4 is used to determine the presence of multicollinearity among the independent variables, since multicollinearity can distort regression coefficient estimates and inflate standard errors. Table 4 reveals a mean VIF of 1.00, with all individual values well below 10 and inverse VIF values below 1, confirming the absence of multicollinearity.

4.4 Normality Test (Shapiro-Wilk)

For the Shapiro-Wilk test of normality, the decision rule is that if the p-value is greater than 0.05, the data set is normally distributed; if the p-value is less than or equal to 0.05, the data set is not normally distributed.

TABLE 5. *Shapiro-Wilk Test Result*

VARIABLE	OBS	W	V	Z	PROB > Z
CETR	210	0.355	100.326	10.629	0.000
NDTS	206	0.670	50.589	9.041	0.000
INFR	228	0.934	10.973	5.548	0.000

Source: Researchers' Computation using STATA 15

It follows from the data in Table 5 that all independent variables follow abnormal distributions, since their p-values (0.000) are less than 0.05. The null hypothesis of normality is therefore rejected.

4.5 Breusch-Pagan / Cook-Weisberg Test for Heteroskedasticity

The decision rule is to reject the null hypothesis of constant variance where the p-value is less than or equal to the critical value of 0.05; otherwise, the null hypothesis is retained.

TABLE 6. *Breusch-Pagan / Cook-Weisberg Test*

TEST TYPE	CHI2	PROB > CHI2
B-P / Cook-Weisberg	556.55	0.000

Source: Researchers' Computation using STATA 15

From Table 6, the p-value for the Breusch-Pagan/Cook-Weisberg test is 0.000, below 0.05, so the null hypothesis of equal variance (homoskedasticity) is rejected — confirming the presence of heteroskedasticity, which violates a key assumption of ordinary least squares and justifies the use of robust regression.

4.6 Autocorrelation Test

The null hypothesis states that the series is non-stationary (has a unit root); the alternative states that the series is stationary. If $p > 0.05$, the null hypothesis is not rejected.

TABLE 7. *Serial Autocorrelation Test Result*

TEST TYPE	F(1,8)	PROB > F
Autocorrelation	1111.320	0.000

Source: Researchers' Computation using STATA 15

From Table 7, the p-value is less than 0.05, so the null hypothesis is rejected, meaning the data are stationary and free of problematic serial autocorrelation.

4.7 Breusch and Pagan Lagrangian Multiplier Test for Random Effects

The Breusch-Pagan Lagrange Multiplier test is used to determine whether the pooled OLS or random-effects panel model is appropriate. The null hypothesis states that the random-effects estimator is not the appropriate specification; a p-value below 0.05 leads to its rejection in favour of the random-effects model.

TABLE 8. *Breusch and Pagan Lagrangian Multiplier Test Result*

TEST TYPE	CHIBAR2	PROB > CHIBAR2
BPLMT	85.14	0.000

Source: Researchers' Computation using STATA 15

In Table 8, the chi-square value of 85.14 with a p-value of 0.000 (below 0.05) leads to rejection of the null hypothesis, confirming that the random-effects model is more appropriate than pooled OLS for this study.

4.8 Hausman Specification Test

The Hausman test is used to choose between the fixed-effects and random-effects models. If the p-value is at or below 0.05, the null hypothesis (that the random-effects model is appropriate) is rejected in favour of the fixed-effects model.

TABLE 9. *Hausman Specification Test Result*

TEST TYPE	CHI2	PROB > CHI2
Hausman Test	24.75	0.000

Source: Researchers' Computation using STATA 15

From Table 9, since the p-value of 0.000 is less than 0.05, the null hypothesis is rejected and the fixed-effects model is adopted as the appropriate estimation technique.

4.9 Fixed Effect Robust Regression

TABLE 10. *Fixed Effect Robust Regression Result*

ROA	ROBUST COEF.	T	P > T
CETR	-0.028	-1.77	0.094
NDTS	2.005	2.54	0.012
INFR	-0.002	-0.67	0.509
_cons	0.300	5.09	0.000

R-squared (overall) = 0.171 · F(3, 18) = 5.55 · Prob > F = 0.007

Source: Researchers' Computation using STATA 15

The goodness-of-fit measure for the model in Table 10 is an R-squared of 0.171, implying that 17.1% of the variation in ROA is explained by CETR, NDTS, and INFR jointly, while the remaining 82.9% is attributable to other factors not captured in the model. Such explanatory power is typical when examining firm-level profitability, which is shaped by many internal and external factors. The overall significance of the model is confirmed by an F-statistic of 5.55 with a probability value of 0.007 — below the 5% threshold — so the null hypothesis of joint insignificance is rejected, confirming that the independent variables jointly affect the financial performance of publicly traded consumer goods companies in Nigeria.

Based on the results in Table 10, CETR has an insignificant negative impact on ROA (coefficient = -0.028, $p = 0.094$), so the corresponding null hypothesis is accepted. NDTS has a significant positive impact on ROA (coefficient = 2.005, $p = 0.012$), so the corresponding null hypothesis is rejected in favour of the alternative. Finally, inflation, as a control variable, has an insignificant negative impact on ROA (coefficient = -0.002, $p = 0.509$).

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Non-Debt Tax Shield has a significant positive effect on Return on Assets ($\beta = 2.005$, $p = 0.012$), while Cash Effective Tax Rate shows no significant effect on firm profitability ($p = 0.094$).

— KEY FINDING

4.10 Discussion of Findings

The finding that Cash Effective Tax Rate (CETR) has a statistically insignificant negative influence on Return on Assets (ROA) for the sampled consumer goods firms in Nigeria means that while a higher CETR is associated with decreased firm profitability, the association between the two variables is statistically insignificant. The negative regression coefficient (-0.028) means that an increase in CETR by one unit decreases ROA by roughly 0.028 units. However, the p-value (0.094), exceeding the standard 5% significance level, indicates a high probability that this association occurred by chance, so the null hypothesis of no significant relationship between

CETR and ROA is accepted. This negative relationship makes economic sense, since higher tax payments mean fewer earnings available for business operations and development. Firms in Nigeria's consumer goods sector are operating amid rising production costs, inflation, volatile exchange rates, and foreign exchange problems; in such circumstances, higher taxes mean fewer resources for business activities, hence the negative sign. That the relationship is statistically insignificant means taxes are not a primary determinant of financial performance among consumer goods firms — profitability may instead be driven more by operational efficiency, market share, product pricing strategies, cost management, and macroeconomic conditions.

This finding supports the Political Cost Theory, which holds that visible, profitable firms attract greater government scrutiny. Consumer goods firms are highly exposed to the public and regulators, and are therefore likely to avoid tax aggressiveness that could damage their reputation or draw regulatory attention. Hence, changes in CETR make little difference to profitability, since firms balance the pursuit of tax planning against legitimacy concerns.

The result aligns with Hanlon and Heitzman (2010), who noted that although CETR is an important indicator of tax aggressiveness, its effect on business performance depends heavily on firm-specific characteristics and prevailing economic conditions. Similarly, Dyreng et al. (2008) found that CETR measures tax expense without necessarily contributing positively to financial performance. The result also agrees with Olaniyan et al. (2025), who found that CETR had no significant influence on the financial performance of listed consumer goods firms in Nigeria, and with Eneisik et al. (2023), who found that corporate taxation variables did not significantly determine the financial performance of Nigerian manufacturing firms. Conversely, the result contradicts Na et al. (2025), who found that CETR significantly impacted ROA and ROE, and Erawan et al. (2025), who found that firms engaging in tax avoidance often showed enhanced performance owing to effective governance strategies.

Overall, while high cash effective tax rates have an insignificant negative influence on the profitability of quoted consumer goods firms in Nigeria, managers cannot rely on aggressive cash-tax-reduction tactics as a strategy for increasing profitability. Instead, managers should focus on enhancing operational efficiency, cost control, and effective asset management to maximize profitability, in line with prevailing economic conditions, rather than relying solely on tax-related strategies.

Regarding the Non-Debt Tax Shield (NDTS), the finding that it positively and significantly influences ROA (coefficient = 2.005) implies that a one-unit increase in NDTS is associated with an increase of about 2.005 units in ROA, holding other variables constant. With a p-value (0.012) below the 5% significance level, the null hypothesis that NDTS has no significant effect on ROA is rejected. This positive relationship indicates that consumer goods companies with greater non-debt tax shields — such as depreciation, amortization, investment tax credits, and capital allowances — are able to lower their taxable income and tax obligations without resorting to debt financing. These tax reductions free up more internal resources for operations, asset acquisition, growth, and investment, thereby improving profitability. This is particularly significant in the Nigerian consumer goods industry, where production costs are high and firms face inflation, foreign exchange volatility, and inadequate infrastructure — making the ability to generate tax savings through NDTS especially valuable.

The result confirms the hypothesis of DeAngelo and Masulis (1980) that NDTs represents an alternative tax benefit that lowers firms' tax obligations without increasing financial risk through debt financing, explaining why firms with high depreciation and capital allowance deductions can generate tax savings while minimizing financial risk. From a Political Cost Theory perspective, unlike aggressive tax-avoidance methods that could expose a firm to legal scrutiny and reputational risk, NDTs derives from legitimate, tax-law-sanctioned activities, allowing firms to increase profitability while sustaining legitimacy and reducing political cost.

Empirically, the findings align with Abubakar and Danjuma (2021), who found that firms with high non-debt tax shields are more likely to benefit from tax savings that increase financial flexibility and reduce reliance on external funding, and with Ross et al. (2021), who noted that NDTs delivers notable benefits in the form of increased after-tax cash flows. The finding is also consistent with Adebayo and Olatunji (2025), who found that effective tax planning increases financial performance through lower taxation and greater investable funds, and with Na et al. (2025), whose findings showed that reasonable tax-saving plans can positively affect ROA and ROE. However, the finding contradicts Olaniyan et al. (2025), who found that tax planning was not significantly correlated with the financial performance of Nigerian consumer goods firms, and Eneisik et al. (2023), who concluded that corporate tax factors did not significantly contribute to the profitability of manufacturing companies.

From the results obtained in this study, non-debt tax shields represent an effective avenue for enhancing the profitability of consumer goods firms in Nigeria. By making full use of available tax benefits through depreciation and amortization, companies can reduce tax expenses, boost cash flow, and increase asset turnover. Managers should therefore prioritize the acquisition of productive assets that generate legitimate tax benefits.

5. SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Summary of Findings

The study revealed the following:

- a. CETR has an insignificant negative impact on ROA of consumer goods firms in Nigeria, with a regression coefficient of -0.028 and a p-value of 0.094.
- b. NDTs has a significant positive impact on ROA of consumer goods firms in Nigeria, with a regression coefficient of 2.005 and a p-value of 0.012.

5.2 Conclusion

This research explored the impact of tax aggressiveness on the financial performance of listed consumer goods companies in Nigeria from 2012 to 2023. CETR and NDTs were used as proxies for tax aggressiveness, and ROA was employed as a measure of financial performance. CETR showed a negative but insignificant impact on ROA, implying that fluctuations in cash taxes do not significantly affect firm profitability, since other factors — operational efficiency, inflation, and exchange rates among them — carry more weight. NDTs, on the other hand, showed a positive and significant influence on ROA, meaning that tax benefits generated through depreciation, amortization, and other allowances improve profitability. The study therefore concludes that CETR

has no major impact on firm profitability, whereas NDTs is an important determinant of profitability and financial stability.

5.3 Recommendations

1. Managers of consumer goods companies should refrain from depending solely on aggressive measures to cut tax expenses in order to maximize profitability. Instead, there should be improved efforts to ensure efficient operations and effective asset management, as these have been found to influence financial performance more positively. Firms should also abide by relevant tax laws to avoid the adverse consequences of being accused of aggressive taxation.
2. Given that NDTs was found to be positively correlated with ROA, consumer goods organizations should make use of all opportunities for productive investment and take full advantage of capital allowances, tax shields, and other incentives available under Nigerian tax laws to enhance financial performance.

5.4 Contributions to Knowledge

This study adds to the body of knowledge by empirically investigating the relationship between tax aggressiveness and financial performance in the context of the Nigerian consumer goods industry, a field that has had less exposure in most previous studies. While other research has generally investigated manufacturing companies or other industries broadly, this study is solely restricted to quoted consumer goods firms, producing unique evidence on how tax aggressiveness affects firm performance in this sector.

The study also contributes by concurrently exploring the impact of CETR and NDTs on financial performance. It found that whereas CETR does not significantly affect firm performance, NDTs significantly improves it — distinguishing the impacts of tax aggressiveness from those of legitimate tax shields, and indicating that tax shields are more advantageous for improving firm performance than aggressive tax reduction.

In addition, this study extends the applicability of Political Cost Theory to understanding the relationship between tax aggressiveness and financial performance among Nigerian consumer goods companies, providing evidence that tax-planning objectives need to be reconciled with compliance and stakeholder expectations. By focusing on the 2012–2023 time horizon — spanning recession, the COVID-19 pandemic, inflationary pressures, and currency fluctuations — the study offers a contemporary analysis of the tax-aggressiveness–performance link in Nigeria.

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