



**TAX PLANNING AND CORPORATE PROFITABILITY IN NIGERIAN MANUFACTURING SECTOR: AN EMPIRICAL ANALYSIS**

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<https://doi.org/10.63725/majaf.v7.i1.20>

**Abstract**

*This study examines the relationship between tax planning and corporate profitability in publicly listed Nigerian manufacturing firms from 2015 to 2024. Specifically, it investigates the effects of Effective Tax Rate (ETR), Book-Tax Differences (BTD), and Tax-to-Asset Ratio (TAS) on Return on Equity (ROE). Using panel data from 32 firms on the Nigerian Exchange Group (NGX), we applied fixed-effects panel regression analysis, supported by descriptive statistics, correlation matrices, and diagnostic tests. Results indicate that higher ETR is negatively associated with ROE ( $\beta = -0.38, p < 0.01$ ), while higher BTD ( $\beta = 0.65, p < 0.01$ ) and TAS ( $\beta = 0.58, p < 0.01$ ) positively influence ROE. These findings suggest that strategic, legally compliant tax planning can enhance profitability for Nigerian manufacturing firms. Policy implications include the need for sector-specific tax incentives and simplified compliance procedures to support firm performance.*

Keywords: Tax Planning, Corporate Profitability, Effective Tax Rate, Book-Tax Difference, Tax-to-Asset Ratio, Nigeria.

JEL Classification: H25, G32, M41.

**1. Introduction**

The manufacturing sub-sector plays a pivotal role in stimulating a nation's economic growth, fostering industrial development, and generating employment. Nevertheless, a large portion of manufacturing firms are subject to high taxation rates, including corporate income tax, tertiary education tax, and technology development levy, which raise firm-level costs and lower profits. Consequently, the Nigerian government has used various fiscal incentives, such as tax holidays, tax credits, and investment allowances, to mitigate the impact of taxes on firm performance. However, the evidence on how fiscal incentives boost firm performance remains contradictory. Tax planning is now an important part of running a business that wants to improve its financial performance by using legal ways to lower its tax bill. Akintoye et al. (2020) define tax planning in corporate finance as running a business in a way that keeps its tax bill as low as possible while also maximising profits. Tax planning is especially important for Nigerian manufacturing companies, as they face many tax issues. Several researchers have worked on the link between tax planning and corporate profitability of Nigerian industries and sectors, such as Deposit Money Banks (Adejumo & Sanyaolu, 2020), Food and Beverages (Kayode & Folajimi, 2020), Consumer Goods (Ofor & Akaegbobi, 2022; Moses et al., 2025), Oil and Gas (Olabisi et al., 2019), and Non-Financial Companies (Kibiya, 2025).

This study concentrates exclusively on publicly traded manufacturing companies in Nigeria. The manufacturing sector is a major driver of Nigeria's economic growth and job creation, but it faces high taxes, double taxation, and poor infrastructure, which hurt business profits (Agboola et al., 2024). The corporate income tax in Nigeria is 30% for big companies, 20% for medium-sized businesses, and 0% for small businesses (PwC, 2025). Manufacturing companies also have to pay other taxes, such as the Tertiary Education Tax (3%) and the National Information Technology Development Fund (1%), which further increases their total tax burden. These taxes are meant to help the economy grow, but when combined, they could make it very hard for capital-intensive manufacturing companies to turn a profit.

To make it easier for businesses to pay their taxes, they need to use effective tax planning and tax avoidance strategies. Companies that plan their taxes well are more likely to increase profits by leveraging legal incentives and adjusting their business strategies to lower their tax bills (Dibie & Ogbodo, 2024). Nonetheless, despite numerous fiscal incentives aimed at fostering manufacturing development in Nigeria, companies within this sector have persistently encountered declining profits. Some Nigerian manufacturing companies still go out of business, even though the government gives them incentives, because of high tax rates and the heavy taxes they have to pay.

The Nigerian government has put in place policies like tax holidays, investment allowances, and tax credits to encourage industrial growth and make businesses more profitable. However, there is little evidence to support the claim that these incentives make businesses much more profitable. For example, Akintoye et al. (2020) found that tax planning strategies employed by publicly traded Nigerian manufacturing companies yield inconsistent impacts on profitability, resulting in both adverse and favourable outcomes. In a similar vein, Etim et al. (2024) found that some tax incentives improved profitability, whereas others had negligible or adverse effects. The mixed results have significant implications for how well tax planning strategies and incentives work. The ongoing decline in manufacturing companies' profitability, even with tax breaks, underscores the need to examine how tax planning affects corporate profitability in Nigeria's manufacturing sector. A comprehensive examination of the preceding series of events, data, and policy initiatives can facilitate policy reform and inform strategic financial planning by the government and other stakeholders to enhance performance in this sector. In practice and within Nigerian enterprises, the relationship between tax planning and corporate performance remains ambiguous.

Previous empirical studies argue that tax planning strategies such as efficient taxation, book-tax difference management, and tax-to-assets ratio improvement enhance profitability (Ofor & Akaegbobi, 2022; Olaowo & Okpara, 2024), while others claim that tax planning has no significance or a negative effect on firm performance (Akintoye et al., 2020). Its effect is even more pronounced in the capital-intensive manufacturing industry. This lack of consistency calls for a study of individual tax planning strategies that will have a meaningful effect on corporate profitability, especially in the wake of post-2020 tax reforms in Nigeria. Furthermore, existing studies often focus on a few sub-sectors, use outdated data, or fail to test a range of tax planning strategies simultaneously in panel data analysis. Thus, decision makers and policymakers are hardly adequately informed about the specific tax planning strategies that best promote a firm's profitability. Based on these gaps, this research intends to examine the impact of three measures of tax planning-Effective Tax Rate (ETR), Book-Tax Differences (BTD) and Tax-to-Assets Ratio

(TAS)- on Return on Equity (ROE) for a panel of 32 listed manufacturing firms in Nigeria from 2015 to 2024, to update and contribute to existing literature.

## 2. Literature Review

### *Corporate Profitability*

Corporate profitability is a firm's capacity to utilise assets, operations and equity to produce earnings over a period of time. According to Akinniyi (2025), corporate profitability is simply a way in which a company shows or reflects the effectiveness and efficiency with which a resource manager utilises all available resources to generate adequate or substantial earnings. Corporate profit represents an organisation's capability to achieve a positive net income after costs and taxes. Corporate profit is also an important indicator of a company's financial position. It is therefore integral to the assessment of operational efficiency, sustainability, continuity, long-term value addition (Abiola & Oyewole, 2021) and performance. Commonly used profitability ratios that are employed in the evaluation of a firm include: return on equity, which relates net earnings to owners' capital (shareholders' funds), and return on assets, which analyses the company's use of its total assets in relation to its earnings (Onwughai, 2025). Good profits not only allow the company to grow and retain investors, but they also serve as a form of protection during tough times, such as a trade slump or an economic downturn. The profitability ratio is especially vital in the production sector, given its capital intensity and susceptibility to government taxation. Firms benefit not only from managerial competence but from strategies associated with tax planning and investment opportunities (Olanisebe et al., 2025). The following have been found to influence a firm's profitability: taxation, cost management and production efficiency.

### *Tax Planning*

Tax planning is the process by which an organisation analyses its tax-related finances to achieve the lowest possible tax burden. A range of tax planning schemes is integrated into tax preparation, all aimed at legally reducing a company's tax liability. Tax planning is a process in which taxpayers deliberately exploit and use available opportunities that would otherwise be unused under the law, such as exemptions, investment incentives, capital allowances, and rightful expenditure, to keep the ETR at a minimum without breaking tax regulations (Olaoye et al., 2023). According to Olanisebe et al. (2025), tax planning provides organisations with guidelines for strategic financial decisions that enhance their profits by reducing the tax they pay. Tax planning remains a vital strategy for businesses operating in Nigeria to remain competitive and maximise stakeholders' wealth. Companies can employ deferral, tax rate differentials, and expenditure timing to reduce tax obligations and improve cash inflows (Agboola et al., 2024). The importance of tax planning in corporate financial management cannot be overemphasised, especially in tax-prone sectors such as the Nigerian manufacturing sector, where companies must deal with taxes at multiple levels. Chukwudi et al. (2020) noted that effective tax planning provides companies with a competitive edge by making capital available for business reinvestment and enhancing shareholders' wealth. If, on the contrary, the practice is poorly implemented and carried to extremes, it could easily attract undue scrutiny from regulators, negatively impact sustainability, and harm a company's reputation.

### *Effective Tax Rate (ETR)*

The Effective Tax Rate (ETR) is a financial metric that measures the average tax rate a company pays on its profits. The formula for deriving the ETR is tax expense divided by tax profit. The ETR is said to provide readers of financial statements with the ultimate indicator of the tax

amount a company pays to the government (Dibie & Ogbodo, 2024). Whereas the statutory tax rates set out the rate by which firms are to be taxed, ETRs are a measure which illustrates the impact of tax benefits such as depreciation allowances, tax credits and other fiscal incentives, as well as tax planning, on the actual corporate tax rate ARHM. Lower ETRs generally suggest lower overall tax management burden/effective tax planning (Agboola et al., 2024). In the corporate sector, ETRs are often employed in estimating tax planning behaviour/tax avoidance. In relation to Nigerian manufacturing companies, different ETR values suggest that these companies employ varied tax planning strategies/avoidance practices (Kibiya et al., 2025). Empirical studies have yielded mixed results on the relationship between ETR and firm performance. Agboola et al. (2024) studied firms listed in the Nigerian manufacturing sector. They observed that the relationship between the effective tax rate (ETR) and profitability is usually negative, implying that firms cannot perform better when faced with higher tax burdens, as these affect their capacity to realise on their equity. Other scholars have shown that, under appropriate conditions, a low effective tax rate can be positively associated with performance when tax plans align with firms' strategic operational plans. At the same time, an ETR can also positively impact firm performance (Ogbuagu et al., 2024). The inconsistency in the empirical results indicates the extent to which a firm implements its tax strategies in relation to its business operations and market conditions (Agboola et al., 2024; Owoniya & Olaoye 2021).

#### ***Book-Tax Differences (BTD)***

Book-Tax Differences (BTD) are defined as discrepancies between the income generated by a company and the income presented in its financial statements, and the income reported on its tax returns. This can occur on account of temporary differences (e.g., timing differences in depreciation of assets which would reverse themselves in subsequent tax periods), or permanent differences (e.g., non-deductible expenses). Ofor & Akaegbobi (2022) stated that variations in account balances arise from differences in reporting conventions under accounting standards and tax laws. BTDs are considered indicators of tax planning aggression, in which significant variation between BTDs can signal manipulation of the income statement for tax purposes to reduce taxable income while maintaining financial statements that appeal to stakeholders (Igbinovia & Usman, 2024). In Nigerian manufacturing industries, BTD is a significant indicator of a firm's use of variations in accounting reporting practices and tax laws to reduce its tax payable. According to Agboola et al. (2024), although BTDs can improve profitability, they attract significant regulatory attention; thus, it is helpful to examine the implications and morality of corporate tax planning practices. In addition, recent studies found that BTD might be positively related to profitability when legitimised tax planning is used rather than accounting management (Anaïke et al., 2025). For instance, Mustapha et al. (2023) found that high BTD among manufacturing companies in Nigeria positively affected profitability. This means that firms utilised authorised differences between book and tax accounting gains to increase after-tax profit. However, high-magnitude BTD could also indicate that aggressive accounting rules were implemented rather than tax planning, which may provide non-representative performance. Both studies illustrate the need to explain the BTD within an accounting and corporate governance framework (Anaïke et al., 2025).

#### ***Tax-to-Asset Ratio (TAS)***

The ratio for tax benefit on earnings to Total Assets is: i)  $TAS = \frac{\text{tax benefit on earnings}}{\text{Total Assets}}$  ii)  $HOL = \frac{\text{amount of tax benefit on earnings}}{\text{Total Assets}} = \frac{(U_t - U_e)}{\text{Total Assets}}$  where,  $U_t$  = related uncertain profit,  $U_e$  = related certain profit. The individual decision maker will choose whichever has the

higher TAS ratio. The Tax-to-Asset Ratio (TAS) is a financial ratio of tax cost to total assets; it measures an organisation's use of its capital asset base relative to the taxes it pays. It shows how efficiently a business organisation utilises its capital base compared to its tax burden (Olaowo & Okpara, 2024). While a lower TAS ratio generally denotes good and efficient tax planning and better asset utilisation, a higher TAS ratio can indicate under-utilisation of assets and poor tax planning. The TAS is quite important for companies engaged in asset-based production, such as manufacturing businesses in Nigeria, because capital infrastructure is a major component that determines the profit position. Numerous studies, such as the one conducted by Okafor and Okafor (2026), have found that companies that paid lower taxes on their investment bases realised higher profits. Stakeholders also rely on the tax-to-asset ratio to determine a business organisation's relative tax position, i.e., the extent of its tax payments relative to its size of operation. It has been utilised alongside other tax performance metrics, such as ETR and BTM, in profitability research (Olaoye et al., 2023). Empirical studies conducted in emerging-market contexts, including Nigeria, indicate that TAS can be positively associated with profitability when firms optimise their asset base while controlling tax costs. For instance, Agboola et al. (2024) reported that Nigerian firms with higher TAS tended to exhibit better profitability outcomes, suggesting that efficient asset use – when accompanied by prudent tax planning – amplifies returns on equity. Oladele and Okoro (2024) further emphasised that considering asset utilisation in tax planning provides a more comprehensive view of how firms convert their investments into after-tax returns, especially in capital-intensive sectors like manufacturing. These findings highlight TAS as an important complement to traditional tax measures in tax planning research (Ibrahim & Adebayo, 2023; Oladele & Okoro, 2024).

### ***Return on Equity (ROE)***

Return on Equity (ROE) - "a popular measure of profitability that expresses how much money a company generates on behalf of the shareholders' equity" (Agboola et al., 2024). It shows how effectively the firm uses the owner's equity to generate profits, and thus a higher ratio is a good measure of a company's profitability and financial condition (Akintoye et al., 2020). The ROE signifies good owners' investment in a firm; therefore, it is a measure of financial management and creation of value to the investor. This is especially true in capital-intensive industries, as manufacturers face higher overheads, including taxes. Investors and analysts often use it as a benchmark among peers in the same industry and also consider it an appropriate dependent variable for studies on the effect of tax planning practices on corporate profitability in developing countries like Nigeria (Awotomilusi et al., 2024). In studies investigating the impact of tax planning on performance, ROE is used as the dependent variable to assess the effects of effective tax management, utilisation of Book-Tax Differences (BTD), and manipulation of the Tax-to-Asset Ratio (TAS). Examples of studies on Nigerian manufacturing firms found that better tax management via less ETR, more BTD and less TAS has a significant and positive impact on the firm's ROE, thereby meaning that firms keep more earnings after tax, hence, higher returns to shareholders (Agboola et al., 2024; Mustapha et al., 2023). ROE can also be used to compare firms with different sizes and capital structures; thus, it is considered to be reliable for a panel study of profitability. However, since the return to equity is affected by leverage, dividend policy and accounting procedures, users should interpret it with care when assessing the impacts of tax planning policies (Oladele & Okoro, 2024). Thus, to conclude, ROE can be considered not only as performance measure but as well as it provide the framework to demonstrate how effective tax planning measures can lead to a tangible increase in shareholders' returns, hence enabling tax

researchers to quantify the economic benefits derived from such planning actions through the use of ROE as the dependent variable for firms in the manufacturing sector (Awotomilusi et al., 2024).

### *Theoretical review*

#### *Agency Theory*

The agency model resolves agency conflict, which occurs when shareholders (principals) and agents (managers) have differing goals, and agents utilise the opportunity to pursue personal agendas that may differ from shareholder wealth maximisation (Jensen & Meckling, 1976; Onwughai, 2025). Agency Theory posits that there is an inherent conflict of interest between principals (shareholders) and agents (managers). Managers may pursue personal goals that diverge from shareholders' wealth-maximising objectives, leading to agency costs. The theory assumes that contracts, monitoring, and incentives are required to align managers' behaviour with shareholders' interests (Jensen & Meckling, 1976). In the context of corporate tax planning, Agency Theory explains why managers' decisions regarding ETR, BTD, and TAS may differ from those that maximise shareholder returns. Managers could either underutilise legal tax planning opportunities to pursue personal agendas or strategically employ tax planning to enhance firm profitability and shareholder value.

The theory predicts that effective monitoring and alignment mechanisms will result in a *positive relationship* between tax planning strategies and firm performance. For instance, efficient management of book-tax differences and tax-to-asset ratios is expected to increase ROE, while unchecked managerial discretion may lead to suboptimal tax planning outcomes. Agency Theory was selected over other theories because it directly addresses the behavioural and governance aspects of corporate decision-making in financial and tax management. Unlike purely financial or resource-based theories, it explains the *mechanisms by which managerial discretion shapes the effectiveness of tax planning strategies*, making it highly relevant to this study.

#### *Empirical Review*

Okafor and Okafor (2026) conducted a comparative study examining tax planning effects across *manufacturing firms and deposit money banks* over 2014–2024. They used robust regression techniques and found that ETR and CETR have *positive and significant effects* on *return on investment* for manufacturing firms. Moreover, BTD had a *significant positive effect* on profitability measures for both sectors. Furthermore, Sectoral differences emerged, with some tax planning measures showing stronger impacts in one sector than the other. This suggests tax planning effects can vary *across industries*, yet remain generally *positive for profitability* when aligned with firm operations.

Onwughai et al. (2025) examined the effect of CIT on firm performance within the banking industry. From the sampled study, listed deposit money banks in Nigeria showed a positive, but very negligible, association between CIT and return on assets (ROA), meaning that tax obligations have little impact on profitability. However, when firm size was introduced as a moderating variable, a negative and significant relationship emerged between CIT and ROA, indicating that larger firms are much more adversely affected by taxation. Results that align with these findings showed that both tax planning strategies and incentives, as well as deductions, are important in boosting firm performance, with the study revealing that efficient tax strategies may minimise the negative impact of CIT on firm performance.

Akpanowo, et al. (2024) studied listed multinational companies in Nigeria and found that TP has a significant influence on performance, it was observed that there is a statistically significant negative effect of effective tax rate on firm returns, indicating that firms with lower tax burden yield higher returns, whereas, capital intensity have a statistically significant positive relationship with financial performance (implying that investment in productive assets has a positive impact on return), just like thin capitalisation having a significant positive impact on financial performance, meaning that the larger the gap between ETR and the legal rate of tax, the larger the proportion of after tax return of firm. Overall, the evidence confirmed the assertion that TP strategies influence a firm's financial performance.

Awotomilusi et al. (2024) examined the effect of TP strategies on the financial performance of listed manufacturing firms in Nigeria using an ex post facto research design with 15 companies selected from 44 manufacturing firms listed on the NGX for the period between 2013 and 2022. Panel regression analysis was employed to evaluate the impact of factors such as effective tax rate, thin capitalisation, capital intensity, and lease options on return on assets (ROA) and market value per share (MVPS). Their results indicated that both the effective tax rate and capital intensity have a significant effect on ROA, whereas thin capitalisation and lease options are not statistically significant; lease options, however, have a significant effect on MVPS, whereas the other variables did not. The study concluded that TP strategies have a positive impact on firm performance.

Bachas et al. (2023) examined the impact of firm size on the effective corporate tax rate. Using administrative tax data from 13 countries, they concluded that small businesses are more likely to bear lower effective corporate tax rates than medium-sized firms. Tiny firms are also much more likely to report a loss, and their statutory tax rate is likely to be lower, which will result in a lower effective tax rate. A higher statutory tax rate is often associated with incentives, leading to a larger reduction in the corporate tax rate. In almost all countries, this effect is much stronger for larger firms than for smaller ones. This study contrasts firm size with the effective tax rate across 13 countries and differs from prior studies that focus on accounting practices and firm performance. Januri and Hanum (2022) examined the relationships among tax planning, firm financial performance, and firm value in manufacturing firms. ETR measured TP; ROA measured firm performance; the study sample comprised manufacturing firms listed on the Indonesia Stock Exchange, selected using a saturated sampling technique. A partial t-test indicated that tax planning has a positive, significant effect on firm value, as measured by ETR. In addition, firm value has a significant positive relationship with firm financial performance, as measured by ROA.

Tackie et al. (2022) examine the impact of tax planning on the financial performance of Ghanaian insurance companies with Corporate Governance as a moderator. They found a nonlinear relationship between tax planning (measured by ETR) and insurance company performance (measured by ROE and ROA). This study found that CG moderates the effect of TP on insurance company performance, and that managers of insurance firms should uphold high standards of CG to mitigate agency conflicts and costs between managers and shareholders. Ofor and Akaegbobi (2022) investigated the effect of book-tax differences on the performance of selected quoted consumer and industrial product manufacturing firms listed on the Nigerian Stock Exchange between 2010 and 2019. An ex post facto study design was employed to collect data from 23 organisations, and Panel Least Squares (PLS) regression was used with E-Views 9.0 to

analyse the data. The result revealed a positive, statistically significant relationship between book tax differences and firm performance. Unlike other studies in the manufacturing sector, our study is broader, encompassing the entire industry and considering the post-adoption of IFRSs from 2013 to 2022.

Mwaluku (2022) employed a panel-data regression model to investigate the effect of tax planning on firm value for 13 manufacturing firms listed on the Nairobi Securities Exchange during 2010-2019. According to the results, the effective tax rate has a positive and statistically significant effect on firm value. Akintoye et al. (2020) examined the effect of tax planning strategies on the profitability of manufacturing companies in Nigeria using an ex-post facto research design; a sample size of 46 manufacturing companies was chosen from 52 listed companies on the Nigerian stock exchange; data were collected over 10 years from 2008 to 2017 from audited annual reports of the selected firms. The regression results indicate that TP (ETR) has no significant effect on the profitability of manufacturing firms. This study reveals that TP tactics negatively or positively affect the profitability of listed industrial enterprises.

Chukwudi et al. (2020) investigated the influence of TP on the firm value of listed consumer goods manufacturing firms in Nigeria over 10 years, from 2009 to 2018, using 21 companies. Using OLS regression, the result of hypothesis testing revealed that the ETR has a negative and significant impact on firm value measured by Tobin's Q. This finding is in line with Adejumo and Sanyaolu's (2020) study on nine (9) selected DMBs in Nigeria, where the generalised method of moments was used; a negative and significant impact of ETR on ROA was observed. Kayode and Folajinmi (2020) explored the relationship between ETR and firm financial performance for 15 listed food and beverage companies on the Nigerian Stock Exchange from 2008 to 2017. Panel data regression was employed to investigate the relationship, with return on capital employed (ROCE) used as a proxy for firm financial performance; they found that the effective tax rate has a negative, but relatively weak, impact on firm financial performance. This research has provided evidence that TP has both positive and negative relationships with firm performance among Nigerian listed companies.

Empirical findings indicate that tax planning tools such as ETR, BTM, and TAS affect the performance of Nigerian manufacturing firms. Some findings show a positive relationship with profitability and ROE, while others show no relationship or a negative relationship, due to firm- or sector-specific conditions and characteristics. All in all, strategic tax planning can significantly boost firm performance when appropriately applied. There is still a need to consider the extent of the impacts of various tax planning tools in the sector.

### **3. Methodology**

The section explained the research design, population, sampling procedure, data sources, methods of data collection, research variables and their measured values, and the statistical analysis techniques applied. The study used secondary data from published audited financial reports, statements of financial position, and comprehensive income of the selected firms, as well as from the Nigeria Exchange Group (NGX) Factbook and company Annual Reports. Given the research questions, the study employs an ex post facto research design. An ex post facto research design was employed because the variables being studied (Effective Tax Rate, Book-Tax Differences, Tax-to-Asset Ratio, and Return on Equity) have already occurred, and the researcher cannot manipulate them. Ex post facto research is best suited for investigating the relationships

between and possible causes of variables, since naturally occurring variables are examined without researcher intervention as events unfold.

The sample comprises 32 manufacturing firms from the list of 44. Purposive sampling technique was employed, and the sample was selected based on the following criteria: the audited financial statements for the period 2015 to 2024 were available for use; consistent financial statements under the IFRS accounting system to ensure comparative measures for all variables; and Active listing on the NGX over the duration of the study. The period from 2015 to 2024 was chosen for several reasons; it captures the post-IFRS implementation era in Nigeria and the recently enacted corporate tax policy. This allows for the analysis of contemporary tax planning behaviour in relation to firms' profits over several years.

### Model Specification

The econometric model used in this study is specified as follows: The model is adapted from prior studies (Ofor & Akaegbobi, 2022; Okafor & Okafor, 2026)

$$ROE_{it} = \beta_0 + \beta_1 ETR_{it} + \beta_2 BTD_{it} + \beta_3 TAS_{it} + \epsilon_{it}$$

Where:

- ROE = Return on Equity (dependent variable)
- ETR = Effective Tax Rate
- BTD = Book-Tax Difference
- TAS = Tax-to-Asset Ratio
- $\beta_0$  = Constant term
- $\beta_1, \beta_2, \beta_3$  = Coefficients of independent variables
- $\epsilon$  = Error term
- i = firm index
- t = Time index

**Table 1: Variable Definition and Measurement**

Variable	Description	Measurement	Source
ROE	Profitability	Net Income / Shareholders' Equity	Olayiwola & Okoro, 2021
ETR	Tax Planning	Tax Expense / Pre-Tax Income	Agboola et al., 2024
BTD	Tax Difference	Book Income – Estimated Taxable Income	Ofor & Akaegbobi (2022)
TAS	Tax Efficiency	Tax Expense / Total Assets	Onwughai et al. (2025)

Source: Researcher's Computation, 2026

## 4. Results and Discussions

**Table 2: Descriptive Statistics**

Variable	Mean	Standard Deviation	Minimum	Maximum
ROE	0.145	0.072	-0.05	0.32
ETR	0.265	0.081	0.10	0.45
BTD	0.035	0.012	0.01	0.07
TAS	0.042	0.015	0.015	0.08

Source: Researchers' Computation, 2026

Table 2 presents the descriptive statistics. The dependent variable, ROE (Return on Equity), has a mean of 0.145, indicating that firms in the manufacturing sector generate a 14.5% return on Shareholders' Equity in an average year. The effective tax rate is 0.265, which means the firm is paying roughly 26.5% tax on its profits. However, the tax rate above (0.265) is less than the required tax rate (30%). It also shows the firm's effective tax planning strategy. The averages of BTD and TAS are 0.035 and 0.042. This shows that firms are taking some tax planning measures to minimise tax liability. The minimum and maximum levels indicate variation in the performance and tax positions of manufacturing firms in Nigeria. ROE ranges from -0.05 to 0.32, indicating that while some firms reported a loss, others reported a gain of 0.32.

For the variable BTD, the average of 0.035 indicates that the firms can minimise tax accounting income, the lower standard deviation of 0.012 proves that legal tax planning practices are fairly uniformly applied to firms, and further strengthens the argument made by Ofor & Akaegbobi (2022) of BTD as having a positive influence on profitability. With a mean of 0.042 and a standard deviation of 0.015, the TAS indicates moderate variance in the firm's ability to reduce its tax burden based on its assets, as highlighted by Onwughai et al. (2025). Initial test for normality shows that all the variables follow a reasonably normal distribution; ROE and ETR have some outliers; these outliers represent unusual financial or tax implications, but in this context, their effect is properly accounted for in the regression using robust standard errors, as pointed out by Moses et al. (2025).

### Correlation Analysis

The Pearson correlation matrix assesses the strength and direction of the linear relationship between variables.

**Table 3: Correlation Analysis**

Variables	ROE	ETR	BTD	TAS
ROE	1	-0.45	0.52	0.48
ETR	-0.45	1	-0.30	-0.25
BTD	0.52	-0.30	1	0.40
TAS	0.48	-0.25	0.40	1

**Source: Researchers' Computation, 2026**

Table 3 presents the correlation analysis for the dependent variable and the independent variables. The correlation between ROE and ETR is moderately negative (-0.45), suggesting that higher tax liabilities reduce profitability (Akpanowo et al., 2024; Okafor & Okafor, 2026). The relationships between ROE and BTD and TAS are positively moderate (0.52 and 0.48, respectively), suggesting that increases in BTD and TAS are associated with higher returns, as suggested by Ofor & Akaegbobi (2022) and Onwughai et al. (2025). Also, the correlation coefficients between the independent variables were moderate, implying no high risk of multicollinearity.

### Regression Analysis

To test the effect of tax planning on firm profitability, we used panel data regression analysis. This study utilises panel data regression to assess the impact of tax planning strategies on firm profitability. A Hausman test was performed to support the choice of FE over random effects (RE). Robust standard errors are employed to account for possible heteroskedasticity and autocorrelation, yielding robust estimated coefficients.

**Table 4: Regression Results:**

Variable	Coefficient ( $\beta$ )	Standard Error	t-Statistic	p-Value
Constant	0.112	0.025	4.48	0.000
ETR	-0.38	0.09	-4.22	0.000
BTD	0.65	0.15	4.33	0.000
TAS	0.58	0.14	4.14	0.000

R-squared: 0.62

Adjusted R-squared: 0.60

F-statistic: 45.67

Prob(F-statistic): 0.000

**Source: Researchers' Computation, 2026**

The regression results in Table 4 displayed an overall good fit, with an R-squared of 0.62 and an adjusted R-squared of 0.60, suggesting that 60% of the variability in ROE can be accounted for by the independent variables ETR, BTD, and TAS. The F-statistic value of 45.67 and probability value of 0.0000 clearly imply that the model is statistically significant. The coefficient of the Effective Tax Rate (ETR), at -0.38, is statistically significant at ( $p < 0.05$ ). This implies that ETR has a negative and significant effect on ROE. This simply states that the higher the ETR, the lower the profit since higher tax expenses mean less corporate profit. This result supports Akpanowo et al. (2024) Awotomilusi et al. (2024), Adejumo & Sanyaolu (2020), Dandago & Edem (2022).

The coefficient of Book-Tax Difference (BTD) is 0.65 and significant at ( $p < 0.05$ ). It states that there exists a positive and significant relationship between BTD and ROE. This shows that a higher book-tax difference means higher profits, since it represents efficient income shifting/tax planning; it indicates that an effective use of the book-tax difference to exploit favourable tax planning yields greater corporate profits. This finding is consistent with Agboola et al. (2024), Ofor and Akaegbobi (2022), and Olaowo & Okpara (2024). The coefficient of Tax Avoidance Strategies (TAS) has a positive value of 0.58, which is also statistically significant at ( $p < 0.05$ ). This indicates that the Tax Avoidance Strategies have a positive and significant effect on ROE. This result is consistent with Adejumo & Sanyaolu (2020), Monday & Odion (2019), Dandago & Edem (2022) and some others before now. This suggests that the efficient implementation of available tax avoidance strategies, such as deductions, deferral of taxes on differences in tax and book treatment, and optimal utilisation of tax incentives or investment credit, should have a positive effect on company profits due to reduced tax burden, which will then make more cash available for corporate reinvestment. It further underscores the potential strategic impact of integrating efficient tax strategies into corporate strategy. This is, however, found applicable to the Nigerian manufacturing sector in particular.

Consistent with the Agency Theory, the study propose that those strategically planning taxes (BTD, TAS) follow a management strategy aligned with the maximisation of shareholder wealth, thereby decreasing agency costs. These results provide further evidence that tax planning is simultaneously a strategic tool and a compliance necessity. Comparisons with prior literature enhance external validity and theoretical consistency. Differences with some previous papers indicate the importance of firm size, industry, and governance in explaining differences in tax planning outcomes. Overall, the model explains 62% of the variation in ROE ( $R = 0.62$ ), indicating high explanatory power. The F-statistic indicates the overall significance of the regression model. The above findings demonstrate the importance of strategic tax planning on the profitability of Nigerian manufacturing firms (Okafor & Okafor, 2026; Moses et al., 2025).

## 5. Conclusion and Recommendation

This study explored the effect of tax planning strategy on the profitability of Nigerian manufacturing firms by testing ETR, BTD and TAS as independent variables and ROE as the dependent variable. The results show that a higher effective tax rate (ETR) is negatively associated with profitability, whereas effectively managing BTD and efficiently managing TAS can positively affect ROE. This study has confirmed that tax planning is a strategic function in managing tax, not just a tool of compliance, but also a tool of maximising shareholders' wealth. The findings also support Agency theory, as managers' strategies in managing the tax system lead to increased shareholder wealth and utilisation of internal funds, thereby improving ROE through effective and legal tax planning in Nigerian manufacturing firms.

Recommendations Based on these findings, the following recommendations are suggested:

- i. Corporate managers should adopt lawful and strategic tax planning practices that optimize book-tax differences in ways that enhance firm profitability while maintaining compliance with tax regulations.
- ii. Manufacturing firms should strengthen legitimate tax avoidance strategies through effective tax management, taking advantage of available tax reliefs, allowances, and incentives to improve after-tax profit.
- iii. Managers should carefully monitor and manage the firm's effective tax rate by ensuring efficient tax reporting and compliance practices that minimise unnecessary tax liabilities without violating statutory provisions.
- iv. Firms should improve the efficiency of asset deployment and utilization to maximise returns on investments and enhance overall financial performance.

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