Board Attributes and Tax Compliance Behaviour of Listed Manufacturing Firms in Nigeria

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https://doi.org/10.60787/AKSUJACOG.VOL6NO2.84-100

Abstract

This research presented empirical evidence on the impact of board attributes and tax compliance behaviour of twenty-eight (28) listed manufacturing firms in Nigeria within ten years (2015 to 2024). The Effective Tax Rate (ETR) was used to proxy tax compliance behaviour obtained using audited financial statements. The panel regression analysis, particularly the Random Effects Model, was the estimation of choice after the Hausman Test was used to examine the relationship between board diversity, independence, size and CEO duality. The study revealed that board independence (coefficient = 0.40, p = 0.25), board independence (coefficient = -0.34, p = 0.22), board size (coefficient = -0.01, p = 0.97), and CEO duality (coefficient = -0.18, p = 0.37) do not have a statistically significant impact on tax compliance behaviour at the 5% significance level. These findings suggested that tax non-compliance, which is a persistent challenge in the Nigerian manufacturing sector and government in terms of revenue generation, is not mainly impacted by the studied board attributes. The study recommended improving tax disclosure standards, board capacity in tax ethics and governance, deterrence of CEO duality, and the introduction of special tax compliance committees to enhance institutional governance and tax compliance in the industry.

Keywords: Board attributes, board diversity, board independence, board size, CEO duality, effective tax rate, manufacturing firm, tax compliance behaviour.

Introduction

The Nigerian economy is currently undergoing a gradual shift from oil dependency to oil government as the government is progressively becoming more dependent on domestic sources of revenue in financing infrastructural development, social welfare, and sustainable development. Tax is a mandatory levy imposed by the government on the income earned by workers, business profits or the price of certain products in order to finance government expenditure (Balogun et al., 2024). Despite the benefits it generates, tax is recognised as a cost to firms and their shareholders through a reduction in profit and, consequently, a decrease in dividends. To mitigate this cost, firms engage in tax-aggression practices.

By contributing to taxation, employment, and industrial production, the manufacturing sector is an important source of national income in Nigeria (Soyinka et al., 2022). Listed Nigerian manufacturing firms are the key engines of industrialisation, which play an important role in generating non-oil revenue. According to the National Bureau of Statistics (NBS, 2024), in Q1 2024, the manufacturing industry contributed the highest sectoral Value Added Tax (VAT) amounting to 26.72% of the total revenue. It is noted, however, that the pressure of manufacturing companies to stay profitable, cut operational costs, and simultaneously pay taxes is getting higher. The contradictory quality of these objectives leads to a challenge in which the board of directors must make tradeoffs between financial performance and the necessity to be fiscally responsible (Odunsi et al., 2024).

According to Uchendu et al. (2016), high rates of tax non-compliance in Nigeria are greatly related to the introduction of the self-assessment system of taxation, which provides taxpayers with the mandate of calculating and remitting their own taxes. There is, therefore, the likelihood of the system being bypassed in order to cut down on taxation. Also, Nahumury et al. (2018) opined that though taxpayers are aware of the law, they tend to take advantage of the loopholes in the law and structure their businesses in a manner that allows them to avoid paying taxes partially or altogether. Taxpayers are unfairly exploiting the gaps in tax regulations to identify new methods of evading tax payment. Tax compliance behaviour is defined as the degree of compliance with tax regulations at the corporate or individual level and involves fulfilling the fiscal obligations as required by the tax laws or act (Balogun et al., 2024). This multi-dimensional measure incorporates systematic compliance, or doing the right thing in terms of reporting and paying liabilities on time, and tax morale, which is associated with the willingness of a firm to cooperate with the state. The practice is viewed in the business industry as the range between high compliance and aggressive taxes and illegal tax evasion (Odunsi et al., 2024). Compliance with corporate tax is a tactical decision, which depends on the culture of internal governance of the firm, the culture of ethics, and the efficiency of the board management (Soyinka et al., 2022).

Diversity in the board, such as gender, professional background, and experience, is increasingly considered to be a source of transparency. Board diversity improves the quality of decision-making and promotes adherence to taxation requirements (Soyinka et al., 2022). Other literature indicates that female representation in governance may also be linked with tax avoidance, depending on the moderating role of accounting conservatism (Salami, 2020). Such inconsistencies present a need for empirical review on the effectiveness of the composition of boards in maintaining ethical financial practices (Sinebe & Anosike-Akude, 2024).

Board independence is significant in increasing the accountability of the firm. The independent director provides a neutral control, minimises managerial opportunism, and ensures that the tax regulations are followed (Soyinka et al., 2022). In Nigeria, however, their performance is usually undermined by the weak institutional enforcement and non-independent directors.

Another important factor that determines the effectiveness and efficiency of corporate governance is the size of the board. Larger boards are more involved in oversight functions and introduce a variety of experiences, which can minimise adherence to the tax act (Soyinka et al., 2022). Conversely, the empirical evidence suggests that the board size of larger listed manufacturing companies may also be linked to higher tax aggressiveness because of coordination issues or disjointed corporate interests (Odunsi et al., 2024; Saminu & Bitrus, 2024). Besides, small boards can be decisive but do not have the required expertise to address complicated fiscal issues (Yusuf et al., 2024).

CEO duality, where the Chief Executive Officer is also the Board Chairperson, also remains a challenge in tax compliance. Concentration of power in the hands of one person usually

diminishes the autonomy of the board and its capability to offer an objective oversight (Ezejiofor & Ezenwafor, 2020). Companies that are governed by CEO duality systems can be more prone to aggressive tax planning as a tool of inflating reported performance (Ezejiofor & Ezenwafor, 2020). Nevertheless, recent findings in the industrial goods industry indicate that CEO duality as a predictor of tax avoidance is not significant in the presence of strong internal controls (Ilaboya & Aronmwan, 2023). The fact that these leadership forms persist within the Nigerian manufacturing companies, thus, poses significant questions of their role in corporate integrity (Odunsi et al., 2024).

There exist structural and behavioural issues in spite of the implementation of codes of corporate governance and the self-assessment tax system that encourages voluntary compliance (Balogun et al., 2024; Soyinka et al, 2022). Though manufacturing firms remain the core of industrial development in Nigeria, additional empirical studies are needed to ascertain the role of board attributes in promoting or endangering fiscal stability.

Tax non-compliance is more pronounced among corporate entities when they are driven by shareholders' wealth maximisation (Abanum & Ebiaghan, 2022). According to a survey of eighty-five non-financial firms by Ogbeide (2017), 65% of firms studied engage in tax avoidance activities. However, the extent of tax compliance varies across industries and is influenced by industry-specific attributes. Therefore, this study contributes to ongoing research on whether board attributes have an influence on the tax compliance behaviour of Nigerian listed manufacturing firms. Understanding how these board attributes affect these institutions offers evidence relevant for regulatory policy and corporate governance practice in developing economies.

1.1 Aims and Objectives of the Research

This study aimed to examine the effects of board structural attributes on tax compliance behaviour of listed manufacturing firms in Nigeria. Specifically, the objectives of the study are:

i. to determine the effect of board diversity on the tax compliance behaviour of quoted manufacturing firms in Nigeria.
ii. to assess the relationship between board independence and the tax compliance behaviour among listed manufacturing companies in Nigeria.
iii. to evaluate the influence of board size on the tax compliance behaviour among listed manufacturing companies in Nigeria.
iv. to examine the impact of CEO duality on the tax compliance behaviour among listed manufacturing companies in Nigeria.

1.2 Research Hypothesis

Based on the research objectives, the following null hypotheses are formulated:

$\mathbf{H_{01}}$: Board diversity has no significant effect on the tax compliance behaviour of quoted manufacturing firms in Nigeria.

$\mathbf{H_{02}}$: There is no significant relationship between board independence and the tax compliance behaviour of listed manufacturing firms in Nigeria.

$\mathbf{H_{03}}$: Board size has no significant influence on the tax compliance behaviour of listed manufacturing firms in Nigeria.

$\mathbf{H_{04}}$: CEO duality has no significant impact on the tax compliance behaviour of listed manufacturing firms in Nigeria.

Literature Review

2.1 Tax Compliance Behaviour

Tax compliance can be described as the level of adherence by taxpayers to the prevailing tax laws and acts without the need to involve force. According to Balogun et al. (2024), developing countries have shifted to self-assessment systems, which enable taxpayers to determine and pay their own taxes, thus cutting down on the direct administrative expense of the state. Researchers also stress that compliance is not limited to the payment but also to the proper reporting of income and the legitimate claiming of expenses, and should be carried out according to the law (Sani, 2023). This readiness to adhere to the law is usually influenced by a set of ethical factors, legal contexts, and the time or place where financial operations occur (Vythelingum et al., 2017).

High degrees of non-compliance continue to pose a challenge, especially in developing regions where the capacity to enforce may be unavailable. The prevalence of non-compliance is significantly high in the informal sector with self-employed people and small businesses, which tend to have low tax morale (Mohdali et al., 2018). The perceived fairness of the tax system, confidence in the state institutions, and saliency of state expenditure are several factors that contribute to the participation of the taxpayer (Balogun et al., 2024). Moreover, the absence of strong enforcement policies, as well as the existence of a large informal sector, may do away with the spirit of the law, causing a larger economic turmoil (Orumwense & Aiwoho, 2021).

Tax compliance is structurally divided into different types, including voluntary and enforced compliance or administrative and technical requirements. Administrative compliance is concerned with the form of making and paying, and technical compliance is required to have the correct calculation of the tax liabilities in accordance with the law. There are also behavioural typologies between committed taxpayers who pay voluntarily and those who are creative in complying with the law, seeking to exploit the loopholes in the law. In Nigeria, the use of such digital solutions as the Taxpayer Identification Number (TIN) and the Tax ProMax system has contributed to the significant growth of the tax base and improvement of revenue collection by simplifying the registration and filing procedures (Ezegwu & Agbaji, 2014).

2.2 Effective Tax Rate

The Effective Tax Rate (ETR) can be defined as the actual tax burden faced by a corporate entity. It is determined by dividing total tax expenses by pre-tax accounting income. The importance of ETR is that it links taxable income to accounting profit. It is the extent to which a firm utilises tax planning, incentives, and allowances to reduce statutory tax liability. The ETR is used in Nigeria as a measure of tax aggressiveness or compliance stability with the statutory Corporate Income Tax (CIT) rate of 30%. When there is a significant decline in the ETR relative to the statutory rate, it is a general indication that a firm has aggressive tax avoidance practices. A stable ETR that is near the statutory rate, on the other hand, indicates a higher level of fiscal compliance and transparency. Scholars distinguish between the Generally Accepted Accounting Principles (GAAP) ETR, the deferral of taxes, and the Cash ETR, the actual payments to tax authorities. They both are indicators of the effectiveness of corporate governance mechanisms in the relationship between a company and the state.

ETR has been selected as the primary measure of the tax compliance behaviour in this study. It is applicable in the field of governance research since, in contrast to tax evasion, which is secret and illicit, ETR is an open financial report that reveals the tax liability on a company (Onatuyeh & Ukolobi, 2020; Soyinka et al., 2022). A low ETR relative to the statutory rate is an indicator of tax aggressiveness, whereas a high ETR is an indicator of compliance (Inua, 2018;

Odunsi et al., 2024). Also, published annual reports can be used to compute ETR, which facilitates longitudinal panel analysis without confidential tax information (Ogbeide et al., 2022).

2.3 Board Attributes and Tax Compliance Behaviour

The board of directors is very important in effective corporate governance in terms of its strength, integrity, and competence. The board leads corporate strategy, provides accountability, and enhances transparency (Kovermann & Velte, 2019; Abdelfattah & Aboud, 2020). Board attributes are such aspects of board size, independence, diversity, and board leadership structure, which determine the effectiveness of the board to monitor the management, advance ethical conduct, and adhere to regulations (Shamil et al., 2023). Good boards with diverse experiences and good judgment contribute to transparency and minimise agency problems (Lanis et al., 2017; Salami, 2020). Tax compliance behaviour is a practice used to describe the readiness of firms to adhere to the rules of taxation by reporting proper income, submitting returns and paying on time (Soyinka et al., 2022). Research has revealed that board characteristics have a strong influence on the compliance behaviour of firms. Good boards minimise managerial opportunism and facilitate ethical financial practices (Tivde & Hussaini, 2023; Odunsi et al., 2024). Board accountability helps eradicate aggressive tax planning and encourages transparency in reporting since well-structured and competent boards deter such practices (Ebimobowei, 2022; Saminu & Bitrus, 2024). However, the impact of board characteristics on tax compliance cannot be so unambiguous since some say that tax management decisions are in the hands of management and not the board (Kovermann & Velte, 2019). The paper concentrates on the size of the board, board independence, board diversity, and CEO duality as the important characteristics that influence tax compliance behaviour in Nigerian listed firms.

2.3.1 Board Diversity and Tax Compliance Behaviour

Board diversity has emerged as a vital part of corporate governance**.** It includes the differences in gender, ethnicity, age, education, and professional experiences, which lead to more effective decision-making, responsibility, and ethical actions (Lanis et al., 2017; Abdelfattah & Aboud, 2020)**.** It stimulates creativity and improves supervision. In this case, gender diversity, specifically, is linked to increased transparency and risk management (Salami, 2020; Ebimobowei, 2022). Studies have mostly indicated that boards composed of diversity encourage ethical taxation and minimise aggressiveness. Research works such as that of Tivde & Hussaini (2023) and Odunsi et al. (2024) have discovered that gender board diversity assists in reducing tax aggressiveness and enhancing compliance in Nigerian manufacturing companies. Likewise, Salami (2020) and Ebimobowei (2022) found that the presence of women in governance positions is positively correlated with tax avoidance behaviour, with accounting conservatism moderating the relationship. According to Saminu & Bitrus (2024), the diversity of boards had a significant influence on the tax avoidance behaviour of the listed manufacturing companies in Nigeria. Nevertheless, a study by Inua (2018) and another by Ogbeide et al. (2022) revealed that the effect is not significant. This implies that the influence of diversity in tax compliance could be subject to other factors like governance structure, enforcement systems and cohesiveness of the board of directors.

2.3.2 Board Independence and Tax Compliance Behaviour

Corporate governance requires board independence, which enhances transparency, accountability and proper oversight. It achieves this by ensuring that the decisions made by directors who have no strong ties with the organisation can be made without bias (Shamil et al., 2023; Kovermann &

Velte, 2019). Independent directors assist in minimising the conflict of interest, curbing managerial opportunism, and enhancing adherence to ethical and regulatory requirements (Abdelfattah & Aboud, 2020; Lanis et al., 2017). The results of the research on the relationship between board independence and tax compliance are conflicting. Other works indicate that companies that have more independent directors are less aggressive in taxation and more likely to comply with the tax laws (Odunsi et al., 2024; Tivde & Hussaini, 2023; Soyinka et al., 2022). It means that independence promotes ethical financial conduct and good reporting practices. Other studies, however, did not establish any significant association between tax compliance and board independence. This implies that independence might not be effective without the presence of effective regulatory controls and enabling governance systems. Indicatively, Shamil et al. (2023) found that the results on the issue of board attributes and tax aggressiveness depended on the ETR measure used. Equally, Ogbeide et al. (2022) established that independence enhanced monitoring but failed to translate into tax-compliant behaviour. In general, the quality of oversight and ethical standards are usually increased with the presence of independent directors, although the evidence is inconclusive. This can result in improved tax compliance when put in conjunction with good institutional structures.

2.3.3 Board Size and Tax Compliance Behaviour

Board size is a corporate governance aspect that determines the capacity of a board to provide oversight, establish strategic directions, and make decisions (Shamil et al., 2023; Kovermann & Velte, 2019). The bigger boards and board membership with varied professionals can provide more monitoring and access to various knowledge and opinions. Smaller boards, conversely, may function more unified and efficiently (Lanis et al., 2017; Abdelfattah & Aboud, 2020). The studies tend to associate the size of boards with ethical tax conduct. The existence of diverse boards tends to prevent tax aggressiveness (Odunsi et al., 2024; Tivde & Hussaini, 2023). It has also been found that bigger boards are more likely to support conservative tax policies and increased reporting transparency (Ebimobowei, 2022; Saminu & Bitrus, 2024). Nevertheless, other things, including the quality enforcement of governance and cohesion of the board, have an impact on the relationship (Inua, 2018; Ogbeide et al., 2022). The evidence is inconclusive, but the larger the board size, the more likely the companies in Nigeria will comply with tax regulations and act ethically.

2.3.4 CEO Duality and Tax Compliance Behaviour

CEO duality is where the Chief Executive Officer and the Chairperson of the Board are the same individual. This puts both executive and oversight authority in one individual (Ezejiofor & Ezenwafor, 2020; Shamil et al., 2023). Proponents believe that one leader enhances accountability and strategy, whereas opponents believe it reduces the independence of the board, weakens accountability, and creates managerial opportunism (Kovermann & Velte, 2019; Abdelfattah & Aboud, 2020). The studies typically associate the duality of CEOs with more aggressive tax policies and poorer compliance controls. According to Ezejiofor & Ezenwafor (2020), CEO duality influenced tax planning in Nigerian food and beverage firms positively, which implies that failure to separate such positions makes it possible to extract managerial rents. Equally, Shamil et al. (2023) discovered that board structure, such as leadership consolidation, had an effect on tax aggressiveness in companies operating in the emerging markets, and the results were inconsistent across the measures of effective tax rates. Saminu & Bitrus (2024) opined that board structure played a significant role in terms of tax aggressiveness in listed Nigerian manufacturing firms, but Odunsi et al. (2024) concluded that board structure was positively correlated with more aggressive tax practices in Nigerian manufacturing firms with CEO duality. Overall, the evidence indicates

that the duality of CEO weakens governance oversight and tax compliance by lowering the board independence and internal control, especially in a weak regulatory environment.

2.4 Theoretical Framework

This paper is anchored on Agency Theory, the Stakeholder Theory, and Stewardship Theory to demonstrate the influence of board characteristics on the tax compliance behaviour of listed manufacturing companies in Nigeria.

The conflict of interests between shareholders (principals) and the managers (agents) is emphasised in the Agency Theory created by Jensen & Meckling (1976). Managers might also have their own selfish interests, including tax avoidance at the expense of the stability of the organisation in the long run. The theory emphasises the quality of governance instruments such as board independence and board size to align the actions of managers with the interests of shareholders (Kovermann & Velte, 2019). This is supported by evidence that more independent and diverse boards are more transparent and easier to adhere to tax laws (Tivde & Hussaini, 2023; Soyinka et al., 2022). But critics claim that the agency theory pays too much attention to managerial opportunism and ignores inherent factors behind compliance (Donaldson & Davis, 1991). In Nigeria, the agency-based controls can enhance oversight but can increase compliance expenses without promoting voluntary compliance with taxes.

The stakeholder Theory, which was suggested by Freeman (1984), broadens the scope of governance to not only the shareholders but also the employees, the governments, communities, and the tax authorities. It claims that to ensure corporate legitimacy and sustainability in the long term, ethical tax conduct is crucial (Abdelfattah & Aboud, 2020). Diverse and inclusive boards have greater chances of taking into account the views of the stakeholders and becoming responsible in the tax practices they engage in (Lanis et al., 2017). According to studies by Tivde & Hussaini (2023) and Ebimobowei (2022), companies that prioritise stakeholder interests by reporting their tax position tend to have improved governance outcomes. Nevertheless, the theory is criticised of insufficient guidelines on how to balance the competing interests of stakeholders (Kovermann & Velte, 2019).

Another perspective of agency theory is the Stewardship Theory propounded by Donaldson & Davis (1991). It presupposes that managers are honest custodians of the company, who will make the best decisions in the interest of the company, inspired to act ethically, including voluntary tax compliance. According to this theory, external control is less important than leadership integrity and long-term commitment (Donaldson & Davis, 1991). As research such as Odunsi et al. (2024) discovered, well-organised boards demonstrate enhanced compliance due to accountability and stewardship. Nevertheless, this is not necessarily sufficient in a weak institutional enforcement setting, such as Nigeria, where managerial integrity is the only guiding force (Ezejiofor ^& Ezenwafor, 2020). As such, the stewardship theory ought to be used in addition to external monitoring mechanisms and not in their place.

Methodology

3.1 Research Design

The research adopted an ex-post facto research design, utilising historical accounting data in order to investigate the effect of the attributes of the board on tax compliance behaviour of listed manufacturing companies in Nigeria. The secondary data consisted of audited annual reports of 39 firms listed on the Nigerian Exchange Group between 2015 and 2024. Board size, board independence, gender diversity and CEO duality were the independent variables. Effective tax rate was a measure of tax compliance behaviour. The panel least squares regression was used with the Hausman test to select the most appropriate model among the pooled, fixed, and random effects

models. R-Studio version 4.5.1 was used to perform all the analyses, including descriptive statistics, correlation, and regression analysis.

The population includes all manufacturing firms listed in the Nigerian Exchange Group (NGX) by 2025. The manufacturing firms which are listed are divided into 3 separate sub-sectors, depending on the nature of operation and focus in the industry. This categorisation is aligned with the past Nigerian research that adhered to the same NGX sub-sector, including Tivde & Hussaini (2023). The three sub-sectors in the manufacturing area of the Nigerian Exchange Group as of 2025 are as follows:

Table 1: Nigerian Listed Manufacturing Firms

Subsector	**Total No Of Firms**
Consumer Goods	20
Healthcare	7
Industrial Goods	12
Total	**39**

Source: Nigerian Stock Exchange Group (2025)

Taro Yamane's (1967) formula was used to determine the required sample size. The formula is given as:

$$n_N = \frac{N}{1 + Ne^2}$$

Where $n_N =$ Sample Size required from the study's population, $N =$ Population, and $e =$ Sampling Error

The sample size is calculated as:

$$\mathrm{n_N} = \frac{\mathrm{N}}{1 + \mathrm{N(e)^2}} = \frac{39}{1 + 39(0.05)^2} = \frac{39}{1 + 39(0.0025)} = \frac{39}{1 + 0.0975} = \frac{39}{1.0975} = 35.53507$$
$$\approx 36 \text{ firms}$$

The selection was narrowed down using purposive sampling. The inclusion criteria were:

i. The firms should have been listed before the 2015 base year and should have remained listed up to the year 2024.
ii. Firms should not have been delisted, newly listed or suspended at any point in the 2015-2024 period.
iii. All the chosen companies should possess a continuous record of annual financial reports and corporate governance reporting during the years of the study.

A sample of 28 firms was included following the application of these filters. The sampled companies are:

Table 2: List of Sampled Manufacturing Firms

S/N	Name of Manufacturing Company	S/N	Name of Manufacturing Company
	Cadbury Nigeria Plc.		May & Baker Nigeria Plc.
	Champion Breweries Plc.		Morison Healthcare
	Dangote Sugar Refinery Plc.		Neimeth Int'l Pharmaceuticals Plc.
	Fidson Healthcare Plc.		Tripple Gee and Company Plc.
	Guinness Nigeria Plc.	.	Austin & Laz Company Plc.
.	Honeywell Flourmill Plc.	.	Berger Paints Plc.
.	Mcnichols PLC.	.	Beta Glass Plc.
.	Nascon Allied Industries Plc.	.	Bua Cement Plc.
.	Nestle Nigeria Plc.	.	CAP Plc.
.	Nigerian Brew Plc.	.	Cutix PLC.
.	Northern Nigeria Flour Mills Plc.	.	Dangote Cement Plc.
.	Unilever Nigeria Plc.	.	Lafarge Africa Plc.
.	Union Dicon Salt Plc.	.	Meyer PLC.
.	Vitafoam Nig Plc.	.	Pz Cussons Nigeria Plc.

Source: Nigerian Stock Exchange Group (2025).

3.2 Operationalisation and Measurement of Variables

The operational definitions and metrics of measurement of the variables in the analysis of this study present a structured overview of the methodology of calculating them and the academic justifications, as presented in Table 3.

Table 3: Operational Definition of Variables

Variables	Definition	Measurement	Sources
Effective Tax Rate	Income tax liability divided by income before tax.	$\frac{\text{Tax Expense}}{\text{EBT}}$	Abanum & Ebiaghan (2022)
Board Independence (BI)	Independent non-executive board of directors divided by the total number of directors.	$\frac{\#\text{ of Independent directors}}{\#\text{ of directors}}$	Abanum & Ebiaghan (2022)
Board Diversity (BD)	Percentage of female directors on the board.	$\frac{\text{No. of Female directors}}{\text{No. of directors}}$	Salami (2020)
Board Size (BS)	Cumulative board of directors.	$\sum \text{No. of Directors}$	Tivde & Hussaini (2023)
CEO Duality (CD)	Dummy coded 1 if the Chairman is also the CEO, else 0.	0 or 1	Ezejiofor & Ezenwafor (2020)

3.3 Model Specification

To investigate the effect of board attributes on tax compliance behaviour of listed manufacturing firms in Nigeria, a fixed and random effect regression model was used. The regression model is expressed as

$$\text{Etr} = f(\text{BI}, \text{BD}, \text{BS}, \text{CD}) \ldots\ldots\ldots\

Table 4 shows descriptive statistics of the tax compliance variable (proxied by Effective Tax Rate - ETR) and corporate governance variables in 280 observations of Nigerian firms. The mean tax compliance is ETR of 0.28 (28%), a notch lower than the statutory corporate tax rate of 30 per cent on large businesses in Nigeria, so on average, the sampled firms will have a modest decrease in tax liability by using available incentives, capital allowances, and tax planning strategies without incurring high levels of compliance. It has a wide-ranging variable of -4.72 to 8.04 (mostly negative, which is highly likely due to tax advantages or refunds), extreme positive skew of 4.28 and very large kurtosis of 68.76, and is strongly non-normative as it has a Jarque-Bra statistic of 54,038.05 (p-value = 0. The board size is 9.68 on average (median of 9.00), with a slight positive skewness of 0.57 and almost flat kurtosis of -0.07, although the board size still does not follow the normal distribution according to the Jarque-Bra test (15.23, p-value = 0.00). The mean of board diversity is 0.23 (median 0.22), with a range of 0.00 to 0.67, a slightly positive skew of 0.27, and slightly negative kurtosis of -0.19, with the Jarque-Bra statistic being 0.14, and hence is normally distributed. The board independence has a mean of 0.15 (median 0.08), with a range of 0.00 to 0.79, a positive skewness of 1.32 and a moderate leptokurtosis of 1.25 and does not follow a normal distribution based on the Jarque-Bra statistic of 97.23 (p-value = 0.00 CEO duality is a binary variable with a low mean of 0.07, indicating that only approximately 7 per cent of the variables include the CEO as board chair, with significant positive skewness of 3.35 and strong kurtosis of 9.26, and the Jarque-Bra of 1,478.15 (p-value = 0.00) indicates high non-normality.

4.2 Correlation Analysis

Table 5: Correlation Matrix

Variable	Board Size	Board Diversity	Board Independence	CEO Duality	Tax Compliance
Board Size	1.00				
Board Diversity	0.01	1.00			
Board Independence	0.16	0.34	1.00		
CEO Duality	0.03	-0.20	-0.08	1.00	
Tax Compliance	-0.01	0.05	-0.05	-0.08	1.00

Source: Data analysed using R-Studio (2025).

The correlation analysis indicates that there is no relationship between tax compliance behaviour and other variables, with a value of 0.530 and the relationship varies between -0.08 and 0.05. Board size and board diversity also have no relationship of 0.014. This shows that there is minimal or no linear relationship between these variables. There is a negative relationship between board diversity and Chief Executive Officer duality (-0.20), indicating that more diverse boards have a negative connection with the separation of Chief Executive Officer and board chair roles. The problem of multicollinearity does not occur as all the correlation coefficients remain below 0.7.

4.3 Variance Inflation Factor Analysis

Table 6: Multicollinearity Test

Variable	VIF	TV
Board Size	1.43	0.70
Board Diversity	1.20	0.83
Board Independence	1.37	0.73
CEO Duality	1.06	0.94
Mean VIF	1.37	

Source: Data Analysis from R-Studio (2025).

All variance inflation factor values are below 10, and tolerance values exceed 0.1. This shows no multicollinearity among the independent variables, consistent with Gujarati's (2004) rule of thumb. The mean variance inflation factor of 1.37 confirms the absence of multicollinearity.

4.4 Regression Analysis

The research compared goodness of fit and overall significance of the regression models in terms of R-squared, Adjusted R-squared, F-statistic, p-values, and Durbin-Watson statistic in the Pooled OLS, Fixed Effects, and Random Effects models.

Table 7: Correlated Random Effects Test – Hausman Test

Test	Chi Square	DF	P Value	Decision
Hausman Test	3.06	5.00	0.69	Use RE
Cross-Section Random Effects Test Comparisons				
Variable	**Fixed Effect**	**Random Effect**	**Var Difference**	**RE P - Value**
BD	0.57	0.40	0.17	0.25
BI	-0.63	-0.34	-0.29	0.22
BS	-0.01	0.00	0.00	0.97
CD	-0.07	-0.18	0.11	0.37

Source: Data analysis from R-Studio (2025).

Hausman specification test was carried out to determine the most appropriate model between the Fixed Effects and the Random Effects model. The chi-square test was found to be 3.06 with 5 degrees of freedom and a p-value of 0.69. The random effects model is the best specification since the p-value is significantly greater than the standard 5% level of significance. This finding justifies the application of the random effects estimator in the examination of the connection between the variables of corporate governance and tax compliance behaviour.

Table 8: Regression Model – Fixed Effect, Random Effects and Pooled Ordinary Least Squares (OLS)

	Fixed Effect			Pooled OLS			Random Effect		
	β	**SE**	**Prob.**	**β**	**SE**	**Prob.**	**β**	**SE**	**Prob.**
β_0	0.92	0.85	0.28	0.25	0.35	0.48	0.29	0.40	0.47
BD	0.57	0.42	0.18	0.32	0.33	0.33	0.40	0.35	0.25
BI	-0.63	0.36	0.09	-0.28	0.26	0.27	-0.34	0.28	0.22
BS	-0.01	0.03	0.65	0.00	0.02	0.96	-0.01	0.02	0.97
CD	-0.07	0.51	0.89	-0.19	0.17	0.25	-0.18	0.20	0.37
Weighted Statistics									
R Squared	0.02			0.01			0.01		
Adjusted R Squared	-0.11			-0.01			-0.01		
F-Statistic	1.09			0.69			3.53		
P-Value	0.37			0.63			0.62		
Durbin Watson Stat.	1.51			1.85			1.22		

Source: Data analysis from R-Studio (2025).

The intercept does not have a significant effect (β = 0.92, p = 0.28) in the Fixed Effects model. This depicts that the constant does not have any major predictive value on tax compliance. There is a positive but insignificant relationship (β = 0.57, p = 0.18) between board diversity and compliance, therefore, higher levels of diversity do not yield higher compliance. Board independence demonstrates a negative and rather insignificant correlation (β = -0.63, p = 0.09), which means that very independent boards might lack the necessary connection to influence tax behaviour in a positive way. The effects of the board size (β = 0.01, p = 0.65) and the CEO duality (β = 0.07, p = 0.89) are also not significant and, therefore, indicate that neither the size of the board nor CEO duality has a significant effect on compliance. These patterns are reflected in the Pooled Ordinary Least Squares and Random Effects models Intercepts remain insignificant (β = 0.25, p = 0.48; β = 0.29, p = 0.47), board diversity is positively related but non-significant (β = 0.32, p = 0.33; β = 0.40, p = 0.25), and board independence is negatively associated but insignificant (β = -0.28, p = 0.27; β = -0.34, p = 0.22). The number of board members and CEO duality does not have an effect on any model. R-squared values range between 0.01 and 0.02, adjusted R-squared values are low or negative (-0.11 to -0.01), and F-statistics are insignificant (0.69, 1.09, 3.53; all p > 0.05). This indicates that the independent variables are only able to explain a modest amount of the variance in tax compliance. Durbin-Watson (1.85, 1.51, 1.22) values indicate that there is moderate autocorrelation.

4.5 Discussion of Findings

The results showed that board independence has a negative and statistically insignificant relationship with tax compliance. This means that the effective tax rates of listed manufacturing companies in Nigeria do not strongly depend on the proportion of independent directors on the board. This observation does not align with Agency Theory (Jensen & Meckling, 1976), according to which independent directors would observe the behaviour of managers to make them act in accordance with the interests of shareholders and regulators. Nevertheless, in Nigeria's weak enforcement environment, the mere presence of independent directors does not translate into any tangible compliance outcomes. Soyinka et al. (2022) and Ogbeide et al. (2022) also concluded that

board independence does not, in all cases, result in compliant tax behaviour, unlike Tivde & Hussaini (2023).

There was a positive and statistically insignificant relationship between board diversity and tax compliance. This implies that the gender and professional representation of the board does not greatly influence the effective tax rates of Nigeria-listed manufacturing firms. Kovermann & Velte (2019) observed that there are no standard effects of governance mechanisms on compliance in every situation. This observation aligns with the Stakeholder Theory (Freeman, 1984), which is based on inclusiveness and moral accountability in decision-making. It indicates that, although it might be true that different boards are more responsive to the interests of different stakeholders, such as the tax authorities, the low number of women on the manufacturing boards in Nigeria restrains the practicality of this method in terms of tax compliance (Ebimobowei, 2022; Tivde & Hussaini, 2023). Salami (2020) and Lanis et al. (2017) discovered that gender diversity tends to be related to less tax aggressiveness in other environments. Nonetheless, the finding in this paper is not significant, implying that the relationship is mediated by institutional variables in the Nigerian manufacturing industry.

It was also found that the size of the board does not have a statistically significant association with tax compliance, implying that the size of the board does not have a significant impact on the effective tax rates of listed manufacturing companies in Nigeria. The result is consistent with Kovermann & Velte (2019), who identified that the board size does not always yield compliance results in various institutional contexts. On the same note, Abdelfattah & Aboud (2020) found that the structural variables of the boards produce context-specific results in the emerging markets. According to the Stewardship Theory (Donaldson & Davis, 1991), this finding confirms that the degree of board supervision is decided by the moral motivation and competencies of individual board members, and not the mere number of directors on the board. This stance is also supported by Odunsi et al. (2024), who found that the association between board size and tax aggressiveness of Nigerian manufacturing firms is not linear.

The correlation between CEO duality and tax compliance is negative and statistically insignificant, showing that the merging of the CEO and board chair positions in an individual does not have a significant impact on the effective tax rates of listed manufacturing companies in Nigeria. Although Agency Theory (Jensen & Meckling, 1976) indicates that concentrated leadership minimises board independence and increases the probability of management opportunism, including aggressive tax behaviour, the inconsequential result indicates that in the Nigerian manufacturing industry, the formal leadership structure by itself does not predict the results of tax compliance. Ezejiofor & Ezenwafor (2020) revealed that CEO duality has a substantial effect on tax planning in food and beverage companies in Nigeria, whereas Shamil et al. (2023) found inconclusive results depending on the ETR measure adopted. Saminu & Bitrus (2024) and Tivde & Hussaini (2023) also observed that the relationship between board structural attributes and Nigerian listed firms is context-specific and therefore, the CEO duality requires complementary governance and enforcement systems to exhibit any quantifiable impact on tax compliance. In general, the results can be characterised as a complicated scenario that cannot be explained by a single theoretical approach, which supports the multi-theoretic approach adopted. Agency Theory suggested that structural governance variables, particularly the independence of the board and CEO-chair separation, would greatly restrict managerial opportunism and even encourage tax compliance. The low significance of these variables indicates that formal controls are not sufficient, particularly in instances of weak institutional enforcement. This indicates that agency-based monitoring is most effective in a pro-regulatory atmosphere (Kovermann & Velte, 2019; Ezejiofor & Ezenwafor, 2020).

The Stakeholder Theory indicates that the various boards facilitate ethical tax conduct, and although this outcome is congruent with the diversity outcome, the insignificant outcome means that various boards are yet to reach a stage in which they can influence tax compliance outcomes in Nigeria. This is probably explained by the fact that women and minorities are still underrepresented in these boards (Salami, 2020; Lanis et al., 2017; Ebimobowei, 2022). The overall insignificance of all four board attributes is best explained using Stewardship Theory as the most contextually relevant. In situations where governance is conducted in an informal manner and where the leaders are driven by morals, instead of controls, the ethical behaviour of individual directors, and not the board composition per se, becomes the determinant of tax compliance behaviour (Donaldson & Davis, 1991).

These theories imply that a combination of better quality of governance, ethical leadership, and institutional enforcement could be a more sure-footed approach to improving tax compliance than any one structural board characteristic in isolation.

Conclusion and Recommendations

This study examined the influence of corporate governance characteristics on the behaviour of tax compliance among Nigerian listed manufacturing firms. The results indicate that the attributes of boards, including board independence, board diversity, board size, and CEO duality, cannot be measured to affect tax compliance. These relationships do not match with Agency Theory and Stewardship Theory. In particular, the independent board is positively related to ethical and transparent tax conduct, although the relationships are not statistically significant. Similarly, CEO duality, board diversity, and board size do not appear to have any significant impact on compliance. The models used are not very explanatory, thus indicating that other institutional, structural and enforcement-related factors might be more influential in explaining tax compliance among manufacturing firms in Nigeria.

Following the findings of the study, it is recommended that companies enhance transparency through transparent and clear tax disclosure criteria, board capacity building in tax compliance and corporate ethics through training and workshops, discourage CEO duality to enhance independent oversight and accountability, and pursue effective governance through better board effectiveness and the establishment of special compliance committees. Also, regulators should strengthen the enforcement systems and offer guidance to make governance structures yield more compliance outcomes.

Future studies should include other board attributes, like quality of regulation, audit effectiveness, and ownership structure, to have more insight into what promotes corporate tax compliance in Nigeria.

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