



Board Monitoring Mechanisms and Effective Tax Rates: Evidence from Nigerian Deposit Money Banks

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Abstract

This study examines the effect of board monitoring mechanisms on the effective tax rates (ETR) of Nigerian deposit money banks. Specifically, it investigates the influence of board meeting frequency and board gender diversity on firms' tax outcomes. Using an ex post facto research design, panel data were collected from thirteen listed deposit money banks in Nigeria over the period 2012–2024. The study employed a random effects regression model to analyze the relationship between the variables. The findings reveal that board meeting frequency has a negative but statistically insignificant effect on ETR, suggesting that increased board activity does not necessarily translate into improved tax compliance. In contrast, board gender diversity has a positive and statistically significant effect on ETR, indicating that higher female representation on boards enhances tax compliance and reduces tax avoidance. The study concludes that while board activity alone may be insufficient, board composition particularly gender diversity plays a crucial role in influencing corporate tax behavior. It recommends promoting gender diversity and improving the effectiveness of board processes to strengthen corporate governance and enhance tax compliance in the Nigerian banking sector.

Keywords: Board monitoring mechanisms, Effective tax rates, Board meeting frequency, Board gender diversity

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Introduction

Corporate taxation remains a critical source of government revenue, particularly in developing economies such as Nigeria where public finance heavily depends on corporate income taxes. Within this context, the effective tax rate (ETR) has become a widely used measure for evaluating firms' tax burden and tax planning behavior. ETR reflects the proportion of pre-tax income paid as tax and is often employed as a proxy for tax avoidance or tax aggressiveness in empirical accounting and finance research (Hossain et al., 2025). Lower ETRs are typically interpreted as evidence of aggressive tax planning strategies, while higher ETRs suggest greater compliance with statutory tax obligations. In recent years, attention has increasingly shifted toward the role of corporate governance mechanisms in shaping firms' tax outcomes. Corporate governance provides a system of oversight and control designed to align management actions with shareholders' interests and

broader stakeholder expectations. Among these mechanisms, board monitoring attributes such as the frequency of board meetings and gender diversity have been identified as crucial determinants of corporate decision-making, including tax-related strategies (Yahaya et al., 2023). Effective boards are expected to limit opportunistic managerial behavior, including excessive tax avoidance, which may expose firms to reputational and regulatory risks.

The frequency of board meetings is commonly viewed as an indicator of board diligence and monitoring intensity. Boards that meet more frequently are presumed to provide stronger oversight, enabling timely review of financial reporting, risk management, and tax planning activities. Empirical evidence suggests that increased board activity enhances transparency and reduces aggressive financial practices, including tax avoidance (Sani & Umar, 2023). However, some studies argue that excessive meetings may also reflect reactive governance rather than proactive control, thereby producing mixed outcomes in relation to ETR. Similarly, board gender diversity has gained prominence in governance research due to its potential to influence ethical standards, decision-making quality, and risk preferences. Diverse boards are believed to bring broader perspectives and improved scrutiny, which can curb aggressive tax practices and promote compliance (Riguen et al., 2020). Conversely, other studies indicate that gender-diverse boards may enhance strategic decision-making capabilities, potentially leading to more sophisticated tax planning and lower ETRs (Boussaidi & Hamed-Sidhom, 2021). This divergence in findings highlights the need for further empirical investigation, particularly in emerging markets.

The Nigerian banking sector presents a compelling context for examining these relationships. Deposit money banks are highly regulated institutions with significant economic importance, yet they also face strong incentives to optimize tax liabilities. Prior studies in Nigeria have shown that corporate governance attributes, including board structure and diversity, significantly influence tax aggressiveness and financial reporting behavior (Ugwu et al., 2024; Musa et al., 2024). Despite these insights, limited attention has been given to how specific board monitoring mechanisms jointly affect ETR within the banking sector. Furthermore, the evolving regulatory environment in Nigeria, characterized by reforms in corporate governance codes and tax administration, underscores the importance of understanding how internal governance structures interact with external compliance requirements (Salaudeen & Abdulwahab, 2022). As such, examining the interplay between board meeting frequency, gender diversity, and ETR can provide valuable insights for policymakers, regulators, and stakeholders seeking to enhance transparency and accountability in the financial system.

Despite the growing emphasis on corporate governance as a mechanism for enhancing transparency and accountability, the extent to which specific board monitoring attributes influence corporate tax outcomes remains unclear, particularly in developing economies like Nigeria. Deposit money banks operate in a highly regulated environment, yet evidence suggests variations in their effective tax rates, indicating possible differences in tax planning behavior. While prior studies have examined general governance structures, limited attention has been given to how board meeting frequency and gender diversity jointly affect ETR. This gap creates uncertainty for regulators and stakeholders seeking to understand whether board effectiveness translates into improved tax compliance within the Nigerian banking sector. Against this backdrop, this study investigates how board monitoring mechanisms influence the effective tax rates of Nigerian deposit money banks. By focusing on both board activity (meeting frequency) and board composition (gender diversity), the study contributes to the growing literature on corporate governance and tax behavior in emerging economies. Specifically, the objectives of this study are to;

- (i) analyse how the frequency of board meetings affects the effective tax rate of Nigerian quoted deposit money banks; and

- (ii) investigate how the gender diversity of the board affects the stated deposit money banks' effective tax rate in Nigeria.

The following null hypotheses were formulated to guide the study;

H₀₁: Board meeting frequency has no significant effect on effective tax rate of quoted deposit money banks in Nigeria.

H₀₂: Board gender diversity has no significant effect on effective tax rate of quoted deposit money banks in Nigeria.

Materials

Conceptual Framework

Two proxies of board structure Board Meetings (BM), and Board Gender Diversity (BGD) represent independent variables in this study's conceptual framework. The dependent variable is a proxy for the Effective Tax Rate (EFTR), with Firm Size (FSZ) serving as the control variable.

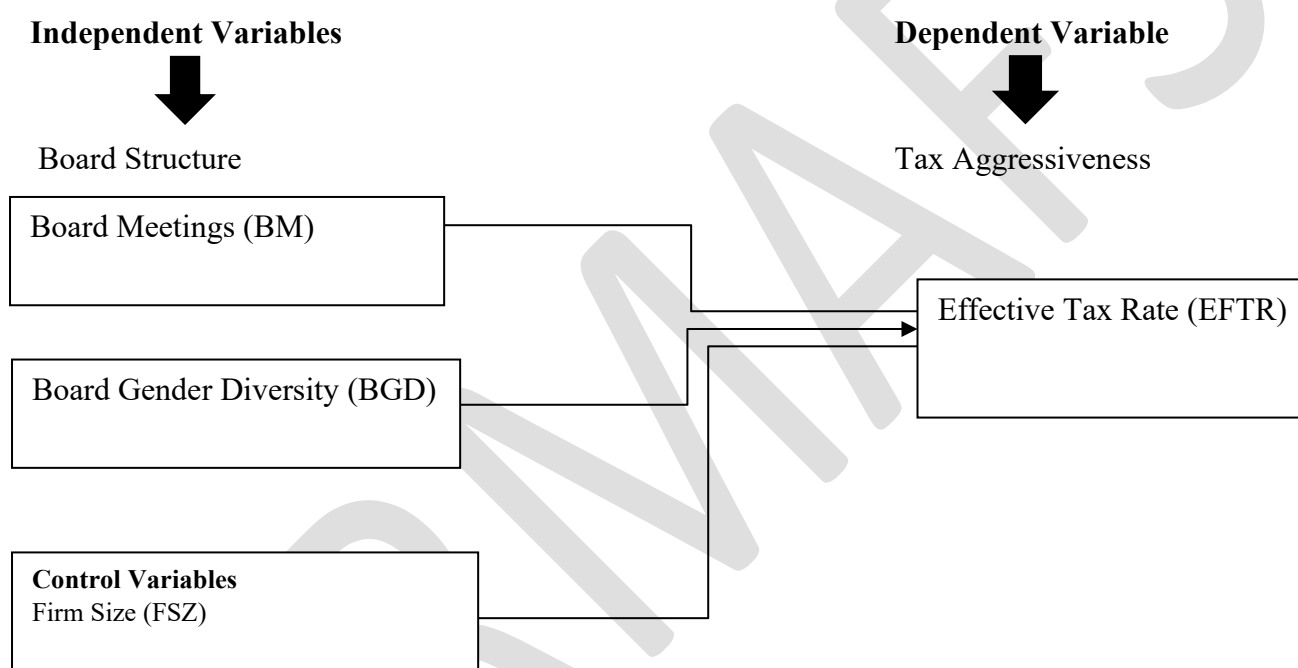


Figure 1: Framework of the Study

Source: Adapted from Omeret *al.* (2020) and Okafor (2019)

Literature Review

Conceptual Review

Board Monitoring Mechanisms

Board monitoring mechanisms represent a core component of corporate governance, referring to the structures and processes through which a company's board of directors oversees managerial actions to ensure alignment with shareholders' interests and broader stakeholder expectations. These mechanisms are rooted in agency theory, which posits that separation of ownership and control creates potential conflicts between managers (agents) and shareholders (principals), thereby necessitating effective monitoring systems to mitigate opportunistic behavior (Velte, 2024). Within this framework, the board of directors serves as the primary internal control mechanism responsible for supervising management decisions, including financial reporting, risk management, and tax strategies.

Contemporary literature conceptualizes board monitoring mechanisms as multidimensional constructs, encompassing both structural attributes (such as board composition and diversity) and behavioral attributes (such as board activity and engagement). Structural mechanisms focus on the characteristics of the board that enhance independence and objectivity, while behavioral mechanisms capture how actively the board performs its oversight role (Alshabibi et al., 2026). Together, these dimensions determine the board's effectiveness in constraining managerial discretion and improving organizational outcomes. One of the most widely examined behavioral indicators of board monitoring is board meeting frequency. Frequent board meetings are considered a proxy for board diligence and commitment, as they provide opportunities for directors to review performance, question managerial decisions, and address emerging risks. Studies suggest that boards that meet more regularly are better positioned to detect irregularities and enforce accountability, thereby strengthening governance quality (Oon et al., 2025). However, the effectiveness of meeting frequency is not purely linear; excessive meetings may indicate reactive governance or underlying organizational problems, which could weaken their monitoring value (Haque et al., 2025).

Another critical dimension is board gender diversity, which reflects the inclusion of women on corporate boards. Gender diversity is increasingly recognized as a governance mechanism that enhances monitoring through improved independence, ethical sensitivity, and cognitive diversity. Diverse boards are believed to bring varied perspectives that enrich deliberations and reduce groupthink, ultimately strengthening oversight functions (De Masi et al., 2025). Empirical evidence also suggests that female directors tend to exhibit stronger monitoring behavior and greater concern for compliance and transparency, which can influence key corporate outcomes such as financial reporting quality and tax practices (El-Deeb & Mohamed, 2024). Furthermore, board monitoring mechanisms are often viewed as interdependent rather than isolated factors. For instance, the effectiveness of gender diversity may depend on the level of board activity, as more frequent meetings provide a platform for diverse perspectives to be expressed and integrated into decision-making. Similarly, monitoring effectiveness is enhanced when multiple governance attributes operate jointly to reduce information asymmetry and managerial opportunism (Tariq et al., 2024).

Effective Tax Rates

Effective Tax Rate (ETR) is a fundamental concept in corporate taxation and accounting research, widely used to assess the actual tax burden borne by a firm relative to its accounting income. Unlike statutory tax rates, which are determined by law, ETR reflects the real proportion of pre-tax income that a firm pays as tax after accounting for deductions, exemptions, credits, and tax planning strategies (Koay & Sapiei, 2025). As such, ETR provides a more realistic and comprehensive measure of corporate tax behavior and is frequently employed as a proxy for tax avoidance or tax aggressiveness in empirical studies (Pratama & Muhammad, 2025). Conceptually, ETR is typically calculated as the ratio of total tax expense to pre-tax accounting income, although variations exist depending on the research objective. Common measures include the GAAP ETR, which is based on accounting tax expense, and the cash ETR, which focuses on actual taxes paid. These alternative measures capture different dimensions of tax behavior, with GAAP ETR reflecting accrual-based tax planning and cash ETR providing insight into real cash outflows (Bougacha & Guedrib, 2024). The distinction is important because firms may report higher accounting taxes while deferring actual tax payments through strategic timing differences.

In the literature, ETR is often interpreted inversely as an indicator of tax avoidance. A lower ETR suggests more aggressive tax planning, as firms exploit legal loopholes or engage in income shifting to reduce taxable income, whereas a higher ETR indicates greater tax compliance (Velte, 2026). This interpretation has made ETR a central variable in studies examining the determinants and consequences of corporate tax behavior,

including governance structures, firm characteristics, and regulatory environments (He et al., 2024). Moreover, ETR is increasingly viewed as a multifaceted construct influenced by both internal and external factors. Internally, firm-specific characteristics such as profitability, leverage, capital intensity, and corporate governance practices significantly shape tax outcomes. For instance, firms with complex structures or multinational operations often report lower ETRs due to their ability to engage in cross-border tax planning (Thayyib, 2025). Externally, institutional factors such as tax laws, enforcement strength, and economic conditions also play a crucial role in determining ETR variations across countries and industries (Knežević et al., 2024).

Recent studies further highlight that ETR should not be viewed solely as a measure of tax avoidance but also as an indicator of tax efficiency and strategic financial management. Firms may legally minimize tax liabilities while maintaining compliance with regulations, thereby achieving optimal tax outcomes without necessarily engaging in unethical practices (Widuri et al., 2026). This perspective aligns with the growing emphasis on responsible tax behavior and corporate transparency, particularly in highly regulated sectors such as banking. However, the use of ETR is not without limitations. It can be affected by temporary differences, accounting policies, and one-off transactions, which may distort its ability to fully capture long-term tax behavior. Consequently, researchers often complement ETR with other measures or use multi-year averages to improve reliability (Yahaya, 2025).

Board Meetings Frequency

Frequency of board meetings is considered "an important dimension of board operations" (Vafeas, 2017). Basil (2011) emphasized the significance of the frequency of board meetings and stated that the amount of time board members spend in meetings is a valuable resource for the effectiveness of the board. Lack of time, according to Lipton and Lorsch (1992), is the most prevalent issue that most directors deal with, in part because of "too many outside directorships." It is unexpected that so few academics (Bosun et al., 2018; Bouasaidi and Hamed, 2015) have looked into the significance of board meeting frequency in the context of corporate governance (Ibrahim and Farahiyah, 2021). A deeper comprehension of this variable's effects could advance our understanding of how a board should operate. In light of this logic, the frequency of board meetings may be a defining characteristic that affects the significance of other aspects of the board's efficacy. There is conflicting empirical research on the effects of board meetings on businesses. According to Ntim and Osei (2011), there is a positive correlation between the frequency of board meetings and the corporate performance of South African enterprises; a favorable outcome of performance has a corresponding effect on company value. However, Vafeas (2017) shows that holding more yearly board meetings actually lowers the firm's worth. However, this study defines the frequency of board meetings as the number of times the board of directors convenes in a specific year.

Board Gender Diversity

There have been assertions in the literature that companies can benefit from having competent women on their boards and that diversity could boost the effectiveness of the board. There is a widespread movement to increase the number of women on corporate boards since it is believed that their more varied professional experiences will give the board with useful information and knowledge (Borisov & Zazzaro, 2010; and Srinidhi *et al.*, 2011).

Lanisand Richardson (2015) and Adams and Ferreira (2009) asserted that businesses with a gender-diverse board demonstrate inventiveness and that excellent discussion methods enhance board choices since more options are taken into account. As a result, these companies deal with excellent problem-solving, robust leadership; enhanced understanding of the business industry and the benefits of global connections (Adams

& Funk, 2012; and Boussaidi & Hamed, 2015). A board with more female directors is likely to promote integrity and high moral standards, more independent thought, more informed decisions that boost the board's level of transparency, and greater credibility within the board, according to Lanisand Richardson, (2015). However, a number of drawbacks of gender-diverse boards suggest that reaching a majority decision may be more difficult and time-consuming.

Theoretical Review

Agency Theory was developed by Jensen and Meckling (1976) to explain the relationship between principals (shareholders) and agents (managers) in modern corporations. The theory posits that when ownership is separated from control, managers may not always act in the best interests of shareholders due to self-interest, information asymmetry, and differing risk preferences. This divergence gives rise to agency problems, including opportunistic behaviors such as earnings manipulation, inefficient investment decisions, and aggressive tax planning. To mitigate these conflicts, the theory emphasizes the importance of monitoring mechanisms and control systems, particularly the board of directors, whose role is to oversee management and ensure accountability. Effective boards reduce agency costs by improving transparency, strengthening internal controls, and aligning managerial actions with organizational goals (Fama & Jensen, 1983). Corporate governance structures such as board independence, meeting frequency, and diversity are therefore critical tools for minimizing managerial opportunism and enhancing firm performance (Hillman & Dalziel, 2003).

Agency Theory provides a strong theoretical foundation for examining the relationship between board monitoring mechanisms and effective tax rates in Nigerian deposit money banks. In this context, managers may engage in aggressive tax planning to maximize short-term profits or personal incentives, potentially exposing the firm to regulatory risks and reputational damage. Board monitoring mechanisms serve as control tools to curb such behavior. For instance, frequent board meetings enhance oversight by allowing directors to regularly review financial decisions, including tax strategies, thereby reducing the likelihood of excessive tax avoidance. Similarly, board gender diversity improves monitoring quality by introducing diverse perspectives, strengthening ethical considerations, and promoting transparency in decision-making. These mechanisms help align managerial actions with shareholders' and stakeholders' expectations, leading to more responsible tax practices reflected in the firm's effective tax rate.

Empirical Review

Onatuyeh and Odu (2024) examined tax aggressiveness and corporate board traits in a study of Nigerian manufacturing companies. Between 2011 and 2016, a sample of forty-nine (49) manufacturing companies listed on the Nigerian Exchange Group (NGX) as of December 2016 was utilized. Based on the Hausman test results, the panel regression approach was used to estimate the econometric model chosen for the study, with a preference for the fixed effect model. The study used the panel regression technique, which is an effective approach for this type of research that yields trustworthy results. They discovered that whereas board gender has no discernible impacts on tax aggression in Nigerian manufacturing companies, both board size and board independence have a negative and significant impact. One likely explanation for this result is that there aren't enough women on the corporate boards of the companies. According to the survey, Nigerian listed manufacturing companies should make sure that more women are on their boards of directors. Nevertheless, even though their analysis was conducted in 2019, the data they used only covered 2016, which has an impact on the report's currency.

Omesi and Appah (2021) investigated corporate governance and tax evasion of Nigerian listed consumer and industrial goods companies. Fifty-one (51) businesses made up the investigation's population, and forty-five

(45) businesses were sampled between 2015 and 2019. Ex post facto and correlational research designs were used in the study. Both univariate and multivariate analysis were used to examine the information gleaned from the publicly available financial accounts. Board independence, audit quality, and ownership have a substantial impact on tax avoidance in Nigeria, according to the panel's generalized techniques of analysis. According to the study's findings, corporate governance traits and tax evasion have a mixed association. In order to reduce corporation tax liability and increase firm performance, the report suggested, among other things, that Nigerian companies enhance their governance processes. Even if their analysis was conducted in 2023, the data only covered 2019, which has an impact on the report's currency.

Muhammadreza and Mahdi (2024) investigated The Tehran Stock Exchange provides evidence of tax evasion and the presence of women on the board. From 2011 to 2015, a sample of 97 businesses was used. Based on panel data, they employed a fixed effect regression model. According to the study, having women on company boards considerably lowers corporate tax evasion. Additionally, the study discovered that there is a stronger correlation between corporate tax avoidance and the participation of women on boards in larger firms. It is advised that the Stock Exchange hire women for its monitoring committees in order to keep an eye on companies' performance and to lessen gender discrimination by coordinating them. The study employed a panel regression strategy, which is an effective approach for this type of research that yields trustworthy results.

Andrea *et al.* (2024) examined the moderating effect of gender diversity on a corporate board on the association between a company's corporate social responsibility (CSR) strategy and tax aggressiveness. One hundred and sixty-eight (168) Italian listed companies were picked for the analysis, which was carried out using a set of financial statement indicators. The study was conducted between 2011 and 2018. The data was analyzed using a logic regression model. According to the study, there is no direct correlation between tax aggressiveness and CSR reporting, and while gender diversity on a board of directors enhances a company's inclination for CSR disclosure, it has no effect on the relationship between tax aggressiveness and CSR disclosure. In order to expand the study's scope, the study suggested that future research include more factors. The study examined its panel data using sufficient statistical analysis tools. Additionally, their analysis was conducted in 2024, and the data they used covered up until 2018, which increases the report's currency.

Prasetyo (2024) investigated the connection between tax evasion and gender diversity on the board of directors. All listed firms on the Indonesian stock exchange between 2012 and 2017 were utilized in the study, with the exception of banking companies. Fixed-effect regression analysis was employed in the study using STATA 14.0 software. According to the study, gender diversity has no discernible impact on tax evasion. Four interaction tests between a dependent variable and the independent board, audit committee, Big 4 auditors, and blockholder variables are carried out as part of the additional testing. Additionally, they discovered that there are no tests that indicate the impact of gender diversity on director boards on tax evasion. According to the report, ethical management should make sure that businesses uphold long-term sustainability and company integrity in addition to adhering to applicable tax laws. The study examined its panel data using sufficient statistical analysis tools. Additionally, their analysis was conducted in 2024 and included data up to 2017, which increases the report's currency.

Methodology

This study examined the effect of board monitoring mechanisms and effective tax rates: evidence from Nigerian deposit money banks using an ex post facto research design. Because it aligns with the study's goals, this research strategy was selected. As of December 31, 2024, all fourteen (14) deposit money banks listed on the Nigerian Exchange Group (NGX Group) comprised the study's population. Thirteen (13) deposit

money banks that were listed on the Nigeria Exchange Group as of December 31, 2024, made up the study's sample size. However, for this study, a sample size of thirteen deposit money banks was chosen. This is predicated on the following filtering criteria: A bank must have been listed on the Nigerian Exchange (NGX) Group at least a year prior to Nigeria's adoption of the International Financial Reporting Standard in 2012, continued to operate between 2012 and 2024, and had the fundamental information needed for the study in its financial statements during the study period. A bank's shares must be traded on the Nigerian Exchange Group's floor both during and after the study's covered periods. Thirteen (13) banks make up the sample size for this study after Jaiz Bank was excluded based on the criteria. Secondary sources were employed to gather data for this investigation. Because the factors being studied were quantitative, secondary data was utilized. To determine the optimal estimation method between the pooled and robustness random effect models for this study, the study used panel regression analysis using descriptive statistics, Pearson correlation (correlation matrix), Shapiro-Wilk test for normality, Variance Inflation Factor (VIF) for multicollinearity, Breusch-Pagan/Cook-Weisberg test for heteroskedasticity, Breusch and Pagan Lagrangian Multiplier test for random effects, and Hausman Specification Test.

Model Specification

The study's dependent variable is tax aggression as determined by the Effective Tax Rate (EFTR). Board Meetings (BM), and Board Gender Diversity (BGD) measure Board Structure, which is the independent variable. Firm size is the control variable. The following is an adaptation of a specific functional connection from Imuetinyan et al. (2023), Omer et al. (2020), and Okafor (2019):

$$EFTR = f(BM, BGD, FSZ)$$

The econometrically, the model is stated thus:

$$EFTR_{it} = \alpha + \beta_1 BM_{it} + \beta_2 BGD_{it} + \beta_3 FSZ_{it} + e_{it} \dots \dots \dots (Model)$$

Where:

$\beta_1 \beta_2 \beta_3 \beta_4 \beta_5 \beta_6$ are parameters to be estimated with a-priori expectations <0 .

EFTR = Effective Tax Rate

BM = Board Meetings

BGD= Board Gender Diversity

FSZ = Firm Size

α = Constant

e = Error term

i = Firms

t = Periods

Variable Measurement and Justification

Variable Name	Type	Variable Measurement and Justification
Effective Tax Rate (EFTR)	Dependent	Measured as total tax liability divided by gross income. Minnik & Noga (2010), Ayers, et al, (2009), Chadeaux & Rossignol, (2006).
Board Meeting (BM)	Independent	Measured as the number of times the board held meetings Brick & Chidambaran, (2010) Lin et al., (2014).
Board Gender Diversity (BGD)	Independent	Measured as the ratio of women directors to the total number of directors (Ilaboya & Lodikero, 2017; Oyedokun, 2019).
Firm Size (FS)	Control	Measured as natural logarithm of total assets; Richardson et al. (2013), Chen et al., (2010), Desai & Dharmapala (2020).

Source: Researcher's Computation (2025)

Data Analyses and Results Presentation

Descriptive Statistics

Table 2 Summarises the descriptive statistics of the entire data set.

Variables	Obs	Mean	Std. Dev.	Min	Max
EFTR	167	0.118	0.122	0	0.96
BM	167	6.467	2.020	4	13
BGD	167	0.214	0.110	0	5
FSZ	167	8.436	1.672	0.092	10.637

Source: Researcher's Computation using STATA 15 software (2025)

Board meetings (BM), board gender diversity (BGD), and firm size (FS) all had positive mean values during the study period, according to the descriptive statistics. These values ranged from 6.467 for board meetings (BM), 0.214 for board gender diversity (BGD), and 8.436 for firm size (FS). Below is a discussion of the descriptive analysis's specifics.

Table 2 demonstrated that the effective tax rate (EFTR) has a minimum value of 0, a maximum value of 0.96, and a mean value of 0.118. These values fall between the minimum and highest values, suggesting a good spread for the examined period. Additionally, the data showed that EFTR had a standard deviation of 0.122, which is higher than the mean and suggests that it experienced robust growth during the reviewed period.

Table 2 ultimately revealed that the mean value of board meetings (BM) is 6.467, falling between the minimum and highest values of 4 and 13, respectively, showing a good spread during the study period. Additionally, the table showed that BM had a standard deviation of 2.020, which is lower than the mean and suggests that it saw significant growth throughout the reviewed time.

Table 2 revealed that the mean value of board gender diversity (BGD) is 0.214, falling between the minimum and highest values of 0 and 5, respectively, indicating a good spread for the period under study. Additionally, the data showed that BGD had a standard deviation of 0.110, which is lower than the mean and suggests that it saw significant growth throughout the reviewed time. Table 2 revealed that the firm size (FSZ) has a mean value of 8.436, a minimum value of 0.092, and a maximum value of 10.637. These values fall between the minimum and maximum values, suggesting a good spread during the study period. Additionally, the data shows that FSZ has a standard deviation of 1.672, which is lower than the mean and suggests that it grew slowly throughout the reviewed time.

Normality Test (Shapiro Wilk)

The data must be either asymmetrically (abnormally) distributed with a p-value of less than or equal to 0.05 around the mean, or symmetrically (normally) distributed with a p-value greater than 0.05.

Table 3: Shapiro-Wilk W test for normal data

Variable	Obs	W	V	z	Prob>z
EFTR	167	0.772	29.087	7.683	0.000
BM	167	0.946	6.821	4.377	0.000
BGD	167	0.988	1.461	0.864	0.193
FSZ	167	0.774	28.816	7.662	0.000

Source: Researcher's Computation using STATA 15 software (2025)

Table 3 above shows the results of the Shapiro-Wilk normality test with a control variable of firm size (FS) and independent variables of board meetings (BM), and board gender diversity (BGD). The data must be either asymmetrically (abnormally) distributed with a p-value of less than or equal to 0.05 around the

mean, or symmetrically (normally) distributed with a p-value greater than 0.05. The p-value of 0.000 indicates that the variables in the table are not regularly distributed. It is determined that the variables are not normally distributed based on the Shapiro-Wilk test with $p = 0.000$.

Pearson Correlation

The Pearson Correlation test coefficient for multicollinearity among the study's independent variables is displayed below. According to Gujarati et al. (2012), the decision rule is to reject the existence of multicollinearity in the model if no two independent variables correlate above 0.8 and to accept the existence of multicollinearity among the independent variables if the correlation is greater than 0.8.

Table 4 Correlation Test

Variable	ROA	BM	BGD	FSZ
EFTR	1.000			
BM	-0.077	1.000		
BGD	0.014	0.028	1.000	
FSZ	0.215	-0.218	-0.279	1.000

Source: Researcher's Computation using STATA 15 software (2025)

The degree of relationships between the proxies of an independent variable and the dependent variable is ascertained via the correlation matrix. In order to determine whether the model has a multicollinearity issue, it is also utilized to demonstrate whether there are correlations between the proxies of independent variables itself. The correlation value of -0.077 in the table indicates a 7% negative and weak link between the effective tax rate (EFTR) of listed deposit money institutions in Nigeria and board meetings (BM). The correlation value of 0.014 in Table 4 indicates that there is a 1% positive and weak association between the effective tax rate (EFTR) of quoted deposit money banks in Nigeria and board gender diversity (BGD). Additionally, the table revealed a 2% positive and weak link (correlation coefficient of 0.215) between company size (FSZ) and effective tax rate (EFTR) of quoted deposit money banks in Nigeria. Lastly, all of the coefficients are below the threshold of 0.80, which suggests that multicollinearity is not present in the model, suggesting that the interactions between proxies of independent variables themselves are weak (Gujarati, 2003).

Variance Inflation Factor (VIF)

Table 5: Variance Inflation factor

Variable	VIF	1/VIF
FSZ	1.56	0.632
BGD	1.18	0.844
BM	1.13	0.885
Mean VIF	1.25	

Source: Researcher's computation using STATA 15 software (2025)

VIF is an additional collinearity test that indicates the presence of multicollinearity if the VIF is greater than 10 (Gujarati *et al.* 2012). The model's lack of collinearity is confirmed by the table's VIF of 1.25. Additionally, the inverse VIF 1/VIF is less than 1, indicating that collinearity is not present.

Heteroscedasticity Test Results

If the model's p-value is less than or equal to the critical p-value of 0.05, the null hypothesis of constant variance should be rejected; if the p-value is greater than the critical value of 0.05, the hypothesis should be accepted.

Table 6: Heteroscedasticity test

Type of test	Chi2	Prob Chi2
Heteroskedasticity	25.07	0.000

Source: Researcher's computation using STATA 15 software (2025)

Table 6 demonstrated the heteroskedasticity test utilizing the Breusch-Pagan/Cook-Weisberg approach to assess the model's residual variance stability. If the model's p-value is less than or equal to the critical p-value of 0.05, the null hypothesis of constant variance should be rejected; if the p-value is greater than the critical value of 0.05, the hypothesis should be accepted. The null hypothesis of constant variance is rejected since, according to the table, the model's p-value is 0.630, which is greater than 0.05. This suggests that the alternative, which suggests that the model contains heteroskedasticity, is accepted. This suggests a low predictive value.

Pooled Effect Vs Random Effects Model

Selecting the optimal panel approach is the first step in the panel data analysis process. The Breusch-Pagan Lagrangian Multiplier test for random effects is used to determine whether to employ the pooled effect model or the random effect model. The presence of unobserved effects in the random effect model is investigated by the Lagrangian-Multiplier test. The null hypothesis is rejected and the random effects model of panel data is selected if the test's computed value is more than the critical value, or significant of chi-square, or vice versa.

Breusch-Pagan Lagrangian Multiplier Test

The Lagrangian Multiplier test looks for unobserved effects in the random effect model. The null hypothesis is rejected and the random effect model of panel data is selected if the test's computed value is more than the critical value (p-value less than 0.05), and vice versa.

Table 7: Breusch and Pagan Lagrangian multiplier test

Variable	Chi2	P-Chi2
EFTR	2.64	0.052

Source: Researcher's computation using STATA 15 software (2025)

Table 6 shows a chi2 result of 2.64 and a corresponding probability of 0.052. Given that the p-value is less than 0.05, the model multiplier result is significant. The random model is the best estimation method for the investigation since the multiplier result is 0.052.

Hausman Specification Test

The null hypothesis, which claims that the model is random (not systematic), is rejected if the p-value for the Hausman test is equal to or less than 0.05, indicating that fixed effect is suitable for the investigation. On the other hand, null is accepted and the proper estimate model is random if the p-value is greater than 0.05.

Table 8: below presents the result of a Hausman specification test conducted.

Type of test	Chi2	P-Chi2
Hausman Test	2.44	0.784

Source: Researcher's computation using STATA 15 software (2025)

From Table 8, the Chi2 p-value is 2.44 and p-value of 0.784 which is greater than 0.05 thus the random model is used for the study.

4.2.8 The Results of Random Effect Regression Model

Table 9: Random Effect Regression Model Conducted

Variable	Coefficients	z-value	Prob.
BM	-0.005	-1.18	0.238
BGD	0.182	2.05	0.041
FSZ	0.005	0.86	0.388
_Cons.	-0.097	-1.32	0.186
R-sq overall	0.136		
Wald Chi2	24.70		
Prob. >Chi2	0.000		

Note: ***1% and **5% Significance levels

Source: Researcher's Computation using STATA 15 software (2025)

Table 9 aforementioned demonstrated that the combined influence of board meetings (BM), and board gender diversity (BGD) predicts a 13% difference in the effective tax rate (EFTR) with an overall R-sq of 0.136. The model is appropriate for the study, as indicated by the Wald chi2 value of 24.70 and a Prob>chi of 0.000. This showed that the independent variables are appropriately incorporated and utilized, and the study's model is fit.

Test of Hypotheses

If the p-value is less than or equal to 0.05, the null hypothesis is rejected and the alternative hypothesis is accepted; if it is more than 0.05, the alternative hypothesis is rejected and the null hypothesis is accepted. A random effect regression model was used to test the hypotheses in order to investigate the impact of board structure on the tax aggressiveness of quoted deposit money banks in Nigeria.

H₀₁: Board meeting frequency has no significant effect on effective tax rate of quoted deposit money banks in Nigeria.

Additionally, Table 9 showed that BM had a z-value of -1.18 with a coefficient of -0.005, and the accompanying p-value of 0.238 indicated that the effective tax rate of quoted deposit money banks in Nigeria for the time under study was negatively impacted by board meetings, but not significantly. This supports the null hypothesis, which states that the frequency of board meetings has no discernible impact on the effective tax rate of quoted deposit money banks in Nigeria.

H₀₂: Board gender diversity has no significant effect on effective tax rate of quoted deposit money banks in Nigeria.

Additionally, Table 9 demonstrated that BGD has a z-value of 2.05 with a coefficient of 0.182 and a corresponding p-value of 0.041, indicating that the effective tax rate of quoted deposit money banks in Nigeria for the time under consideration is significantly positively impacted by board gender diversity. This leads to the rejection of the null hypothesis, which states that the effective tax rate of quoted deposit money institutions in Nigeria is not significantly impacted by the gender diversity of the board.

In the end, Table 9 demonstrated that firm size has a significant positive impact on the effective tax rate of quoted deposit money banks in Nigeria during the period under consideration, with a z-value of 0.86 with a coefficient of 0.005 and a corresponding p-value of 0.388.

Summary of Findings

- i. The findings reveal that board meeting frequency has a negative but statistically insignificant effect on the effective tax rate of Nigerian deposit money banks ($\beta = -0.005$, $p > 0.05$). This implies that although more frequent meetings may slightly reduce tax aggressiveness, they do not significantly influence tax outcomes, suggesting limited monitoring effectiveness in this regard.
- ii. The results indicate that board gender diversity has a positive and statistically significant effect on effective tax rate ($\beta = 0.182$, $p < 0.05$). This suggests that banks with higher female representation on their boards tend to exhibit higher ETRs, reflecting improved tax compliance and reduced tax avoidance practices.

Conclusion

This study examined the influence of board monitoring mechanisms specifically board meeting frequency and board gender diversity on the effective tax rates of Nigerian deposit money banks. The findings provide important insights into the role of corporate governance in shaping tax behavior within a highly regulated financial sector. The study concludes that board meeting frequency does not significantly influence effective tax rates, despite showing a negative relationship. This suggests that merely increasing the number of board meetings may not guarantee effective monitoring of tax-related decisions. It highlights the need to focus not

only on the frequency but also on the quality, depth, and effectiveness of board deliberations, particularly concerning financial oversight and tax planning strategies.

In contrast, board gender diversity emerges as a significant determinant of effective tax rates, with results indicating that greater female representation on boards enhances tax compliance. This finding supports the argument that gender-diverse boards promote stronger ethical standards, improved oversight, and more transparent decision-making processes. Consequently, gender diversity can be viewed as a critical governance mechanism for curbing aggressive tax practices in the banking sector. Overall, the study underscores the importance of strengthening board composition rather than relying solely on board activity. It emphasizes that effective monitoring is multidimensional, requiring a combination of active engagement and diverse perspectives to influence corporate outcomes meaningfully. The results contribute to the growing body of literature on corporate governance and tax behavior in emerging economies and offer practical implications for regulators and policymakers seeking to enhance governance standards and tax compliance in Nigeria's banking industry.

Recommendations

Based on the above conclusions, the following recommendations are made:

- i. Banks should be urged to encourage professional diversity and gender parity on their boards. Diverse boards can assist reduce excessive tax aggressiveness since they often bring higher ethical monitoring and a wider range of opinions. It is necessary to institutionalize policies that encourage the participation of women and professionals with expertise in law, taxation, or regulation.
- ii. Board meeting frequency and quality should be tracked and improved. In addition to increasing board engagement, more frequent and meaningful board meetings offer a forum for evaluating management's tax planning tactics. Regulatory agencies should think about mandating public disclosures of board attendance and tax-related discussions, as well as minimum meeting frequencies.

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