AUDIT QUALITY AND TAX AGGRESSIVENESS IN LISTED TELECOMMUNICATIONS AND OIL AND GAS SECTORS IN NIGERIA

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ABSTRACT
This study investigates the effect of audit quality on tax aggressiveness among listed telecommunication and oil and gas firms in Nigeria for the period 2019 to 2023. Audit quality was assessed through three proxies: audit firm size, audit fees, and audit tenure while Tax aggressiveness was measured using the Cash Effective Tax Rate (CETR). The population of the study was fourteen (14) listed telecommunication and oil and gas firms in Nigeria but after data filtering thirteen (13) firms were used. Analysis was carried out using descriptive and inferential statistics. Descriptive and correlation analyses were conducted prior to regression testing. The results indicate a statistically significant negative relationship between audit firm size and tax aggressiveness, while audit fees and audit tenure showed no significant effects. Based on these findings, the study recommends that regulators and corporate boards encourage the engagement of large, reputable audit firms to reduce tax aggressiveness. In addition, it proposes the development of audit fee benchmarking policies tied to audit performance.

Keywords: Audit Quality, Audit Firm Size, Audit Fees, and Audit Tenure, Cash Effective Tax Rate

1.0 INTRODU CTION

Tax aggressiveness has become an increasingly scrutinized area of corporate behaviour, particularly in the context of evolving fiscal regulation and stakeholder expectations. It broadly refers to strategies employed by firms to minimize tax liabilities through complex, often opaque methods that may comply with the letter of the law but violate its spirit (Bougacha & Guedrib, 2024). Firms operating in high-risk industries or those under close stakeholder scrutiny are particularly vulnerable to the consequences of aggressive tax behaviour, which can include tax penalties, audits, and diminished investor trust (Khan & Nuryanah, 2023). Amid heightened awareness of corporate tax conduct, audit quality has gained prominence as a mechanism for mitigating tax-related opportunism. High audit quality enhances the reliability of financial reporting and serves as a control mechanism that reduces the likelihood of tax-related misstatements or manipulations (Adegbite, 2025). Audit quality itself is a multidimensional construct, often assessed through proxies such as audit firm size, audit tenure, and audit fees. Larger audit firms, particularly those classified under the Big 4, are generally presumed to possess superior technical expertise, stronger regulatory adherence, and a greater incentive to protect their reputational capital, all of which are associated with more rigorous scrutiny of client tax behaviour (Sani, Kaoje, & Musa, 2022). Audit fees, when interpreted through the lens of auditor-client engagement dynamics, reflect both the complexity of the audit and the perceived risks involved (Ahmad & Muslim, 2023). Audit tenure, meanwhile, presents a dual influence: while long-term auditor familiarity with a client can improve efficiency and accuracy, it may

also erode auditor independence and increase tolerance for risky tax positions. These dimensions including audit firm size, audit fees, and audit tenure are therefore critical in understanding the audit–tax nexus and their empirical outcomes.

The relationship between audit quality and tax aggressiveness has received considerable scholarly attention, yet empirical findings remain inconclusive and context-dependent. Existing literature (Klassen, Lisowsky, and Mescall 2016; Iazzi, Vacca, Maizza, and Schiavone 2023; Shafiq, Selamat, Nor, and Noordin 2024; Mättö, Niskanen, and Ojala 2023) reports mixed outcomes on how various audit quality indicators such as audit firm size, audit fees, and audit tenure influence firms' tax planning behaviour. These contradictory findings underscore the complexity of the audit–tax relationship and highlight the need for further investigation, particularly within institutional frameworks and industrial sectors that are distinct from those already extensively studied. Another major deficiency in the current body of literature is the period gap, which arises from the short and often inconsistent time frames used in previous studies. To address this gap, the present study employs a five-year data set covering 2019 to 2023. This period encompasses significant developments in audit and tax compliance standards in Nigeria, allowing for a more comprehensive understanding of the long-term interactions between audit mechanisms and corporate tax behaviour. Another significant gap identified in previous extant literature is the sectoral gap. Most empirical studies have concentrated on financial institutions or examined a broad range of firms without disaggregating sectoral characteristics. This omission is critical, given that non-financial firms, particularly in sectors like telecommunications and oil and gas, exhibit unique regulatory, operational, and fiscal characteristics that may influence their interaction with audit quality. This study explicitly addresses the sectoral gap by focusing on listed telecommunication and oil and gas firms in Nigeria. In addition to the period and sectoral gaps, other methodological and conceptual limitations persist. To reduce this inconstancy, this study incorporates leverage as control variable. There is inconsistency in the proxies used to measure tax aggressiveness. Most studies adopt Book-Tax Differences or nominal Effective Tax Rates, which may not accurately reflect firms' actual tax payments. This research utilizes the Cash Effective Tax Rate (CETR), which captures the real taxes paid relative to pre-tax income. Lastly, while conventional estimation methods such as OLS and GLS dominate the previous literatures, they often inadequately address key panel data issues. This study therefore applies the Panel EGLS model with PCSE corrections to ensure greater reliability and efficiency in the presence of cross-sectional and temporal dependencies, contributing both methodological advancement and empirical clarity to the discourse on audit quality and tax aggressiveness. To effectively close these identified gaps, the study therefore states the following research hypothesis:

H_1: Audit firm size has no significant effect on tax aggressiveness.

H_2: Audit fees have no significant effect on tax aggressiveness.

H_3: Audit tenure has no significant effect on tax aggressiveness.

2.0 LITERATURE REVIEW

2.1 Tax Aggressiveness

According to Khan & Nuryanah, (2023) tax aggressiveness emerges as a strategic approach where taxpayers legally minimize their tax liabilities by leveraging government-provided incentives and planning mechanisms. These strategies, often facilitated by auditors or tax consultants, may span a spectrum from entirely legal to borderline or potentially illegal practices. Tax aggressiveness encompasses a variety of concepts such as tax avoidance, tax sheltering, and strategic tax planning, all aimed at reducing tax burdens and maximizing shareholder wealth.

Issah and Rodrigues (2021) describe tax aggressiveness as a set of deliberate managerial actions and financial strategies aimed at minimizing tax liability using legal exemptions, deductions, and incentives. Ultimately, tax aggressiveness in this study is defined as the legal deployment of tax strategies to transfer wealth from the public domain to corporate shareholders, within the parameters of existing legislation (Guzman & Guzman, 2024).

2.1.1 Cash Effective Tax Rate (ETR)

The cash effective tax rate (Cash ETR) is a measure of the actual taxes a company pays relative to its pre-tax income, focusing on cash flows rather than accounting accruals. It's a key metric for assessing tax aggressiveness and financial performance. Cash ETR, ETR Differential, and ratios involving tax expense or paid taxes over operating cash flows further refine this assessment by providing alternative lenses into tax strategies (De Vito & Grossetti, 2024).

2.2 Audit Quality

DeAngelo (1981) defines audit quality as the market-assessed joint probability that a given auditor will both discover a breach in the client's accounting system and report the breach (Erasmus & Akani, 2021). This definition emphasizes competence (the ability to detect material misstatements) and independence (the willingness to report them truthfully). Over time, this framework has been expanded to include a variety of auditor-specific and client-specific factors, such as auditor industry specialization, audit firm size (Big 4 vs. non-Big 4), audit fees, and auditor tenure. Sulaiman (2023) further supports the view that audit quality is influenced by market mechanisms, suggesting that clients choose auditors based on expected audit effort and reputation, both of which affect the credibility of audited financial statements.

2.2.1 Audit Firm Size

Audit firm size is a widely used proxy for audit quality in the accounting literature, predicated on the assumption that larger audit firms possess greater technical expertise, more robust internal controls, and higher reputational capital compared to smaller firms (Rajgopal, Srinivasan & Zheng, 2021). According to Kharuddin, Basioudis & Al Farooque (2021) larger firms, particularly the Big 4 (Deloitte, PwC, EY, and KPMG), are considered to deliver superior audit quality due to their extensive resources, global networks, specialized staff, and greater exposure to litigation and regulatory scrutiny. Additionally, Alidarous (2024) notes that large audit firms serve as important reputational intermediaries in capital markets, especially in settings with weak investor protections. Thus, audit firm size is not merely a measure of scale but a substantive indicator of the firm's audit quality, reputation, and capacity to influence financial reporting outcomes.

2.2.2 Audit Fees

According to Wahyuni, Sueny, Wahyu and Fadewa (2024) audit fees represent the monetary compensation paid by a client to an external auditor for the provision of audit services, and they serve as both an economic signal and a potential influence on audit quality. Al-Qadasi, Baatwah, and Omer (2023) stated that higher audit fees may reflect greater audit effort, complexity of the client's operations, and engagement risk, suggesting a more thorough and resource-intensive audit process. Conversely, concerns have been raised that excessive audit fees could create an economic bond between the auditor and client, potentially impairing auditor independence and objectivity (Ahmed, Dhull & Kent, 2022). Therefore, audit fees are more than a transactional figure, they encapsulate the interplay between audit effort, engagement complexity, and independence risk, making them a vital factor in understanding variations in audit quality.

2.2.3 Audit Tenure

Audit tenure refers to the length of the audit engagement between a company and its external auditor, and it is a critical variable in the audit quality debate due to its dual implications for independence and expertise (Martani, Rahmah, Fitriany & Anggraita, 2021). On one hand, long audit tenure is believed to improve audit quality through enhanced auditor knowledge of the client's business operations, internal controls, and industry context (Jadiyappa, Hickman, Kakani & Abidi, 2021). This accumulated knowledge allows auditors to perform more efficient and accurate audits. On the other hand, prolonged auditor-client relationships may lead to excessive familiarity, reduced professional skepticism, and compromised auditor independence, potentially undermining audit quality (Anwar, 2024). The empirical evidence on audit tenure's effect on audit quality remains mixed, with some studies suggesting a positive association (Payne & Williamson, 2021), while others indicate potential declines in auditor independence after extended engagements (Kamarudin, Wan Ismail & Ariff, 2022). As a result, audit tenure embodies a trade-off between client-specific learning benefits and the risk of diminished objectivity, both of which significantly influence audit outcomes.

2.3 Control Variables

2.3.1 Firm Leverage

Firm leverage, commonly measured as the ratio of total debt to total assets, is a critical control variable in corporate governance and financial reporting studies due to its implications for risk, agency conflicts, and financial performance (Kinyua & Ochieng, 2022). High leverage increases a firm's obligations to external creditors, thereby intensifying monitoring demands and potentially influencing managerial behaviour (Tung, 2021). From an audit perspective, firms with higher leverage face greater scrutiny from auditors and other stakeholders, as the risk of financial distress or default rises, leading to a higher probability of audit adjustments or going concern opinions (Viana Jr, Lourenço & Black, 2022).

2.4 *Summary of Empirical Review*

S/N	Author	Topic	Methodology	Findings
1.	Pratiwi, Subekti and Rahman (2019)	Corporate governance and audit quality on tax aggressiveness in Indonesian manufacturing firms.	Sixty six (66) public companies listed on the Indonesia Stock Exchange over 2016–2017. Effective tax rate and book-tax difference metrics (dependent variable) and audit firm type (independent variable).	Audit quality does not significantly affected tax aggressiveness while family ownership was found to moderate the relationship between audit quality and tax aggressiveness.
2.	Shafiq, Selamat, Nor and Noordin	The impact of audit quality on tax avoidance in Pakistan.	Panel dataset of 50 top-performing firms from 2016 to 2022 while it was analyzed using fixed effects and	A significant inverse relationship auditor size, and tax avoidance.

3.	Mättö, Niskanen and Ojala (2023)	Auditors and bank monitoring in the tax aggressiveness of private firms in Finland	Using a unique dataset of small and medium-sized entities.	Audit quality was positively associated with tax aggressiveness while bank monitoring was also positively associated with tax aggressiveness.
4.	Adamu, Abubakar, and Muhammad (2024)	The moderating effect of audit quality on the relationship between ownership structure and tax avoidance among listed non-financial firms in Nigeria.	Three hundred and sixty thousand (360) firm-were observed from 2018 to 2022, and using robust OLS regression	Ownership structure significantly affects tax avoidance, and this relationship is notably influenced by audit quality.
5.	Madah Marzuki and Muhammad Al-Amin (2021)	Audit fees, audit quality, and board ownership on tax aggressiveness among listed companies in Thailand.	Using 215 firm-year observations from SET-100 firms during 2010–2018 and applying panel least squares regression with period fixed effects.	Higher audit fees are associated with reduced tax aggressiveness.
6.	Hendi and Sherly (2024)	The impact of auditor characteristics including audit fees on tax avoidance in Indonesia	Secondary data was used from 2018 and 2022. Panel data regression was used. Effective tax rate (ETR), and tenure, opinion, industry specialization, and audit fee.	The results showed that while audit tenure had a significant negative effect on tax avoidance, audit fees had no significant effect.
7.	Paramita and Fuad (2023)	Audit fees, audit quality, and ownership structures on tax aggressiveness in	One hundred and thirty-two (132) firm from 2018 to 2021 were used and the study employed panel	Audit fees have a significant negative effect on tax aggressiveness. The study revealed that both audit quality and foreign

		manufacturing companies listed on the Indonesia Stock Exchange	regression techniques.	ownership significantly reduce tax aggressiveness.
8.	Poon, Lee, Har and Teoh (2021)	Audit characteristics, and corporate tax avoidance (CTA) in Malaysia.	Four hundred (400) firm-year observations from 2015 and 2018, and generalized least squares (GLS) estimation were used.	Audit fees, audit quality, and audit committee effectiveness significantly influence CTA, measured by cash ETR
9.	Salehi, Tarighi and Shahri (2020)	Auditor characteristics and tax avoidance in the context of an emerging economy, specifically Iranian listed companies.	Six-year period from 2011 to 2016 while regression analysis was used.	Neither auditor tenure nor industry specialization had a statistically significant relationship with tax avoidance.
10.	Lestari and Nedya (2019)	Audit quality and audit tenure in manufacturing firms listed on the Indonesia Stock.	Utilizing a panel data regression technique on a sample of 312 firms for the period 2012 and 2017	Audit size and audit fee had a significant negative impact on tax avoidance, indicating that larger and more costly audits tend to reduce aggressive tax practices.
11.	Bala, Musa and Jibril (2023)	analyzed the influence of audit tenure and investment in property, plant, and equipment (PPE) on tax avoidance within Nigeria's financial services sector	Covering a sample of 40 listed financial firms over a seven-year period (2015–2021), and applying a robust regression model,	No statistically significant relationship between audit tenure and tax avoidance

2.5 Theoretical Review

2.5.1 Legitimacy Theory

Legitimacy theory offers a compelling framework for understanding the social dimensions of corporate behaviour, particularly in areas such as tax strategy where legal compliance and societal expectations may diverge. According to Suchman (1995), legitimacy is a generalized perception that an organization's actions are desirable, proper, or appropriate within the broader system of norms, values, and beliefs. This theory posits that firms continually seek to establish and maintain legitimacy by aligning their practices with prevailing social norms. Tax aggressiveness, while sometimes legal, may conflict with the societal expectation that corporations should contribute fairly to public revenues. Legitimacy theory suggests that firms may proactively engage high-quality auditors to signal their commitment to responsible corporate conduct. These high-quality auditors can be identified based on their size, fees, and tenure. In an era marked by increasing demands for ethical behaviour and social accountability, particularly in the wake of financial scandals and tax transparency campaigns, audit quality becomes a key component of a firm's legitimacy strategy. Sikka (2010) contends that corporate legitimacy is not only based on actual behaviour but also on how that behaviour is independently verified and perceived by external parties. When reputable auditors validate a firm's financial statements and tax disclosures, they lend credibility to the firm's claims of lawful and ethical conduct. This credibility is especially important in managing stakeholder perceptions in the face of complex and potentially controversial tax strategies. Consequently, legitimacy theory provides a nuanced understanding of the role of audit quality in shaping corporate responses to societal expectations, reinforcing the notion that auditing serves both a technical and a symbolic function in corporate governance.

2.5.2 Agency Theory

Agency theory was co-founded by economists Stephen Ross and Barry Mitnick in the mid-1970s, with their work leading to both the economic and institutional branches of the theory, respectively. Agency theory analyzes relationships where one party, the principal, delegates work to another party, the agent, who is expected to act on the principal's behalf. Agency theory explains that management's self-interest and information asymmetry can lead to tax aggressiveness, which is often mitigated by high-quality audits. Auditors' independence and competence reduce information asymmetry, ensuring managers cannot exploit legal means to reduce tax liabilities without detection. Thus, higher audit quality is associated with lower tax aggressiveness, as it provides an independent monitoring mechanism to align management actions with shareholder interests.

3.0 RESEARCH METHODOLOGY

This study adopts an ex-post facto research design to examine the effect of audit quality on tax aggressiveness among listed non-financial firms in Nigeria. Ex-post facto design is suitable for studies that investigate cause-and-effect relationships using data that already exist, without the researcher's direct manipulation of variables. The population of this study consists of a total of fourteen (14) non-financial firms, comprising 3 telecommunications firms, and 11 oil & gas firms. The list of the firms is contained in the Table below:

Table 3.1 ***List of Telecommunications and Oil & Gas Firms Listed on the Nigerian Exchange Group (NGX)***

Listed Firms	No.	Sector
Airtel Africa Plc (AIRTELAFRI)	1.	Telecommunications
MTN Nigeria Communications Plc (MTNN)	2.	Telecommunications
BricLinks Africa Plc (BRICLINKS)	3.	Telecommunications
Aradel Holdings Plc (ARADEL)	1.	Oil & Gas
Capital Oil Plc (CAPOIL)	2.	Oil & Gas
Caverton Offshore Support Group Plc (CAVERTON)	3.	Oil & Gas
Conoil Plc (CONOIL)	**4.**	Oil & Gas
Eterna Plc (ETERNA)	**5.**	Oil & Gas
Japaul Gold & Ventures Plc (JAPAULGOLD)	**6.**	Oil & Gas
MRS Oil Nigeria Plc (MRS)	**7.**	Oil & Gas
Oando Plc (OANDO)	**8.**	Oil & Gas
Rak Unity Petroleum Co Plc (RAKUNITY)	**9.**	Oil & Gas
Seplat Energy Plc (SEPLAT)	**10.**	Oil & Gas
TotalEnergies Marketing Nigeria Plc (TOTAL)	**11.**	Oil & Gas

Source: Nigerian Exchange Group (NGX), 2024

The study utilized census sampling by adopting the entire population for the study. But after data filtering processes, the researcher found an incomplete data set for one (1) of the fourteen (14) companies as such the study utilized thirteen (13) listed telecommunication and oil and gas firms in Nigeria. Data was sourced from secondary sources (audited financial reports) for period 2019 to 2023. Data were analyzed using quantitative analytical approach that is, the Panel Estimated Generalized Least Squares (EGLS) regression technique with cross-section weights and Period Seemingly Unrelated Regression (SUR) standard errors and covariance (PCSE). Descriptive statistics (mean, standard deviation, minimum, and maximum values) were first computed to summarize the characteristics of the dataset. The study adopted its model from Madah Marzuki and Muhammad Al-Amin (2021) which is stated as follows.

$ETR= \beta_0 + \beta_1 AF + \beta_2 BO + \beta_3 LEV + \varepsilon$----------(i)

Where;

ETR = Effective tax rate as the measure of tax aggressiveness

β_{1-3}= represented by the coefficient of the independent variables, including audit fees (AF), Board Ownership (BO), and Leverage (LEV).

The study modified the above equation as follows.

$CETR= \beta_0 + \beta_1 AS + \beta_2 AF + \beta_3 AT + \beta_4 FLEV + \varepsilon$----------(ii)

CETR= Cash Effective Tax Rate (Measure of Tax Aggressiveness)

= coefficient of intercept term where all independent variable are zero

AS = Audit Size

AF = Audit Fees

AT = Audit Tenure

FLEV = Firm Leverage

ε = Error term, captures all other variables

Table 3.2 Operationalization and Measurement of Variables

S/N	Variables	Types of Variables	Measurement	Source	Apriori Sign
1	Tax Aggressiveness	Dependent	Cash Effective Tax Rate (CETR) = Cash Taxes Paid / Pre-tax Book Income	Poon, Lee, Har and Teoh (2021)	

2	Audit Firm Size	Independent	Dummy variable: 1 = Big 4 audit firm, 0 = otherwise	Adamu, Abubakar, and Muhammad (2024)	Negative (-)
3	Audit Fees	Independent	Natural log of audit fees	Madah Marzuki & Al-Amin (2021)	Negative (-)
4	Audit Tenure	Independent	Number of consecutive years the audit firm has audited the company	Bala, Musa and Jibril (2023)	Positive (+)
5	Firm Leverage	Control	Total debt / Total assets	Bala, Musa and Jibril (2023)	

Source: Researcher's compilation (2025)

4.0 RESULTS AND DISCUSSION OF FINDINGS

Table 4.1 ***Descriptive Statistics***

	CETR	AS	AF	AT	FLEV
Mean	0.127814	0.846154	19.11456	4.230769	0.380740
Maximum	0.247500	1.000000	20.02360	9.000000	0.865900
Minimum	0.024800	0.000000	16.61480	1.000000	0.028800
Std. Dev.	0.067895	0.363609	0.812267	2.097388	0.203951
Skewness	0.176672	-1.918806	-1.470927	0.305989	0.617728
Kurtosis	1.775522	4.681818	5.032740	2.444849	2.843421
Jarque-Bera	4.398867	47.54692	34.63022	1.849006	4.200271
Probability	0.110866	0.000000	0.000000	0.396729	0.122440

CETR = Cash Effective Tax Rate, measure of tax aggressiveness; AS = Audit Firm Size; AF = Audit Fees (measured using the natural logarithm of audit fees); AT = Audit Tenure; FLEV = Firm Leverage

Source: Researcher's compilation (2025)

The descriptive statistics presented in Table 4.1 offer insight into the distribution, central tendency, and variability of the study variables, including Cash Effective Tax Rate (CETR), Audit Firm Size (AS), Audit Fees (AF), Audit Tenure (AT), and Firm Leverage (FLEV), over the period 2019 to 2023 for thirteen (13) telecommunications and oil and gas firms in Nigeria. The mean CETR, a proxy for tax aggressiveness, stands at 0.128, indicating that on average, firms pay approximately 12.8% of their cash earnings as tax. The relatively low mean CETR implies a moderate level of tax aggressiveness. With a standard deviation of 0.068, CETR shows moadest variability, suggesting that most firms exhibit similar tax behaviour. The positive skewness (0.177) and kurtosis (1.776) indicate a distribution that is slightly right-tailed and platykurtic, respectively, meaning that most firms exhibit CETRs close to the mean, with few extreme values. The Jarque-Bera probability of 0.111 exceeds the 5% significance level,

suggesting that CETR is approximately normally distributed. In contrast, Audit Firm Size (AS), a binary variable indicating whether a firm is audited by a Big 4 auditor, has a mean of 0.846, signifying that approximately 85% of firms employed Big 4 audit firms. The standard deviation of 0.364 reflects its binary nature. The variable is highly negatively skewed (-1.919) and leptokurtic (kurtosis = 4.682), indicating a heavy concentration around the higher end of the distribution (Big 4 firms). The Jarque-Bera statistic is significant ($p < 0.01$), confirming non-normality, as expected for a dichotomous variable. Audit Fees (AF), measured as the natural logarithm of audit fees, has a mean of 19.115, a standard deviation of 0.812, and a range from 16.615 to 20.024. The negative skewness (-1.471) indicates that most firms incur higher audit fees, while the kurtosis of 5.033 implies a leptokurtic distribution with more extreme values. The significant Jarque-Bera statistic ($p < 0.01$) confirms a departure from normality, likely due to the disparity in firm sizes and complexity of operations within the firms. Audit Tenure (AT) records an average of 4.23 years, with values ranging from 1 to 9 years, and a standard deviation of 2.097.

Table 4.2 ***Correlation Matrix and Test for Multicolinearity (VIF)***

	CETR	AS	AF	AT	FLEV	VIF
CETR	1.000000					
AS	-0.220659	1.000000				1.027693
AF	-0.204850	-0.030263	1.000000			1.037424
AT	-0.071574	-0.157603	-0.093310	1.000000		1.050837
FLEV	-0.051279	0.022460	0.170243	-0.136495	1.000000	1.045723

Source: Researcher's compilation (2025)

Table 4.2 presents the Pearson correlation matrix alongside Variance Inflation Factors (VIF) to assess the interrelationships among the independent variables and to test for multicollinearity within the regression model. The correlations between the dependent variable, CETR (a proxy for tax aggressiveness), and the audit quality variables are generally negative, albeit weak. Notably, Audit Size (AF) and Audit Fees (AF) show negative correlations with CETR at -0.221 and -0.205 respectively, suggesting that higher audit size and greater audit fees may be associated with lower tax aggressiveness. However, these relationships are not statistically significant at conventional thresholds, implying limited direct influence in bivariate terms. Audit Tenure (AT) and AF also exhibit weak inter-correlations, none of which exceed the absolute value of 0.20, suggesting a low likelihood of strong linear association among them.

The VIF values, all of which fall well below the critical threshold of 10 (ranging from 1.028 to 1.051), further confirm the absence of multicollinearity in the model.

Diagnostic Tests

Table 4.3 ***Cross Section Dependence Test***

Test	Statistic	d.f.	Prob.
Breusch-Pagan LM	87.24091	78	0.2220
Pesaran scaled LM	0.739865		0.4594
Pesaran CD	0.763797		0.4450

Source: Researcher's compilation (2025)

Table 4.3 presents the results of cross-sectional dependence tests (Breusch-Pagan LM, Pesaran scaled LM, and Pesaran CD) all of which yield statistically insignificant p-values (0.2220,

0.4594, and 0.4450, respectively). These findings indicate the absence of significant cross-sectional dependence among the residuals of the panel dataset, suggesting that unobserved common shocks or spillover effects do not substantially influence the sampled firms. Consequently, the residuals from different cross-sectional units (firms) are largely independent, fulfilling one of the key assumptions for reliable panel data estimation.

Table 4.4 ***Serial, Heteroskedasticity, and Specification Tests***

Breusch-Godfrey Serial Correlation LM Test:			
F-statistic	0.073349	Prob. F(2,58)	0.9294
Obs*R-squared	0.163989	Prob. Chi-Square(2)	0.9213
Heteroskedasticity Test: Breusch-Pagan-Godfrey			
F-stat			
Obs*R-squared	2.243787	Prob. Chi-Square(4)	0.6910
Ramsey RESET Test: Specification: CETR AS AF AT FLEV			
t-statistic	0.685968	59	0.4954
F-statistic	0.470551	(1, 59)	0.4954
Likelihood ratio	0.516348	1	0.4724

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Source: Researcher's compilation (2025)

Table 4.4 presents the results of key diagnostic tests (serial correlation, heteroskedasticity, and model specification) which collectively validate the statistical robustness of the panel regression model. The Breusch-Godfrey Serial Correlation LM Test yields an F-statistic of 0.0733 with a p-value of 0.9294, and an Obs*R-squared value of 0.1640 with a p-value of 0.9213. These high p-values indicate that the null hypothesis of no serial correlation cannot be rejected, confirming that the residuals are not autocorrelated across time. This is an important assumption for ensuring unbiased and efficient estimates in panel data models. Similarly, the Breusch-Pagan-Godfrey heteroskedasticity test returns an F-statistic of 0.5363 (p = 0.7096) and an Obs*R-squared value of 2.2438 (p = 0.6910), both of which are statistically insignificant. These results suggest that the variance of the error terms is constant across observations, i.e., there is no evidence of heteroskedasticity. The absence of heteroskedasticity strengthens the reliability of the coefficient estimates and supports the assumption of homoscedasticity in the panel data structure.

The Ramsey RESET test assesses the adequacy of the model's functional form. With a t-statistic of 0.686 and an F-statistic of 0.471 (p = 0.4954), the test fails to reject the null hypothesis that the model is correctly specified. Additionally, the likelihood ratio test confirms this finding with a p-value of 0.4724.

Table 4.5: ***Multivariate Analysis***

Dependent Variable: CETR
Method: Panel EGLS (Cross-section weights)
Period SUR (PCSE) standard errors & covariance (d.f. corrected)

Variable	Coefficient	Std. Error	z-Statistic	Prob.
CETR (-1)	0.034880	0.124034	0.281215	0.7798
AS	-0.039284	0.016040	-2.449073	0.0182
AF	0.009343	0.010953	0.852959	0.3981
AT	0.001362	0.003821	0.356522	0.7231
FLEV (Control)	-0.144534	0.032662	-4.425207	0.0001
R-squared: 0.518098				
Adjusted R-squared: 0.490500				
F-statistic: 5.593320				
Prob(F-statistic): 0.000416				
Durbin-Watson stat: 2.395079				

Source: Researcher's compilation (2025)

Table 4.5 presents the results of the multivariate regression analysis examining the impact of audit quality variables on tax aggressiveness, proxied by the Cash Effective Tax Rate (CETR), using the Panel EGLS method with cross-section weights and Period SUR (PCSE) standard errors. The results show that Audit Firm Size (AS) has a statistically significant negative effect on CETR (β = -0.0393, p = 0.0182), implying that firms audited by larger (likely Big 4) audit firms exhibit higher tax aggressiveness. Other audit quality indicators Audit Fees (AF) and Audit Tenure (AT) are not statistically significant, with p-values of 0.3981 and 0.7231 respectively, suggesting they do not exert a discernible influence on tax aggressiveness within the sampled firms over the study period.

The control variable, Firm Leverage (FLEV), shows a highly significant negative relationship with CETR (β = -0.1445, $p < 0.001$), indicating that more highly leveraged firms tend to be more tax aggressive, consistent with the interest tax shield hypothesis.

DISCUSSION OF FINDINGS

The regression results indicate a statistically significant negative relationship between audit firm size and tax aggressiveness (β = -0.039, p = 0.0182), implying that firms audited by larger, typically Big Four audit firms, tend to engage in tax aggressiveness. This finding supports the conventional perspective that larger audit firms, due to their reputation, international networks, and regulatory scrutiny, are more likely to enforce rigorous compliance (Shafiq, Selamat, Nor & Noordin, 2024; Klassen, Lisowsky & Mescall, 2016). In the Nigerian setting, our findings affirm that Big Four auditors are still perceived as more credible and effective in promoting tax compliance among non-financial firms, supporting their function as external governance mechanisms. The analysis reveals an insignificant relationship between audit fees and tax aggressiveness (β = 0.0093, p = 0.3981), indicating that higher audit compensation does not necessarily translate into greater auditor scrutiny or reduced aggressive tax strategies among Nigerian firms. This finding aligns with Hendi and Sherly (2024), who similarly found no significant effect of audit fees on tax avoidance in Indonesian firms, attributing the lack of influence to market structures and the nature of auditor-client interactions. Conversely, this outcome contradicts studies such as Madah Marzuki and Muhammad (2021), Poon, Lee, Har and

Teoh (2021), and Paramita and Fuad (2023), which report that higher audit fees are linked to lower tax aggressiveness, arguing that greater fees reflect more comprehensive audits that dissuade risky tax behaviour. Audit tenure exhibits no statistically significant effect on tax aggressiveness ($\beta = 0.0014$, $p = 0.7231$), suggesting that the length of the auditor-client relationship does not materially influence tax planning behaviour among the sampled Nigerian firms. This outcome mirrors findings from Salehi, Tarighi and Shahri (2020) and Bala, Musa and Jibril (2023), who document similar non-significant relationships in Iranian and Nigerian financial firms, respectively, indicating that audit tenure may be a weak determinant of auditor effectiveness in certain regulatory environments. However, other studies (Lestari and Nedya 2019 and Kamarudin, Wan Ismail, Harymawan and Mohamad Ariff 2025) report contrasting results.

5.0 CONCLUSION AND RECOMMENDATIONS

The study found that only audit firm size had a significant negative effect on tax aggressiveness, suggesting that firms audited by larger, more reputable audit firms tend to comply more with tax obligations. In contrast, audit fees and audit tenure did not significantly influence tax aggressiveness, indicating that monetary audit compensation and the duration of auditor-client relationships may not be sufficient determinants of firms' tax behaviour within the Nigerian context. The study therefore recommends that regulatory authorities such as the Financial Reporting Council of Nigeria (FRCN) and the Federal Inland Revenue Service (FIRS) should encourage firms especially those in tax-sensitive sectors like telecommunications and oil and gas to engage larger, more reputable audit firms in carrying out the statutory audit exercise.

6.0 LIMITATION AND FUTURE RESEARCH DIRECTION

The study was limited to audit quality and tax aggressiveness. The variable limitation consist of three independent variables (audit firm size, audit fee and audit tenure) and one dependent variable (cash effective tax rate). While control variable was limited to firm's leverage. The study was limited to two sectors (telecommunication and oil and gas sectors. The duration of study was limited to five (5) years from 2019 to 2023 and while method of data analysis was limited to Panel Estimated Generalized Least Squares (EGLS) regression technique and descriptive statistics.

Future research can focus on overcoming these limitations by increasing the period scope and the variable of the study (independent, dependent and control variables). Carrying out this study in sectors other than telecommunication and oil and gas may give different results. Future research can leverage on these gaps for grey research.

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