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AUDIT GOVERNANCE AND AUDIT QUALITY IN NIGERIAN LISTED BANKS: THE MODERATING ROLE OF BOARD INDEPENDENCE

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Abstract

This study examines the effect of audit governance mechanisms on audit quality among listed deposit money banks in Nigeria, and tests whether board independence moderates the audit governance-audit quality relationship. The study is set against the backdrop of the Central Bank of Nigeria's 2023 Corporate Governance Guidelines for commercial, merchant, non-interest and payment service banks, which introduced mandatory audit partner rotation, joint audit provisions and stricter audit committee independence requirements. Audit governance is proxied by audit partner rotation, auditor firm tenure and audit committee financial expertise, while audit quality is proxied by a discretionary accruals measure derived from a performance-adjusted modified Jones framework, such that a lower value denotes higher audit quality. Using an unbalanced panel of thirteen deposit money banks listed on the Nigerian Exchange Group over the 2010 to 2025 period, generating 208 bank-year observations, the study estimates pooled ordinary least squares, fixed-effects, random-effects and panel-corrected standard error models, complemented with product-term specifications capturing the moderating role of board independence. The Hausman specification test favours the random-effects estimator, but the presence of heteroscedasticity and first-order serial correlation informed the adoption of the panel-corrected standard error technique as the preferred estimator. Findings show that auditor firm tenure is positively associated with discretionary accruals in the pooled, random-effects and baseline panel-corrected standard error specifications, indicating that extended auditor-client tenure erodes audit quality, and that audit committee financial expertise is negatively associated with discretionary accruals in the pooled and baseline panel-corrected standard error specifications, indicating a quality-enhancing effect; neither association is statistically significant once bank fixed effects or common year shocks are absorbed, which qualifies the strength of both results. Audit partner rotation, on its own or moderated by board independence, is not a significant predictor of audit quality in any specification. The product term between auditor tenure and board independence is negative and significant in the pooled, random-effects and baseline panel-corrected standard error specifications, indicating that board independence dampens the quality-eroding effect of prolonged tenure, though this dampening effect also loses significance once year effects are introduced; the product term between committee expertise and board independence is not statistically significant in any specification, a result read alongside the high variance inflation recorded for the product terms. Firm size is the most consistently significant correlate of audit quality across specifications. The study concludes that audit governance reform in the Nigerian banking sector is only conditionally effective in the absence of a sufficiently independent board, and recommends that the Central Bank of Nigeria strengthens compliance monitoring of board independence provisions alongside the existing rotation and joint-audit requirements.

Keywords: Audit Governance, Audit Quality, Board Independence, Auditor Tenure, Deposit Money Banks, Nigeria.

JEL Code: G21, G28, M42.

1. INTRODUCTION

The confidence that capital markets and depositors place in the financial statements of banking institutions rests substantially on the perceived rigour of the external audit function. Corporate

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collapses of the past three decades, from Enron and WorldCom in the United States to Carillion in the United Kingdom, repeatedly implicated a weakened relationship between auditors and the boards that are supposed to oversee them, and each episode has been followed by a wave of regulatory reform aimed at restoring the credibility of audited financial statements (Alkhazaleh, Abbas & Sadaa, 2023). Mandatory audit partner rotation, restrictions on non-audit services, strengthened audit committee composition rules and, in some jurisdictions, joint audit requirements have become the standard regulatory response to concerns that prolonged auditor-client familiarity and weak board oversight combine to permit earnings manipulation to pass through the audit process largely unchallenged.

The banking sector occupies a distinctive position within this reform agenda because of the systemic consequences that follow from a failure of financial reporting integrity in deposit-taking institutions. A bank's balance sheet is opaque relative to that of a typical manufacturing or trading concern, loan loss provisioning embeds considerable managerial discretion, and the depositor base that bears the ultimate cost of misreporting is rarely positioned to detect it before a crisis (Soyemi, Afolabi & Obigbemi, 2021). Basel Committee guidance and, in many emerging markets, central bank corporate governance codes have therefore layered bank-specific audit governance requirements on top of general company law and securities regulation. Nigeria illustrates this pattern closely (Sulaiman, Jaffar & Yahya, 2022). Following the 2009 banking crisis, during which the Central Bank of Nigeria intervened in eight deposit money banks partly on account of unreliable loan classification and provisioning, the apex regulator progressively tightened governance requirements for the sector, culminating in the Central Bank of Nigeria (2023) Corporate Governance Guidelines for commercial, merchant, non-interest and payment service banks. Among other provisions, the 2023 guidelines impose a ten-year cumulative tenure limit for audit firms, a mandatory five-year audit partner rotation cycle with a three-year cooling-off period, a prohibition on the concurrent engagement of the same firm for external audit and non-audit advisory work, and heightened audit committee independence requirements.

Whether these provisions are capable of delivering the audit quality gains that motivated them is an empirical question, and the answer is not settled either in the international or in the Nigerian literature. A common observation from the international literature is that the characteristics of governance often found to be correlated with higher audit quality in a certain country tend to show no relationship or even an inverse correlation in another. Alkhazaleh et al. (2023), in their study of Jordanian manufacturing companies, observed a negative association between board independence and audit quality, an outcome described by the authors as “unexpected.”. Soyemi, Afolabi and Obigbemi (2021), in their research on non-financial companies in Nigeria, reached similar conclusions in that board independence and the presence of women on boards led to a reduction in external audit quality, contrary to previous studies. Audit partner rotation, rather than governance strength, was identified by Sulaiman, Jaffar and Yahya (2022) as the driver of audit quality for Malaysian practitioners, with no detectable effect of governance strength. The findings contradict the assumption made in policy literature such as the Central Bank of Nigeria guidelines that audit partner rotation, tenure restrictions and audit committee effectiveness are complements or substitutes for each other.

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The previous empirical literature analyzed for the purposes of this study, from Ghana, Jordan, Indonesia, UK, Pakistan, Iran and Nigeria itself, has considered various combinations of governance characteristics and audit quality variables but none of them considers the particular combination of mechanisms prescribed in the 2023 guidelines of the Central Bank of Nigeria, and none of them uses Nigerian Deposit Money Banks as a sectoral panel for the period both before and after the reforms. Kaawaase, et. al., (2021) used the cross-sectional survey design to consider the effect of governance characteristics on internal audit quality in the financial institutions of Uganda. Janjarasjit, et. al., (2023) investigated Thai non-financial firms in a two-year period prior to the pandemic. In their paper, Anaba, Kamil, and Appiah (2024) have analyzed Ghanaian and Kenyan banks without expanding the research sample to Nigerian banks and within a period that would cover a particular regulatory change. There is thus an evident knowledge gap regarding the influence of the combination of the rotation of audit partner, auditor tenure, and audit committee financial expertise on audit outcomes in Nigeria.

In light of these observations, the current study assesses the relationship between audit governance tools, which include audit partner rotation, audit firm tenure, and audit committee financial expertise, and the quality of audits of deposit money banks in Nigeria's stock market. The study makes its contribution to the existing literature in three areas. First, it provides sector specific and panel based evidence from a market where there have been regulatory initiatives to tighten up audit governance in the last few years through regulation rather than voluntary practices. This provides an opportunity to evaluate the real effects of such initiatives as opposed to only theoretical analysis of their impact on audit quality. Second, the study evaluates board independence as a moderating variable as opposed to independent variables, in response to several scholars who have called for this kind of disaggregated research on governance in the existing literature, for instance, Widagdo et.al. (2021) and Shubita et. al. (2024). First, by testing for the presence of heteroscedasticity and serial correlation and correcting for it when found, this study seeks to fill an important methodology void identified in almost all the empirical studies reviewed herein, which involve use of OLS or single cross-sectional estimators on panel data without proper adjustments for cross-sectional and time dependency.

2. LITERATURE REVIEW

2.1 Conceptual Review

Audit governance, for the purpose of this study, denotes the set of formal mechanisms through which an organisation structures, rotates and staffs the external audit relationship, and through which the audit committee exercises oversight of that relationship on behalf of the board. Three components of audit governance are examined. Audit partner rotation refers to the periodic replacement of the signing engagement partner while the audit firm itself may be retained, a mechanism intended to interrupt the familiarity that can build between an individual partner and client management without imposing the cost of a full audit firm change (Chi, Huang, Liao and Xie, 2009; Lennox, Wu and Zhang, 2014). Auditor firm tenure refers to the number of consecutive years for which the same audit firm has held the engagement, a construct that has generated two competing theoretical predictions in the literature: a familiarity or independence-

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impairment view, under which lengthening tenure erodes objectivity, and a competence or learning view, under which lengthening tenure deepens client-specific knowledge and thereby improves the auditor's capacity to detect misstatement (DeAngelo, 1981; Cameran, et. al.,, 2016). Audit committee financial expertise refers to the proportion of audit committee members who possess recognised accounting or finance qualifications or experience, on the reasoning that technically proficient committee members are better placed to challenge management's accounting judgements and to evaluate the auditor's findings (DeFond, Hann and Hu, 2005; Badolato, Donelson and Ege, 2014).

The concept of board independence, which has been adopted in this study as a moderating variable, is typically quantified by the fraction of non-executive members who have no significant ties to the management other than their positions on the board, and is believed to enhance the process of monitoring the management's financial reporting decisions and the board's role in overseeing the external audit relationship (Fama and Jensen, 1983). There has never been a consensus on a particular measure for the concept of audit quality. DeAngelo (1981) defines the term "audit quality" as the likelihood of detection of a material misstatement by the auditor and reporting of the discovery, a concept that dissociates the technical skills and independence. Both of these elements cannot be observed from the available archives. The current study adopts the approach in line with the research on discretionary accruals, where audit quality is measured in inverse proportion to the amount of discretionary accruals calculated through a modified Jones model adjusted for performance in the way proposed by Kothari, Leone and Wasley (2005); according to this approach, lower discretionary accruals mean that the audited statements better reflect the economic performance of the company and thus represent higher audit quality.

2.2 Theoretical Framework

Three theories form the basis of the relationships tested in this research study – agency theory, signalling theory and stakeholder theory.

Agency theory, first developed by Jensen and Meckling (1976) and applied to the audit context by Watts & Zimmerman (1983), provides the main motivation behind the need for audit governance. When there is separation between ownership and management, the latter will have the informational superiority over the former and will have an incentive to misreport performance for their own benefit. While the external audit is an oversight mechanism for reducing information asymmetry between managers and outside parties, the auditor is hired and paid by the firm being audited, which creates another level of agency issue because the auditor may be biased due to his/her economic ties with the management. It is agency theory that provides explanations of why the rotating of the audit partner and the restriction of audit partner's tenure would resolve such an agency issue because these two policies aim to break off the building up of the auditor-client relationship. Board independence is also an agency-based device based on the logic that independent directors, unencumbered by any material relationships with the management, are more likely to be able to pressure not only management but also the auditor and consequently enhance the impact of audit governance devices that would otherwise rely on the management's cooperation.

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Signalling theory, based on Spence's (1973) work, which was applied to financial reporting by Ross (1977), is another supplementary theoretical basis that takes the standpoint of the reporting organization rather than the monitoring device. Given the information asymmetry existing between the corporation and external capital suppliers, the corporation is motivated to signal its quality using observable and costly means which would be hard for a low-quality company to replicate. In other words, voluntary adoption of tough audit governance procedures, engagement of a respected audit firm, or a readiness to allow higher partner turnover rates compared to the mandatory minimum level acts as a credible signal of reporting quality to the investors and depositors who cannot personally ascertain the quality of a bank's lending portfolio. The problem with mandatory audit governance reforms as is the case for 2023 guidelines by the Central Bank of Nigeria is that the signals generated by compliance are less informative since compliance is no longer discriminatory between high-quality and low-quality banks; this point is critical to understanding whether the governance systems analyzed in this paper have any independent quality-improving impact once compliance is universalized.

The stakeholder approach proposed by Freeman (1984) and further developed by Donaldson and Preston (1995) widens the scope from the narrow perspective of shareholder-manager relations of agency theory to include a wider set of stakeholders whose interests are impacted by the credibility of the financial statements of the bank. In the stakeholder context, audit governance is justified by its need to protect not only the interests of shareholders but also the interests of depositors and the overall financial system, which is very close to the systemic risk rationale used by the Central Bank of Nigeria to justify the use of the governance rules for deposit money banks only. In combination, the three theories underpin the hypothesized relationships that have been tested in this study. The agency theory underpins the hypothesis that there would be a positive association between audit quality and audit partner rotation, short tenure of effective tenure of audit partners, audit committee's financial expertise and board independence because it provides the monitoring function which audit governance mechanisms cannot ensure on their own. The signaling theory moderates this hypothesis by positing that the strength of these relationships will weaken after a certain point when the compliance becomes regulatory rather than voluntary. Stakeholder theory underpins the ethical perspective on the matter.

2.3 Empirical Review

2.3.1 Audit Partner Rotation and Audit Quality

Audit partner rotation, auditor tenure, and audit quality are areas which have continued to receive a lot of research attention in recent times despite the varying nature of the direction in which the results have been found depending on location and method of estimation. According to Sulaiman, Jaffar and Yahya (2022), in their study carried out among one hundred and thirty Malaysian auditors using an experimental design, only audit firm rotation was found to have significantly improved audit quality while neither audit partner rotation nor corporate governance had any significant effect. The experimental research design is an improvement over the archival studies because of the ability to keep the client and market context fixed and improve internal validity; however, due to the use of subjective assessment by the auditor and

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the lack of any relationship with the client in the simulation game, this study is limited in terms of its ability to generalize the findings to the context of a real audit engagement over several years.

Alkhazaleh, Abbas, and Sadaa (2023) used a sample of six hundred and twenty-four firm-year data from seventy-eight listed Jordanian companies for the years 2012 to 2019, using panel-corrected standard errors to address the problems of heteroscedasticity and serial correlation. This approach is in line with the proposed estimation technique in this study. It was established that board independence is negatively related to audit quality, which, according to the authors, goes against the common expectation, and board size and ownership concentration have positive relationships with audit quality, while managerial ownership and board gender diversity are not significant. Panel correction is certainly an advantage of the study in terms of methodology over many other studies reviewed in the literature, but the authors do not attempt to standardize the measurement of audit quality for the set of proxies widely used in research such as audit fees, auditor size, and discretionary accruals, reducing the ability to compare their coefficients to studies using another proxy, while the negative sign on board independence remains unexplained theoretically apart from being unanticipated.

The study by Simitsis, Kyriakou and Pazarskis (2024) analyzed one thousand three hundred and six companies that belong to the FTSE All-Share index during a period of eleven years by adopting panel least squares and logit models with discretionary accruals and Big-4 affiliation serving as the proxies for audit quality. Both board size and independence of the audit committee were found to positively relate to audit quality, while chief executive duality had a positive relationship with audit quality in contradiction with what was expected, as argued by the authors because of the possibility that duality in the companies in the sample is accompanied by appropriate governance practices. With the sample size and panel length giving high statistical power to the analysis, the focus solely on the earnings management dimension of audit quality through the use of discretionary accruals leaves room for silence on the detection aspect such as going-concern reporting.

Anaba, Kamil and Appiah (2024) provide the most comparable empirical evidence on an institution-level context to the current research, analysing twenty-one universal banks in Ghana and thirty-one commercial banks in Kenya from 2010 to 2019 through generalised least squares with fixed effects. Both board size and the proportion of independent directors positively affected audit quality in the combined African sample set, whereas financial reporting delay had no significant impact in the combined sample set but was significantly negatively correlated with audit quality in the Kenyan subset alone, showing that combining countries under different regulatory frameworks may hide unique aspects of the individual countries' dynamics. The use of a comparative approach enhances the external validity of the study as compared to single-country analysis; however, the lack of data on Nigeria, the biggest banking sector in the region, and the lack of a variable related to audit partner rotation prevent the verification of the findings on Ghana and Kenya under the Nigerian regulatory framework..

According to Ikeji, Okafor and Eke (2024), a study involving thirty-one purposively selected firms listed in Nigeria from 2018 to 2022 involved the application of fixed and random-effects

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panel regressions on three hypotheses in which audit tenure, audit fee and audit firm size were alternatively used as the dependent variables. Some conflicting findings were found such that the size of the board and audit committee was negatively but statistically insignificantly correlated with audit tenure, board diversity was negatively and significantly correlated with audit tenure, while the size of the board was positively and significantly correlated with audit firm size. This is because of the use of purposive as opposed to random or population-wide samples as well as the relatively small cross-section of thirty-one firms selected from a heterogeneous non-banking population when tenure restrictions on the banking industry operate in a different legal setting.

Alawaqleh et al. (2021) examined the impact of the role of CEO and board of directors characteristics on the audit quality through employing three hundred and twenty-five Jordanian manufacturing firms data in one-year periods. The tenure of chief executive officer, the board independence, and business complexity have insignificant relationship with audit quality. While, the duality of CEO negatively influences the audit quality significantly. Board size affects the audit quality significantly. Client size and leverage affect the audit quality positively. The control variables at client level make their methodology more rigorous. However, the issue of reverse causality where governance decisions and outcome of audit quality are determined jointly is not controlled by means of instrumental variable or dynamic panel models.

Combining these findings on audit partner rotation along with other aspects of corporate governance, it is evident that there are inconsistencies in the findings as well as the statistical significance of the results. This inconsistency can be attributed to the different measures used for audit quality, sample used and the use of panel dependence in the empirical estimation process. It is clear from the body of literature that audit partner rotation alone without the support of an independent board or mandatory audit firm change is not a good indicator of audit quality improvement.

2.3.2 Auditor Tenure, Audit Committee Attributes and Audit Quality

Auditor tenure research empirically tends to fall into two camps when modeling tenure; one approach is based on a linear view of tenure measured by years of experience while another group views tenure through the lens of a transformed or categorical measure, which is important because the theory behind short vs. long tenure is different.

Kristianto and Andayani (2025) studied one hundred and fifteen Indonesian banks that were publicly traded at the Indonesia Stock Exchange from 2019 until 2023, employing the multiple linear regression model to examine the combined effects of auditor independence, board composition, ownership characteristics, audit committee characteristics and audit quality on financial reporting integrity. Essentially the same research appears to be reported using different names in the same journal, raising questions about publishing practices that do not directly inform the substantive finding but are worth noting in an evidence-based review. In terms of content, the concentration on the banking industry as the industry being studied is a strength because of the fraud vulnerability of deposit-taking organizations, although the research fails to explain how reporting integrity, the dependent variable, is measured beyond

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mentioning auditor independence and governance qualities, and it fails to consider endogeneity due to the fact that bigger banks have better auditors because of their size and report better due to reasons other than the auditor-client relationship..

The study by Amanamah (2024) used 650 firm-year data from Ghana from 2009 to 2021 and modelled board size, board gender diversity, audit committee independence, financial leverage and audit fees as determinants of compliance with International Financial Reporting Standards (IFRS). Board size had an inverse relationship with compliance, board audit committee independence and audit fees had positive relationship with compliance and financial leverage had a mediation effect on board size and compliance relationship. The long panel and mediation effect model are important developments from many of the other studies reviewed here. Compliance with IFRS is a more specific concept than quality of audit and hence a narrower concept because a firm may comply with the format of reporting without necessarily conforming to the estimation of accruals in arriving at the format compliance.

Shubita et al., (2024) analyzed four hundred and seventy-four Jordanian industrial firm-year observations from 2014 to 2022, where firm performance was included as a moderating factor in the link between corporate governance and audit quality. Firm size was positively correlated to audit quality whereas CEO duality, board independence and ownership concentration were not significant and R squared of 0.067 indicated that explanatory power of the model was weak and therefore there are other unmeasured factors that explain much more than what has been explained by the current model. The inclusion of the moderating variable in the analysis is an indication of the future direction to be followed in this research but the low explanatory power gives rise to the possibility of omitted variables such as audit tenure and financial expertise of the audit committee.

Tiwari & Maji (2024) and the very similar Maji & Tiwari (2024) analyzed the data for one hundred non-financial firms selected from the Bombay Stock Exchange 500 stock market index for the period 2017-2021 using both logistic and panel regression analysis coupled with quantile regression analysis in order to account for the heterogeneous effect of audit quality, measured in terms of audit fees and auditor size. Specifically, board independence, gender diversity, multiple directorships and audit committee independence were found to have a positive impact on audit quality, whereas board size, role duality and promoter ownership had a negative effect, and moreover, the quantile method showed that the latter effects became stronger with rising quantiles of audit quality. The employment of quantile regression can be truly called methodological novelty, since it clearly shows that the relationship between corporate governance and audit quality is heterogeneous in nature – a fact that cannot be revealed by conventional mean-based panel regression, including the model used in this study.

Herath and Patrick (2023) studied the 100 largest firms on the London Stock Exchange from 2017 to 2022 using a panel data approach with audit committee meetings, board diversity, board size, board meetings and independent directors as predictors of audit tenure and audit fee. The frequency of audit committee meetings was found to be positively correlated with audit quality, while the frequency of board meetings was negatively correlated, which was interpreted by the authors as too much interference of the board, while independent directors did not have any

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significant influence, which the authors interpreted as an indicator that mere board independence, without the behaviour of meeting frequency, does not assure audit quality. This outcome is directly related to the moderation hypothesis proposed in this research, as it implies that having independent directors as a structure does not suffice for improving audit quality through board oversight.

Interpreting the literature in terms of tenure as a whole, there seems to be support for an expectation from theory that is more conditional in nature than linear in form, since long tenure does not always have negative effects, it is the activity of the board rather than the composition of the board that is important, and the direction of the relationship between tenure and audit quality depends on whether tenure is measured by year count or logarithmic transformation, which is explicitly addressed in the inclusion of both of these measures of auditor firm tenure in the estimations in this paper.

2.3.3 Moderating Role of Board Independence

A smaller but growing segment of the literature tests governance-related constructs explicitly as moderating rather than independent variables, a specification choice that is conceptually closer to the third objective of the present study.

Amara, Bouzgarrou, et.al., (2025) examined United Kingdom listed firms between 2011 and 2021, applying static panel models together with Lewbel's heteroscedasticity-based identification strategy to address endogeneity concerns, and modelled female leadership of the audit committee as a moderator of the relationship between audit quality and corporate tax avoidance. Audit quality was found to reduce tax avoidance, and a female audit committee chair strengthened this relationship, a result that demonstrates how a compositional attribute of the audit committee can condition, rather than merely add to, the effect of audit quality on a substantive reporting outcome. The use of Lewbel's identification strategy as a robustness check is a methodological strength that few of the other reviewed studies replicate, though the outcome variable, tax avoidance, is conceptually distant from the discretionary accruals proxy adopted in the present study, limiting the direct comparability of the reported coefficients.

Ammer and Mamadjanova (2025) examined Saudi Arabian listed firms using longitudinal annual report data from 2018 to 2024 and modelled financial decision-making, proxied primarily by leverage, as a moderator of the relationship between governance attributes, audit quality and financial reporting quality. Governance attributes and audit quality were positively associated with reporting quality, financial leverage negatively moderated the governance-reporting quality relationship while positively moderating the audit quality-reporting quality relationship, a divergence the authors attribute to leverage increasing creditor demand for audit assurance even as it increases pressure on boards to tolerate more aggressive reporting. The longitudinal design addresses temporal ordering more convincingly than the numerous cross-sectional studies reviewed elsewhere in this section, though the potential for unmeasured macroeconomic or oil-price-related shocks specific to the Saudi Arabian economy to confound the reported moderating effects is acknowledged by the authors and not fully resolved through the modelling strategy adopted.

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Naibaho and Ekarandi (2025) tested audit quality as a moderator, rather than as the dependent variable, of the relationship between sustainability disclosure, corporate governance and firm performance among Indonesian listed firms between 2019 and 2023. Sustainability disclosure was positively associated with firm performance, governance variables including ownership concentration and board size were negatively associated with performance, and audit quality strengthened the positive sustainability-performance relationship. The specification illustrates that audit quality can plausibly sit on either side of a moderation model depending on the research question, but the use of ownership concentration and board size as governance proxies is acknowledged by the authors to conflate monitoring benefits with entrenchment risk, since concentrated ownership can simultaneously discipline and capture management, a duality the linear specification adopted cannot separate.

Amaning, et.al, (2025) modelled safeguards, defined as procedural and institutional mechanisms protecting audit independence, as a mediator rather than a moderator of the governance-audit quality relationship, using partial least squares structural equation modelling applied to a census survey of Ghanaian category A and A1 audit practitioners. Governance was found to positively affect audit quality, safeguards significantly influenced audit quality, and safeguards partially mediated the governance-audit quality relationship. The distinction between mediation and moderation is analytically important: a mediating safeguard variable implies that governance operates through the safeguard mechanism, whereas the moderating specification pursued in the present study implies that board independence conditions the strength of an already-existing direct relationship rather than transmitting it. The reliance on practitioner survey perceptions rather than archival financial statement data, while appropriate for a partial least squares design, means the Ghanaian findings speak to perceived rather than realised audit quality outcomes, a distinction the present study's discretionary accruals proxy is designed to avoid.

Widagdo, et.al., (2021) tested family ownership as a moderator of the relationship between corporate governance, audit quality and earnings management among one hundred and fifty-two Indonesian manufacturing firms over 2017 and 2018, using moderated regression analysis. Corporate governance carried no significant direct effect on earnings management, audit quality significantly reduced earnings management, and family ownership strengthened the quality-enhancing effect of audit quality on earnings management, a result the authors situate within the observation that the great majority of Indonesian listed firms are family-controlled. The two-year window and single-sector focus limit the temporal and cross-sectoral generalisability of the finding, but the demonstration that a structural ownership attribute can strengthen, rather than weaken, the effectiveness of audit quality mechanisms lends indirect support to the hypothesis that board independence, examined in the present study, may operate as a comparable conditioning force in the Nigerian banking context.

Across this body of moderation-focused evidence, a consistent pattern is that governance and audit quality constructs rarely operate as simple additive predictors of outcomes; their effect is repeatedly shown to depend on a second, conditioning attribute, whether that attribute is committee gender composition, ownership concentration, family control or financial leverage.

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No study within the reviewed set, however, tests board independence specifically as the moderating variable within a banking-sector panel that spans a discrete regulatory reform, which is the specific configuration examined in the present study.

2.4 Gap in Literature

Synthesising the three strands of empirical evidence reviewed above against the specific object of the present study, namely the moderating role of board independence in the audit governance-audit quality relationship among Nigerian deposit money banks under the Central Bank of Nigeria's 2023 reform, three categories of gap can be identified.

An evidence gap arises because no reviewed study examines the full configuration of audit partner rotation, auditor firm tenure and audit committee financial expertise jointly, moderated by board independence, within a single-country banking-sector panel. Studies that examine African banking governance, including Anaba, Kamil and Appiah (2024) and Brekumi, et.al., (2023), pool observations across multiple countries in a manner that does not isolate the Nigerian regulatory environment, while Nigeria-specific studies, including Ikeji, Okafor and Eke (2024) and Soyemi, Afolabi and Obigbemi (2021), draw on non-financial rather than banking-sector samples. This leaves the direction and significance of the audit governance-audit quality relationship within Nigerian deposit money banks specifically unverified by prior archival evidence.

A knowledge gap arises because the reviewed literature has not tested whether board independence conditions the effectiveness of audit partner rotation and auditor tenure specifically, as opposed to conditioning broader governance-performance or governance-disclosure relationships. Herath and Patrick (2023) find that board independence alone does not guarantee audit quality gains, and Alkhazaleh, Abbas and Sadaa (2023) find a counter-intuitive negative direct association between board independence and audit quality, yet neither study, nor any other reviewed study, tests whether board independence instead operates through a interacting term term with rotation or tenure variables rather than as a stand-alone predictor. The present study addresses this gap directly by specifying board independence as a moderating rather than an independent variable.

A methodology gap arises because the majority of the reviewed studies rely on ordinary least squares, single cross-sectional survey regression or structural equation modelling applied to perception-based survey data, with comparatively few studies, Alkhazaleh, Abbas and Sadaa (2023) being a notable exception, applying panel-data corrections for heteroscedasticity and serial correlation of the kind required when the panel's cross-sectional dimension and time dimension are of comparable magnitude, as is the case for the thirteen-bank, sixteen-year panel examined in this study. Several reviewed studies, including Kaawaase, Nairuba, Akankunda and Bananuka (2021) and Shazly, et.al. (2022), rely on single-period survey data that cannot support causal or even reliably associational inference regarding a construct, audit quality, that plausibly accumulates or dissipates over successive audit engagements rather than manifesting instantaneously.

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The present study is positioned to close these gaps by estimating a panel-corrected standard error model of audit quality, proxied by discretionary accruals, on audit partner rotation, auditor firm tenure, the natural logarithm of tenure and audit committee financial expertise, together with interacting term terms between each governance attribute and board independence, using an unbalanced panel of thirteen Nigerian deposit money banks observed between 2010 and 2025, a window that brackets the Central Bank of Nigeria's 2023 reform and therefore allows the year-specific estimates reported later in the study to be read as a preliminary indication of whether audit quality outcomes shifted around the reform period.

3. METHODOLOGY

3.1 Introduction

This section sets out the research design, the sources and measurement of the variables used, the specification of the estimated models and the estimation and diagnostic strategy adopted to arrive at reliable inference. The section follows the sequence recommended for panel-data corporate governance studies of this kind: data description, model specification and a two-stage estimation strategy comprising pre-estimation diagnostic testing, choice of estimator, and post-estimation diagnostic testing.

3.2 Data Sources and Variables

The study adopts a longitudinal, correlational panel design appropriate to the objective of relating governance attributes measured at the bank-year level to a bank-year audit quality outcome while controlling for unobserved bank-specific heterogeneity. The population comprises deposit money banks listed on the Nigerian Exchange Group and regulated under the Central Bank of Nigeria's corporate governance framework. Owing to data availability constraints in hand-extracted annual report disclosures, particularly disclosure of the signing audit partner's tenure and audit committee members' financial expertise, the final estimation sample comprises thirteen listed deposit money banks observed over the sixteen-year period from 2010 to 2025, yielding two hundred and eight bank-year observations on a strongly balanced panel basis for most variables and one hundred and ninety-five usable observations for the audit quality equation once observations with an unavailable discretionary accruals estimate are excluded. Data were hand-extracted from the audited annual reports and accounts of the sampled banks, supplemented by Nigerian Exchange Group listing records and Central Bank of Nigeria supervisory publications for institutional and regulatory detail.

Table 1 defines the variables used in the study, their construction and, where relevant, the source informing the measurement choice. The dependent variable, audit quality, is proxied by AQK, a discretionary accruals estimate derived from a performance-adjusted modified Jones-type specification in the tradition of Kothari, Leone and Wasley (2005), such that a lower value of AQK denotes a lower magnitude of discretionary accruals and, correspondingly, higher audit quality, while a higher value denotes greater scope for earnings management having passed through the audit process and, correspondingly, lower audit quality. Audit governance is proxied by three variables: APR, a binary indicator of audit partner rotation coded one where

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the signing partner changed in the reporting year; AFR, the number of consecutive years the incumbent audit firm has served the bank; and ACFE, the proportion of audit committee members possessing recognised financial expertise. Board independence, BIN, is measured as the proportion of independent non-executive directors on the board. Three product terms, APRB, AFRB and ACEB, are constructed as the respective products of APR, AFR and ACFE with BIN, to capture the moderating role of board independence on each audit governance mechanism. Two control variables are included: ATO, asset turnover, proxying operating efficiency, and SIZE, the natural logarithm of total assets, proxying scale-related audit demand and bargaining power in the audit relationship.

Table 1: Variable Definitions and Measurement

Variable	Symbol	Measurement	Type
Audit Quality	AQK	Absolute discretionary accruals from a performance-adjusted modified Jones model (Kothari et al., 2005); lower values denote higher audit quality	Dependent
Audit Partner Rotation	APR	Binary variable: 1 if the signing engagement partner changed in the year, 0 otherwise	Independent
Auditor Firm Tenure	AFR	Number of consecutive years of engagement with the incumbent audit firm	Independent
Audit Committee Financial Expertise	ACFE	Proportion of audit committee members with recognised financial/accounting expertise	Independent
Board Independence	BIN	Proportion of independent non-executive directors to total board size	Moderator
Partner Rotation x Board Independence	APRB	Product of APR and BIN	Product term
Firm Tenure x Board Independence	AFRB	Product of AFR and BIN	Product term
Committee Expertise x Board Independence	ACEB	Product of ACFE and BIN	Product term
Asset Turnover	ATO	Total revenue scaled by total assets	Control
Firm Size	SIZE	Natural logarithm of total assets	Control

Source: Author's compilation (2026).

3.3 Model Specification

Consistent with the three research objectives, the study estimates a baseline audit governance model and a moderated model. The baseline model is specified as:

$$AQK_{it} = \beta_0 + \beta_1 APR_{it} + \beta_2 AFR_{it} + \beta_3 ACFE_{it} + \beta_4 ATO_{it} + \beta_5 SIZE_{it} + \varepsilon_{it}$$

The moderated model, which incorporates the product terms required to test the third objective, is specified as:

$$AQK_{it} = \beta_0 + \beta_1 APR_{it} + \beta_2 AFR_{it} + \beta_3 ACFE_{it} + \beta_4 ATO_{it} + \beta_5 SIZE_{it} + \beta_6 APRB_{it} + \beta_7 AFRB_{it} + \beta_8 ACEB_{it} + \varepsilon_{it}$$

where i indexes the bank, t indexes the year, β0 is the intercept, β1 to β8 are the parameters to be estimated, and εit is the idiosyncratic error term. Under the panel-corrected and

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fixed/random-effects specifications, the composite error term is further decomposed into a bank-specific effect and a remainder disturbance, and year indicator variables are introduced in selected specifications to net out common macroeconomic and regulatory shocks, including the shock associated with the 2023 liberalisation of the naira exchange rate and the phased implementation of the Central Bank of Nigeria's 2023 governance guidelines. A negative and statistically significant coefficient on AFR, and a positive and statistically significant coefficient on APR and ACFE, would be consistent with the agency-theoretic expectation that rotation and committee expertise improve audit quality while prolonged tenure erodes it; because AQK is inversely scaled, the algebraic sign convention is reversed relative to a directly scaled audit quality proxy, and this reversal is carried through consistently in the interpretation of results in section four.

3.4 Estimation Techniques

Estimation proceeds in three stages. The first stage comprises pre-estimation diagnostic testing of the pooled data to establish the appropriate functional form and to detect violations of the classical linear regression assumptions that would invalidate ordinary least squares inference. The diagnostics applied are the Shapiro-Wilk test for normality of the regression residuals, the Breusch-Pagan/Cook-Weisberg test for heteroscedasticity under both the identically and independently distributed and the non-independently distributed error assumptions, Cameron and Trivedi's information matrix decomposition test, the variance inflation factor for multicollinearity diagnosis, the Durbin-Watson and Durbin's alternative test for serial correlation, and the Ramsey regression equation specification error test together with a link test for omitted-variable and functional-form misspecification.

The second stage comprises the choice among competing panel estimators. Pooled ordinary least squares, fixed-effects and random-effects specifications are each estimated, and the Hausman specification test is applied to adjudicate between the fixed- and random-effects estimators under the null hypothesis that the random-effects estimator is consistent and more efficient. Where the Hausman test does not reject the null, the Breusch-Pagan Lagrange multiplier test is additionally applied to confirm that a random-effects specification is preferred to pooled ordinary least squares. Because the pre-estimation diagnostics reported in section four indicate the presence of heteroscedasticity, non-normality and first-order serial correlation, none of which is fully addressed by the standard fixed- or random-effects variance-covariance estimator, the panel-corrected standard error estimator of Beck and Katz, appropriate where the panel's cross-sectional dimension is of comparable or smaller magnitude than its time dimension, is adopted as the preferred estimator for hypothesis testing, with the fixed- and random-effects results retained for comparison and robustness assessment.

The third stage comprises post-estimation diagnostic assessment of the adopted panel-corrected standard error model, including an assessment of model fit through the Wald chi-square statistic, and a sensitivity analysis in which year indicator variables are introduced and the correlation structure of the panel-corrected standard error estimator is varied across a pairwise-correlated specification, a heteroscedasticity-only specification, an independence-corrected specification and a first-order autoregressive specification, to assess whether the substantive

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conclusions drawn from the baseline panel-corrected standard error model are sensitive to the assumed error structure. The discussion in section four interprets the coefficients throughout with explicit reference to the diagnostic results, including a candid discussion of the elevated variance inflation recorded for the product terms, which is an anticipated consequence of constructing a product term from a component variable already included in the model, and which is treated as a limitation on the precision, rather than the direction, of the estimated moderating effects.

4. DATA ANALYSIS AND INTERPRETATION

4.1 Introduction

In this part, the results of both the descriptive and inferential analyses are presented and interpreted. This involves starting with descriptive statistics and then moving on to correlational and collinearity analyses before moving to pre-estimation diagnostics, comparative results of panel data estimation, and finally, panel-corrected standard error results which have been used to test the research hypotheses.

4.2 Preliminary Analysis

Table 2 reports the descriptive statistics for the estimation sample.

Table 2: Descriptive Statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
AQK	195	0.0008679	0.0010004	0.0000005	0.0070055
APR	208	0.3125	0.4646307	0.0000000	1.0000000
AFR	208	8.197115	4.610908	1.000000	16.000000
ACFE	208	0.7127518	0.0891107	0.500000	0.8333333
ATO	208	0.1313583	0.0695220	0.028642	0.489971
SIZE	208	7.530400	1.206278	4.999911	10.849300
APRB	208	0.1606079	0.2426808	0.000000	0.6666667
AFRB	208	4.485536	2.994421	0.3333333	11.076920
ACEB	208	0.3678928	0.1010203	0.1666667	0.5769231

Source: Author's computation (2026), using STATA 17.0

The dependent variable, AQK, is characterized by a mean of 0.00087 and a standard deviation of 0.00100 and a range spanning from a near zero lowest value of 0.0000005 up to a maximum of 0.00701, signifying that while discretionary accruals are, on average, minimal in relation to total assets in the case of the sample banks, some bank-year observations have significantly larger discretionary accruals. The audit partner rotation, APR, is characterized by a mean of 0.3125, showing that a partner change was made in about thirty-one percent of the bank-year observations, which is consistent with a significantly shorter rotation period than the ten years' cumulative firm tenure maximum set by the Central Bank of Nigeria in 2023. Auditor firm tenure (AFR) has an average of 8.20 years, a standard deviation of 4.61 years, and a maximum of sixteen years, suggesting that a number of banks in the sample retained the services of the

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same audit firm during a period that exceeded the regulation imposed on auditor firm tenure. Financial expertise of audit committee, ACFE, has an average of 0.71, suggesting that the majority of the audit committee positions were occupied by members who possessed financial expertise, with relatively low dispersion as evident from the standard deviation of 0.089. Firm size (SIZE) has an average of 7.53, and a standard deviation of 1.21.

From the decomposition of the panel together with the summary statistics obtained, it can be seen that the variance between banks is larger than the variance within banks for the variable AFR, indicating that tenure is a slow moving variable as opposed to one that tends to change significantly each year within a bank, a feature that affects the efficiency of the fixed effects model, which uses only within variance.

Table 3 reports the pairwise correlation matrix for all variables entering the moderated model.

Table 3: Pairwise Correlation Matrix

Variable	AQK	APR	AFR	ACFE	ATO	SIZE	APRB	AFRB	ACEB
AQK	1.000								
APR	-0.013	1.000							
AFR	0.027	0.070	1.000						
ACFE	-0.058	0.086	0.833*	1.000					
ATO	0.066	0.013	0.066	0.026	1.000				
SIZE	0.196*	0.044	0.725*	0.783*	0.059	1.000			
APRB	-0.025	0.984*	0.151*	0.173*	0.030	0.110	1.000		
AFRB	-0.003	0.060	0.990*	0.854*	0.077	0.757*	0.145*	1.000	
ACEB	-0.059	0.069	0.881*	0.976*	0.056	0.794*	0.162*	0.912*	1.000

** $p<0.05$.*

There is a very strong and significant correlation between auditor firm tenure and audit committee financial expertise ($r = 0.833$, $p < 0.001$). This is quite logical considering the fact that both auditor tenure and audit committee financial expertise increase simultaneously when governance of the bank grows. There is a significant and positive correlation between firm size and auditor firm tenure and audit committee financial expertise ($r = 0.725$ and $r = 0.783$ respectively, $p < 0.001$ in each case). Not surprisingly, given that these product terms have been constructed from already correlated components, the correlations between the product terms and their corresponding parents are extremely high, i.e., the correlation between AFR and AFRB is 0.990 and ACFE and ACEB is 0.976. Audit quality, AQK, does not correlate significantly with any of the independent variables except for firm size ($r = 0.196$, $p = 0.006$), indicating the likelihood that the governance and audit quality association works together and not unilaterally, and therefore the rationale for the multivariate analysis that follows.

Table 4: Variance Inflation Factors

Variable	VIF	1/VIF
AFRB	168.76	0.005926
AFR	109.60	0.009124
ACEB	72.97	0.013704

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APRB	46.50	0.021506
APR	46.01	0.021736
ACFE	38.47	0.025991
SIZE	2.87	0.348515
ATO	1.03	0.967528
Mean VIF	60.78	

Source: Author's computation (2026).

The variance inflation factors presented in Table 4 demonstrate that multicollinearity continues to be a significant problem for the moderated model despite being smaller than what would be expected from an additional transformation of the tenure measure besides the simple tally of years. The average variance inflation factor of the eight independent variables in the basic model is 60.78, mainly due to AFRB (168.76), AFR (109.60), ACEB (72.97), APRB (46.50) and APR (46.01). This problem is structural in nature as it arises out of estimating the moderated regression model using directly calculated products based on correlated variables which are not mean-centered, but this does not indicate a mistake in data collection process, yet it does indicate that the standard errors of each coefficient associated with the tenure, expertise and rotation variables and their interaction products should be viewed as conservative estimates of the actual estimation uncertainties. This problem is explained further in the fifth section below and may warrant mean-centering of the component variables when replicating this model in future.

4.4 Estimation Results

Table 5 provides the results of the estimated models through Ordinary Least Squares, Fixed Effects and Random Effects techniques for the purpose of comparison before the introduction of the Panel Corrected Standard Error results.

Table 5: Pooled OLS, Fixed-Effects and Random-Effects Estimates (Dependent Variable: AQK)

Variable	Pooled OLS	Fixed Effects	Random Effects
APR	0.00045 (0.49)	0.00040 (0.51)	0.00041 (0.53)
AFR	0.00065*** (4.22)	0.00041* (2.55)	0.00048** (3.25)
ACFE	-0.01156* (-2.46)	-0.00705 (-1.52)	-0.00735 (-1.65)
ATO	0.00097 (1.04)	-0.00138 (-0.59)	-0.00038 (-0.20)
SIZE	0.00060*** (6.59)	0.00005 (0.14)	0.00039 (1.78)
APRB	-0.00087 (-0.49)	-0.00080 (-0.52)	-0.00082 (-0.55)
AFRB	-0.00114*** (-3.96)	-0.00061 (-1.95)	-0.00081** (-2.91)
ACEB	0.00907 (1.60)	0.00590 (1.03)	0.00553 (1.01)

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Constant	0.00083 (0.55)	0.00288 (1.03)	0.00080 (0.41)
Observations	195	195	195
R-squared	0.236	0.058 (within)	0.218 (overall)

*t-statistics/z-statistics in parentheses. * p<0.05, ** p<0.01, *** p<0.001*

The test statistics for the Hausman specification test conducted on the differences between the fixed and random effects models gives a value of 2.75 on six degrees of freedom and does not provide enough evidence to reject the null hypothesis that the random effect estimators are consistent (p-value = 0.839); thus, the random effect model is preferred because of efficiency considerations; the test statistics have been calculated without taking into account two coefficients where the variance-covariance matrix failed to provide a full rank test, which is indicated in the regression analysis output; the Breusch-Pagan Lagrange multiplier test for random effects clearly shows that random effects are to be preferred over ordinary least squares pooled (chibar2(01) = 90.97, p-value < 0.001).

Audit Firm Tenure (AFR) is positively related and statistically significant in all three regressions (0.00065, $p < 0.001$ for pooled regression; 0.00041, $p < 0.05$ for fixed-effects; 0.00048, $p < 0.01$ for random-effects), implying that the longer the duration of auditor-client relationship, the higher the discretionary accruals, and hence the lower the audit quality since it has an inverse relation with AQK; the significance level of the coefficient decreases once the effects of specific banks are controlled for, implying that some of the relationships in pooled regression are due to persistent difference in tenures of banks and not within-firm tenure lengthening effect The negative sign of ACFE reflects the assumption that financial expertise of audit committees reduces discretionary accruals, although the significance of the coefficient is achieved only in the pooled sample (-0.01156, $p < 0.05$). At the same time, the coefficient changes directionally to -0.00705 ($p = 0.129$) in the fixed-effects and to -0.00735 ($p = 0.099$) in the random-effects samples, implying that part of the significance in the pooled sample is due to inter-bank variation in committee composition. The firm size variable SIZE is positively and significantly correlated (0.00060, $p<0.001$) with the pooled equation but its significance disappears in both the fixed- and random-effects equations after controlling for bank-specific effects, suggesting that the relationship between audit quality and firm size observed in the pooled equation stems from persistent cross-sectional difference in scale and not an intra-bank relationship with asset growth and audit quality.

Partner rotation (APR) is not statistically significant in all three equations, and the interaction term between it and board independence (APRB) is not statistically significant in any of the equations either. The implication is that, in the context of this sample, the rotation of the audit signing partner, with or without board independence acting as a moderator variable, is not statistically significantly related to discretionary accruals. The result is similar to Sulaiman, Jaffar, and Yahya (2022), where the authors failed to show any statistical evidence of the audit quality effect of partner rotation. In comparison, the interaction term between auditor firm tenure and board independence, AFRB, has a negative sign for its coefficient in all three models, and it is statistically significant in both the pooled (-0.00114, $p < 0.001$) and random

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effects (-0.00081, p < 0.01) models, while barely missing statistical significance in the fixed effects model (-0.00061, p = 0.053), meaning that the greater the share of independent board members, the more likely it is that an extended relationship with an auditor will lead to a decrease in auditor quality as seen from the AFR coefficient, and this finding is generally consistent with agency theory expectations regarding the value of board independence as an additional source of monitoring. The interaction term of board independence with financial expertise on the audit committee, ACEB, is positive but statistically insignificant in all three regressions (pooled regression: 0.00907, p = 0.111; fixed-effects regression: 0.00590, p = 0.304; random-effects regression: 0.00553, p = 0.311), meaning that there is no reliable evidence to show that board independence moderates the financial expertise-audit quality link in this sample, an observation made in conjunction with the high variance inflation observed in Table 4 for ACEB.

4.5 Panel-Corrected Standard Error Results and Sensitivity Analysis

In Table 6, the standard errors of the estimated moderated model obtained through the panel corrected method are presented, which will be taken to test the hypotheses due to the presence of heteroscedasticity and serial correlation.

Table 6: Panel-Corrected Standard Error Estimates (Dependent Variable: AQK)

Variable	PCSE (baseline)	PCSE + Year (pairwise)	PCSE + Year (AR1)
APR	0.00045 (0.52)	0.00045 (0.52)	0.00056 (0.78)
AFR	0.00065*** (4.43)	0.00016 (0.48)	0.00010 (0.27)
ACFE	-0.01156** (-2.66)	0.00015 (0.02)	-0.00182 (-0.28)
ATO	0.00097 (1.36)	0.00139 (1.80)	0.00096 (0.82)
SIZE	0.00060*** (4.28)	0.00060*** (4.21)	0.00058** (2.66)
APRB	-0.00087 (-0.52)	-0.00089 (-0.53)	-0.00104 (-0.77)
AFRB	-0.00114*** (-4.09)	-0.00036 (-0.61)	-0.00028 (-0.42)
ACEB	0.00907 (1.70)	-0.00850 (-0.88)	-0.00667 (-0.68)
Wald chi2	39.14***	53.58***	24.54**
rho (AR1)	-	-	0.375

*Note: z-statistics in parentheses. * p<0.05, ** p<0.01, *** p<0.001.*

Without the use of year dummy variables and under the assumption of no common first order autocorrelation, the panel corrected standard errors regression model is able to duplicate the coefficient values of the pooled ordinary least squares model perfectly in terms of magnitude since panel corrected standard errors only affect the standard errors but not the coefficients, but significance levels vary a little bit. The tenure of the auditor firms still shows positive and significance relationship (0.00065, z = 4.43, p<0.001). The financial expertise of audit

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committee still is negative and significance relationship (-0.01156, z = -2.66, p<0.01). The size of the firms still exhibits positive and significance relationship (0.00060, z = 4.28, p<0.001). The term product of tenure board independence still exhibits negative and significance relationship (-0.00114, z = -4.09, p<0.001). The other terms namely audit partner rotation, asset turnover and two other product terms have shown to be statistically insignificant. Only one product term that of committee expertise-board independence was close to ten percent. The model fitness as determined by the Wald Chi-Square is 39.14, having eight degrees of freedom and significance at 1% level.

An additional sensitivity test using indicator variables for years, which is included in the remaining columns of Table 6, reduces the significance of each of the governance variables while only firm size continues to be significantly important under both pairwise correlation and first order autoregressive models augmented by years; other robustness tests including heteroscedasticity correction and correction for independence, which yield numerically equal coefficient values as in the pairwise correlation model, also produce the same result. The coefficients on the year dummy variables themselves become larger in magnitude and begin to achieve significance from 2017 onwards, with the largest and most significant year dummy variables in 2020, 2022, 2023, and 2025, consistent with the period when the naira became subject to more rapid depreciation due to exchange rate liberalization in 2023 and the implementation of the Central Bank of Nigeria's 2023 governance regulations. Since the year dummies capture any common factor that caused changes in discretionary accruals for all of the banks simultaneously, including the reform itself, it appears that much of the baseline relationship between governance and audit quality is driven by a common time effect, not cross-sectional differences in governance practices. This attenuation is used in the discussion that ensues as a reminder against overstating the accuracy of the coefficients in the absence of any year effects, and they are nevertheless kept as the basis for hypothesis testing, since they are aligned with the a priori defined model in section three. The presence of first order serial correlation, evidenced by the autoregressive coefficient from the sensitivity test (rho = 0.375), makes a strong case for the use of panel-corrected standard errors over fixed or random effects without corrections.

4.6 Pre-Estimation Diagnostics

Table 7: Diagnostic Tests for the Pooled OLS Model

Diagnostic Test	Null Hypothesis (H_0)	Test Statistic	p-value	Decision	Interpretation
Shapiro–Wilk Test	Residuals are normally distributed	W = 0.840	< 0.001	Reject H_0	The residuals are not normally distributed.
Breusch–Pagan/Cook–Weisberg Test (Non-i.i.d. errors)	Constant residual variance	$\chi^2(1)$ = 87.95	< 0.001	Reject H_0	Significant heteroscedasticity is present.
Breusch–Pagan/Cook–Weisberg Test (i.i.d. errors)	Constant residual variance	$\chi^2(1)$ = 15.73	< 0.001	Reject H_0	Confirms the presence of heteroscedasticity.

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Cameron & Trivedi Decomposition – Skewness	No skewness in residuals	$\chi^2(8) = 16.14$	0.040	Reject H_0	Residuals exhibit significant skewness.
Cameron & Trivedi Decomposition – Heteroscedasticity	No heteroscedasticity	$\chi^2(39) = 46.26$	0.198	Fail to reject H_0	No significant additional evidence of heteroscedasticity from this component.
Cameron & Trivedi Decomposition – Kurtosis	No excess kurtosis	$\chi^2(1) = 2.13$	0.145	Fail to reject H_0	No significant evidence of excess kurtosis.
Cameron & Trivedi Joint Test	Residuals satisfy the information matrix assumptions	$\chi^2(48) = 64.53$	0.056	Fail to reject H_0 at 5%	Joint evidence is marginal and falls slightly short of the 5% significance level.
Ramsey RESET Test	No omitted variables / correct functional form	$F(3,183) = 15.50$	< 0.001	Reject H_0	The pooled linear model suffers from functional-form misspecification and/or omitted variables.
Link Test	Model correctly specified	$t = 6.11$	< 0.001	Reject H_0	The squared fitted value is significant, indicating model specification problems.
Durbin–Watson Test	No first-order serial correlation	$DW = 1.334$	—	—	The statistic below 2 suggests positive serial correlation.
Durbin's Alternative Test	No first-order serial correlation	$\chi^2(1) = 16.720$	< 0.001	Reject H_0	Significant positive first-order serial correlation is present.

Source Author's computation (2026)

Diagnostic results reveal that the pooled OLS regression fails to satisfy certain key assumptions of OLS estimation. First, based on the results from the Shapiro-Wilk normality test, the null hypothesis of normally distributed regression errors is rejected ($W = 0.840$, p-value < 0.001). While failure to satisfy normality does not necessarily affect coefficient estimators, it may influence traditional inference, especially in small samples.

The results from the Breusch-Pagan/Cook-Weisberg test indicate significant heteroscedasticity. The null hypothesis of homoscedasticity is rejected in the presence of non-independent and identically distributed error terms using $\chi^2(1) = 87.95$ ($p < 0.001$) and $\chi^2(1) = 15.73$ ($p < 0.001$). This indicates that the variance of the error term is not equal across all observations.

According to the Cameron and Trivedi decomposition of the information matrix test, it is found that the skewness is statistically significant ($\chi^2(8) = 16.14$, $p = 0.040$), but the other two components are not statistically significant. The test for individual heteroscedasticity is ($\chi^2(39) = 46.26$, $p = 0.198$), while that of kurtosis is ($\chi^2(1) = 2.13$, $p = 0.145$). The combined test is only marginally insignificant at the 5% level ($\chi^2(48) = 64.53$, $p = 0.056$). Therefore, the major

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deviation identified in this case is the one from skewness and not from k. The result of Ramsey RESET test is the strong rejection of null hypothesis on the basis of correct model specification ($F(3,183)=15.50$, $p<0.001$). It implies that the pooled linear specification might have omitted variables, inappropriate functional form and other specification errors. Indeed, the link test detects a significant value for the squared fitted-value term ($t=6.11$, $p<0.001$)..

In addition to the above tests, the Durbin-Watson Statistic of 1.334 shows that there is positive serial correlation at the first order level. This is due to the highly statistically significant value of the Durbin's Alternative Test ($\chi^2(1)= 16.720$, $p<0.001$). In general, the results from the diagnostic tests reveal that there is an existence of non-normality, heteroscedasticity, specification problem, and positive serial correlation in the pooled OLS. Hence, the use of the traditional standard errors in pooled OLS may result in incorrect statistical conclusions being made. Based on these results, it makes sense for a researcher to apply panel-corrected standard error (PCSE) procedure, which is intended to obtain more accurate standard errors..

4.6 Discussion of Findings

The estimation results support a partial and conditional, rather than a uniform, endorsement of the Central Bank of Nigeria's audit governance reform architecture, and one that is more cautious than a reading of the baseline specification alone would suggest. Consistent with the first research objective, audit partner rotation, whether direct or moderated by board independence, is not found to be a significant predictor of audit quality in this sample of Nigerian deposit money banks, a result that holds across every specification estimated. This finding suggests that a rotation requirement imposed at the level of the individual signing partner, absent a corresponding change in audit firm, board composition or committee capability, may not by itself deliver a detectable improvement in reported audit quality, a result that qualifies the presumption embedded in the Central Bank of Nigeria's mandatory five-year partner rotation cycle and echoes the null partner-rotation result reported by Sulaiman, Jaffar and Yahya (2022) in an entirely different institutional setting.

Consistent with the second research objective, auditor firm tenure displays a quality-eroding direct effect in the pooled, fixed-effects, random-effects and baseline panel-corrected standard error specifications, and this effect is significantly dampened once board independence is taken into account, as captured by the negative and largely significant AFRB product term. This pattern indicates that the familiarity threat historically associated with long-tenured audit relationships is not fixed but is conditional on the strength of board oversight: Nigerian deposit money banks with more independent boards appear better placed to retain a long-standing audit firm without a correspondingly large increase in discretionary accruals. Both the direct tenure effect and its moderation by board independence lose significance once year indicator variables are introduced, however, which tempers the strength of this conclusion and points to a moderating effect that is present in the data but partly overlapping with common time trends across the sample period; the result lends qualified, rather than unconditional, support to the ten-year cumulative tenure ceiling introduced by the Central Bank of Nigeria in 2023, and suggests that the ceiling would be more effective if paired with, rather than substituted for, a minimum board independence threshold. Consistent with the third research objective, audit

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committee financial expertise displays a quality-enhancing direct effect that is significant in the pooled and baseline panel-corrected standard error specifications, in line with the monitoring-capacity argument long associated with financial expertise on audit committees (DeFond, Hann and Hu, 2005; Badolato, Donelson and Ege, 2014), but the effect does not reach conventional significance once bank-specific effects are absorbed in the fixed- and random-effects specifications, or once year effects are added to the panel-corrected standard error model. The committee expertise-board independence product term, ACEB, is positive but not statistically significant in any specification of the moderated model, so the present data do not supply the moderating role for board independence over committee expertise that a complementarity argument would predict; this null result should be read together with the substantial multicollinearity documented in Table 4 for this term, since a mean-centred re-specification, left to future research, would be required before ruling out a moderating role that the current data cannot cleanly separate from collinearity with its parent variables.

Taken as a whole, the findings indicate that firm size is the most consistently significant correlate of audit quality across specifications, that board independence performs a genuine, though partly time-trend-sensitive, moderating function for auditor tenure, and that no specification supplies reliable evidence of a moderating function for either audit partner rotation or audit committee financial expertise, within the Nigerian deposit money bank panel examined. This pattern is broadly consistent with Herath and Patrick (2023), who found that board independence alone did not guarantee audit quality improvement in a different governance mechanism, and with Alkhazaleh, Abbas and Sadaa (2023), whose direct board independence result is, on the evidence assembled here, more plausibly explained by board independence operating primarily as a conditioning rather than an additive influence on audit quality, and one whose strength should not be overstated given its sensitivity to common shocks affecting the sector as a whole.

5. CONCLUSION AND RECOMMENDATIONS

This study set out to examine the effect of audit governance mechanisms, namely audit partner rotation, auditor firm tenure and audit committee financial expertise, on the audit quality of listed deposit money banks in Nigeria, and to test whether board independence moderates each of these relationships. Using a panel of thirteen deposit money banks observed over 2010 to 2025 and a panel-corrected standard error estimation strategy adopted in response to diagnosed heteroscedasticity and serial correlation, the study finds that audit partner rotation, on its own, does not exert a statistically detectable effect on audit quality in any specification estimated; that auditor firm tenure exerts a quality-eroding direct effect that is significant outside the year-augmented specifications and is significantly dampened where board independence is higher, subject to the caveat that this dampening effect loses significance once common year shocks are removed; that audit committee financial expertise exerts a quality-enhancing direct effect that is significant in the pooled and baseline panel-corrected standard error specifications but not once bank-specific or year effects are absorbed; and that the corresponding product term between committee expertise and board independence is not statistically significant in any specification, so the present data do not support a moderating role for board independence over

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the expertise-audit quality relationship. On the basis of these findings, the null hypothesis that audit governance mechanisms do not significantly affect the audit quality of Nigerian listed deposit money banks is rejected, with qualification, in respect of auditor tenure and audit committee financial expertise, but not rejected in respect of audit partner rotation; the null hypothesis that board independence does not moderate the audit governance-audit quality relationship is rejected, with the same qualification regarding sensitivity to year effects, in respect of auditor tenure only, and is not rejected in respect of audit partner rotation or audit committee financial expertise.

The results carry three implications for the design and enforcement of the Central Bank of Nigeria's audit governance reform. First, because partner rotation alone is not shown to move audit quality in any specification, enforcement effort directed solely at verifying compliance with the five-year partner rotation cycle, without corresponding attention to the composition and independence of the board that is meant to oversee the audit relationship, may not deliver the intended audit quality gains. Second, since board independence moderates the tenure-audit quality link in the non-nested regressions which do not net out common year effects, the ten-year cumulative ceiling on firm tenure is likely to be more useful when it is enforced along with a minimum board independence threshold rather than in isolation as a mere number, although the magnitude of this moderation should not be taken as an upper bound until there is enough evidence from a longer period post reform. Third, since financial expertise of audit committee members has a positive impact on audit quality even in pooled and baseline regressions despite being inconsistent across alternative specifications, regulatory focus on technical expertise of audit committee members is still required in addition to tenure and rotation restrictions.

Three recommendations follow. The Central Bank of Nigeria should require deposit money banks to disclose, as part of the annual corporate governance report, the proportion of independent non-executive directors serving concurrently with the incumbent audit firm's cumulative tenure, so that supervisors and shareholders can observe the conditioning relationship identified in this study directly rather than inferring it from separately disclosed figures. Boards of deposit money banks should prioritise the appointment and retention of audit committee members with verifiable financial and accounting expertise as a complement to, rather than a substitute for, compliance with the mandatory rotation and tenure provisions. Finally, given the elevated multicollinearity documented among the tenure, expertise and board independence measures and their respective product terms, and given that several coefficients that are significant in the baseline specification lose significance once year effects are included, future research replicating this model should mean-centre the component variables before constructing product terms, and should consider an instrumental variable or dynamic panel generalised method of moments approach to address the possibility, acknowledged but not resolved in the present study, that audit governance choices and audit quality outcomes are jointly rather than unidirectionally determined. The study is subject to limitations that qualify the generalisability of its findings. The sample is confined to thirteen deposit money banks for which hand-extracted tenure and audit committee expertise data could be reliably assembled from published annual reports, and the resulting panel, while adequate for the estimation

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strategy adopted, is small in cross-section relative to the sixteen-year time dimension, a configuration that magnifies the influence of any single bank's reporting pattern on the pooled estimates. The sensitivity of several key coefficients to the inclusion of year indicator variables indicates that part of the baseline association between governance measures and audit quality reflects a shared time trend across the sampled banks, a limitation that a longer post-reform panel would be better placed to resolve. The audit quality proxy, discretionary accruals, captures the earnings management dimension of audit quality emphasised in the accounting literature but does not capture detection-oriented dimensions such as going-concern reporting accuracy or restatement incidence, and the study's findings should accordingly be read as evidence about accrual-based reporting quality rather than about audit quality in the fullest sense contemplated by DeAngelo (1981). Notwithstanding these limitations, the study provides sector-specific, reform-period evidence on the conditional effectiveness of Nigeria's audit governance architecture for deposit money banks, and offers a basis on which subsequent research, using a longer post-reform window as further years of data become available, can assess whether the moderating role of board independence documented here strengthens, and separates more cleanly from common time trends, as compliance with the Central Bank of Nigeria's 2023 guidelines matures across the sector.

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