

The combined effects of board expertise and audit committee size on financial statement fraud prevention in Nigerian banks

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<https://doi.org/10.33003/fujafr-2026.v4i2.302.325-342>

Abstract

Purpose: The study examined how board expertise and audit committee size jointly influenced the prevention of financial statement fraud among listed deposit money banks in Nigeria.

Methodology: The study adopted an ex-post facto research design using secondary data from twelve banks covering the period 2014–2023. Data were analyzed using panel regression based on the Fixed Effects Model, following descriptive, correlation, and diagnostic tests.

Results and conclusion: The results revealed that both board expertise and audit committee size had positive and statistically significant effects on financial statement fraud prevention. These findings indicated that technically competent boards and adequately structured audit committees enhanced monitoring effectiveness and improved financial reporting quality. The study concluded that intellectual capacity and structural oversight are complementary governance mechanisms in mitigating fraudulent reporting.

Implication of findings: The study recommended that Nigerian banks strengthen board competence and maintain optimally sized audit committees to enhance financial transparency and investor confidence.

Keywords: Audit committee size, board expertise, corporate governance, financial statement fraud, fraud prevention, governance mechanisms, Nigerian banks

1. Introduction

The prevalence of financial statement fraud remains one of the most critical challenges threatening corporate integrity, investor confidence, and the stability of the global financial system. In recent years, corporate collapses and accounting scandals across both developed and emerging economies have underscored the vulnerability of governance mechanisms in ensuring credible financial disclosures (Ararat et al., 2021; Alqatamin, 2024; Ebaid, 2023). Within the Nigerian banking sector, where institutional weaknesses and governance inefficiencies persist, the quality of financial reporting has been persistently questioned. The combination of complex transactions, managerial opportunism, and limited enforcement capacity has amplified concerns regarding the effectiveness of corporate governance structures in preventing fraudulent reporting (Essien, 2024; Obeitoh et al., 2023). The interplay between board expertise and audit committee size is thus gaining scholarly attention as a structural and cognitive mechanism capable of mitigating fraudulent tendencies and improving monitoring quality within financial institutions.

Board expertise constitutes a vital dimension of governance effectiveness as it encompasses the technical, financial, and strategic knowledge that directors bring to the oversight process (Al-Shaer et al., 2024; Truong, 2024; Shanikat, 2023). A board with members possessing deep financial literacy and industry-specific knowledge is more likely to detect accounting irregularities, challenge management's discretionary choices, and enforce ethical standards. In the context of Nigeria's banking industry, characterised by high regulatory complexity and exposure to credit and operational risks, the quality of board expertise becomes a determinant of fraud prevention effectiveness (Chituru et al., 2022; Yawuri et al., 2024; Marzuki et al., 2019; Haekal et al., 2024). However, while many banks claim compliance with governance codes through formal board structures, the substantive competence and vigilance of

directors remain underexplored in empirical literature. The effectiveness of expert boards depends not merely on numerical composition but on the depth of professional acumen applied to scrutinising managerial reporting behaviour (Nyamumbo, 2024; Purwiyanti & Laksito, 2022; Taylor & Francis / Cogent, 2024).

Audit committees, on the other hand, serve as the primary monitoring unit within the board framework, directly charged with overseeing financial reporting integrity, internal control, and auditor independence. The size of the audit committee often reflects its resource capacity and diversity of perspectives, which can enhance fraud detection if managed effectively (Essien, 2024; Ghabranious, 2024; Trisanti, 2023). In the Nigerian financial sector, the adequacy of audit committee size remains contentious, as overly large committees may suffer coordination inefficiencies, while smaller ones may lack sufficient capacity for effective oversight (Ebaid, 2023; Alqatamin, 2024). The balancing of these structural dynamics board expertise and audit committee size presents a multidimensional governance challenge that warrants empirical examination, particularly in light of recent corporate reporting controversies that continue to erode stakeholder trust in Nigerian banks.

Financial statement fraud encompasses the deliberate misrepresentation or manipulation of accounting information to mislead stakeholders about an organisation's financial position or performance. Despite the existence of extensive governance codes and regulatory interventions, such fraud remains pervasive in Sub-Saharan Africa, with Nigeria among the most affected jurisdictions (Yawuri et al., 2024; Nyamumbo, 2024). Weak internal control frameworks, low enforcement efficiency, and limited technical expertise of audit committee members often allow managers to conceal material misstatements. Several Nigerian banks have been sanctioned by regulatory authorities for misstated earnings, overstatement of assets, and concealment of non-performing loans, which collectively undermine the reliability of published accounts (Essien, 2024; Ghabranious, 2024; Obeitoh et al., 2023). The recurrence of such anomalies despite the formal adoption of corporate governance codes indicates that structural compliance alone does not guarantee fraud prevention; rather, the interaction of competence and oversight depth is critical.

Contemporary research underscores that corporate governance in emerging markets often faces contextual limitations distinct from those in developed economies (Ararat et al., 2021; Shanikat, 2023; Marzuki et al., 2019). These include weak institutional frameworks, regulatory capture, and limited transparency, which compromise the practical functioning of governance mechanisms. While numerous studies have examined the separate influence of board characteristics and audit committee attributes on financial reporting outcomes, there is limited empirical consensus on their combined effect in deterring financial statement fraud (Haekal et al., 2024; Truong, 2024; Taylor & Francis / Cogent, 2024). The Nigerian environment offers a complex case, where board composition requirements and audit committee structures are regulated by both the Companies and Allied Matters Act and the Central Bank of Nigeria's Code of Corporate Governance, yet significant inconsistencies in financial reporting quality persist (Ebaid, 2023; Alqatamin, 2024; Nyamumbo, 2024). This regulatory dualism further complicates the operational dynamics between expertise-driven monitoring and committee effectiveness.

Empirical literature has demonstrated mixed results regarding the independent effects of board expertise and audit committee size on fraud prevention. For instance, Haekal et al. (2024) reported that audit committees with higher technical competence are more effective in curbing fraudulent financial reporting, while Essien (2024) found that larger audit committees tend to enhance monitoring capacity. Conversely, Ghabranious (2024) observed that overly large committees may dilute individual responsibility, leading to weaker oversight outcomes. Similarly, Truong (2024) and Al-Shaer et al. (2024)

noted that the relationship between board expertise and reporting integrity is contingent on contextual factors such as ownership concentration, regulatory enforcement, and cultural dimensions. The inconsistent findings across studies indicate that existing literature has not sufficiently explored how the interplay between knowledge intensity (board expertise) and structural breadth (audit committee size) jointly determines fraud prevention effectiveness in complex institutional environments such as Nigeria (Ararat et al., 2021; Purwiyanti & Laksito, 2022).

Beyond empirical divergence, theoretical limitations also persist. Most prior research has been anchored on agency theory, which assumes that strong monitoring mechanisms can align managerial interests with those of shareholders. However, this perspective often underestimates the cognitive dimension of governance, particularly the intellectual capital that board expertise contributes to oversight quality (Yawuri et al., 2024; Al-Shaer et al., 2024; Ebaid, 2023). Moreover, audit committee effectiveness is frequently measured by structural attributes such as size or independence, without accounting for how expertise interacts with those attributes to influence fraud detection outcomes (Trisanti, 2023; Essien, 2024; Nyamumbo, 2024). This conceptual narrowness has resulted in fragmented understanding of how governance mechanisms function synergistically rather than independently. Hence, an integrated model that jointly examines both expertise-based and structural monitoring capacities is needed to advance theoretical and practical insights in corporate governance and fraud prevention discourse.

Nigeria's banking sector provides a compelling context for such investigation given its historical susceptibility to governance failures. The sector has witnessed multiple episodes of financial misrepresentation, ranging from income smoothing to falsified asset valuation, which have led to loss of public confidence and regulatory interventions (Ghabranious, 2024; Yawuri et al., 2024). Despite stringent disclosure requirements by the Central Bank of Nigeria and the Financial Reporting Council, financial statement manipulation continues to occur, suggesting persistent governance inefficiencies (Ebaid, 2023; Essien, 2024; Shanikat, 2023). Furthermore, the board's expertise in risk management, financial analysis, and audit oversight appears critical in addressing these challenges. Yet, many banks continue to appoint board members based on political or relational considerations rather than professional competence, thereby weakening oversight intensity and contributing to recurring fraud episodes (Alqatamin, 2024; Truong, 2024; Taylor & Francis / Cogent, 2024).

Another critical gap in existing research lies in the limited contextual adaptation of global governance standards to African realities. While international frameworks advocate uniform governance principles, emerging markets often face resource constraints, cultural peculiarities, and institutional weaknesses that affect board and committee functioning (Ararat et al., 2021; Marzuki et al., 2019; Nyamumbo, 2024). Empirical studies in Nigeria have largely adopted Western-derived measurement models without accounting for local institutional dynamics such as regulatory enforcement quality, audit culture, and professional competence availability (Haekal et al., 2024; Obeitoh et al., 2023). Consequently, there remains limited understanding of how these mechanisms operate under environmental uncertainty and within evolving governance structures. Addressing this contextual gap is essential for developing governance models that are both empirically robust and practically relevant to the Nigerian context.

Furthermore, while prior studies have focused predominantly on listed manufacturing or non-financial firms, the banking sector's unique risk exposure and regulatory sensitivity necessitate targeted investigation (Essien, 2024; Yawuri et al., 2024; Truong, 2024). Banks operate under more stringent disclosure and risk management requirements, and as such, their governance mechanisms should theoretically exhibit higher resistance to fraudulent practices. However, evidence from regulatory sanctions and audit restatements indicates otherwise. The persistence of misreporting in this sector

suggests that current governance structures may lack sufficient expertise depth or operational efficiency to prevent financial statement fraud (Ebaid, 2023; Al-Shaer et al., 2024; Purwiyanti & Laksito, 2022). Thus, exploring the joint influence of board expertise and audit committee size provides an opportunity to understand whether strengthening cognitive capacity and structural resources simultaneously can yield better fraud prevention outcomes.

In summary, the persistence of financial statement fraud within Nigerian banks despite evolving governance frameworks underscores a critical gap in the interaction between expertise-based oversight and structural monitoring mechanisms. Existing studies have examined the individual effects of board expertise and audit committee size but have largely overlooked their combined impact on fraud prevention. Furthermore, divergent empirical findings and contextual variations across emerging economies highlight the need for country-specific investigations. This study therefore seeks to fill this gap by empirically examining the combined effect of board expertise and audit committee size on the prevention of financial statement fraud in Nigerian banks.

Specifically, it addresses the following research questions:

- (i) **What is the combined effect of board expertise and audit committee size on financial statement fraud prevention?**
- (ii) **To what extent do these governance mechanisms jointly reduce the risk of fraudulent reporting?**

2. Literature review

The increasing concern over financial statement fraud in both emerging and advanced economies has generated growing interest in the mechanisms of corporate governance that safeguard reporting integrity. Fraudulent financial reporting distorts capital-market signals, undermines investor confidence, and erodes public trust in regulatory institutions. Recent scholarship emphasises that governance attributes such as board expertise and audit committee size play pivotal roles in detecting and mitigating misrepresentation within corporate accounts (Ebaid, 2023; Haekal et al., 2024; Shanikat, 2023). These mechanisms constitute essential components of a firm's internal control architecture that restrains opportunistic managerial actions. In the Nigerian banking sector, where information asymmetry and weak enforcement mechanisms remain significant, the composition and capability of the board and its committees provide critical lines of defence against fraudulent manipulation of financial reports (Yawuri et al., 2024; Obeitoh et al., 2023). The following discussion explores each governance dimension, their combined interplay, and their nexus with financial statement fraud, supported by empirical evidence and theoretical reasoning.

Board Expertise and Financial Statement Fraud

Board expertise reflects the technical knowledge, professional competence, and financial acumen of directors who oversee financial reporting and internal control systems. Scholars have consistently argued that a board composed of financially literate and professionally qualified members enhances decision quality and minimises misreporting tendencies (Al-Shaer et al., 2024; Marzuki et al., 2019). Expertise enables directors to interrogate accounting estimates, challenge management assumptions, and identify anomalies that could suggest fraudulent intent. In emerging markets such as Nigeria, where regulatory oversight is evolving, the presence of technically proficient directors is especially vital for safeguarding transparency and accountability (Ararat et al., 2021; Ebaid, 2023; Muritala, 2024).

Empirical studies affirm that board financial expertise significantly influences the credibility of financial statements. For example, Alqatamin (2024) found that firms with higher proportions of expert directors

reported fewer restatements and lower incidences of fraud-related investigations. In the Nigerian context, Yawuri et al. (2024) demonstrated that in Nigerian oil and gas firms – a finding transferable to Nigerian banks given similar regulatory intensity – directors with financial and accounting backgrounds effectively curtailed financial statement fraud by strengthening audit quality and monitoring efficiency. Haekal et al. (2024) extended this observation by showing that boards with robust expertise improved the detection of irregularities and reduced manipulation of earnings figures. The ability of expert directors to interpret complex transactions and apply analytical scrutiny discourages managerial opportunism that typically leads to fraudulent reporting.

However, some research notes that expertise alone may not suffice where corporate culture or dominant managerial influence restricts independent judgment (Truong, 2024; Shanikat, 2023). This suggests that board expertise must operate within a governance environment that supports accountability and active oversight. Nonetheless, the dominant empirical position remains that board expertise enhances financial transparency and acts as a deterrent to fraud. Drawing from this logic, the following hypothesis is postulated:

H₀: Board expertise has no significant effect on the prevention of financial statement fraud in Nigerian banks.

H_a: Board expertise has a significant effect on the prevention of financial statement fraud in Nigerian banks

Audit Committee Size and Financial Statement Fraud

The audit committee represents a crucial governance substructure mandated to oversee external audit processes, ensure compliance with reporting standards, and reinforce financial control systems. Its size determines the breadth of representation, diversity of opinion, and strength of oversight available to challenge management discretion (Essien, 2024; Ghabranious, 2024; Ogundele & Erinosh, 2024). A sufficiently large audit committee is expected to distribute workload effectively and ensure comprehensive examination of financial statements, thereby constraining fraudulent practices. Conversely, excessively large committees may suffer from coordination inefficiencies that compromise timely decision-making and monitoring depth (Nyamumbo, 2024; Trisanti, 2023).

Empirical research reveals nuanced relationships between audit committee size and financial reporting outcomes. Essien (2024) reported that firms in Sub-Saharan Africa, including Nigerian banks, with moderately sized audit committees exhibited stronger financial reporting quality than those with smaller or excessively large committees. Similarly, Taylor and Francis (2024) provided cross-country evidence suggesting that optimal committee size enhances information flow, accountability, and fraud deterrence. Ghabranious (2024) noted that in Egypt, expanding committee size up to a functional threshold improved internal control performance and reduced fraudulent restatements. By contrast, Marzuki et al. (2019) and Purwiyanti and Laksito (2022) argued that beyond a certain level, larger committees risk becoming bureaucratic, diluting individual responsibility and facilitating collective concealment of financial irregularities.

The Nigerian banking environment provides a context in which audit committee size plays a defining role. Banks operate in a highly regulated domain requiring robust governance oversight, and a well-constituted audit committee enhances the credibility of disclosure practices (Yawuri et al., 2024). Empirical findings by Obeitoh et al. (2023) directly examined Nigerian deposit money banks and

established that effective committee composition and appropriate size contribute to reducing earnings manipulation and fraud risk. Similarly, Trisanti (2023) confirmed that Nigerian banks with audit committees sized between four and six members demonstrated superior fraud prevention outcomes. Consequently, the following hypothesis is developed:

H₀: Audit committee size has no significant effect on the prevention of financial statement fraud in Nigerian banks.

H_a: Audit committee size has a significant effect on the prevention of financial statement fraud in Nigerian banks.

The Interplay Between Board Expertise and Audit Committee Size

Rather than examining board expertise and audit committee size in isolation, a growing strand of literature recognises that their **combined or interactive effect** may be more consequential for fraud prevention than either attribute alone. This interplay is grounded in the understanding that expertise without adequate structural support may be underutilised, while structural provisions such as committee size without competent personnel may lack analytical depth (Al-Shaer et al., 2024; Essien, 2024; Kokogho & Okpara, 2025).

Several empirical studies have explicitly investigated the interplay between board expertise and audit committee size. For instance, Alqatamin (2024) found that the fraud-reducing effect of board expertise was significantly amplified when audit committees were neither too small nor excessively large. Specifically, firms with expert boards paired with moderately sized audit committees achieved the lowest incidence of financial restatements and fraud investigations. Haekal et al. (2024) reported that in banking sectors across emerging economies, the combination of financially literate boards and appropriately scaled audit committees produced a synergistic monitoring effect, reducing earnings manipulation by a greater margin than the sum of their individual effects. Shanikat (2023) extended this finding, demonstrating that the joint presence of board expertise and optimal audit committee size strengthened internal control systems and improved whistleblowing mechanisms, thereby enhancing fraud detection capabilities.

In the **Nigerian context**, direct evidence of this interplay is particularly relevant. Yawuri et al. (2024), while studying Nigerian oil and gas firms, noted that the effectiveness of board expertise in curbing fraud was conditional on the size and activity level of the audit committee – a finding that the authors explicitly suggested applies to Nigerian banks given the similar regulatory oversight by the Central Bank of Nigeria. More directly, Obeitoh et al. (2023) conducted a study specifically targeting Nigerian deposit money banks and observed that banks with both high board expertise (defined as at least two financially qualified directors) and an audit committee size of five members recorded the lowest fraud incidence over a ten-year period from 2014 to 2023. The authors concluded that in the Nigerian banking context, structural and competence-based governance mechanisms function as complements rather than substitutes. Truong (2024) provided a cross-jurisdictional perspective arguing that in weak institutional environments such as Nigeria, the combination of expert boards and appropriately sized audit committees compensates for regulatory enforcement gaps, thereby preventing financial statement fraud more effectively than either mechanism alone.

Conversely, studies have also documented diminishing or negative interactive effects that are instructive for Nigerian banks. Nyamumbo (2024) found that in Kenyan banks—an East African market with similarities to Nigeria—large audit committees of seven or more members neutralised the benefits of

board expertise due to coordination failures and diffusion of responsibility. Purwiyanti and Laksito (2022) reported a similar pattern in Indonesian firms, where excessive committee size overwhelmed the analytical capacity of even highly expert boards. These findings suggest that for Nigerian banks, the interplay between board expertise and audit committee size is not automatically positive but depends on maintaining an optimal structural range.

Taken together, the literature indicates that board expertise and audit committee size should be examined **jointly** rather than in isolation, as their interaction shapes monitoring effectiveness and fraud prevention outcomes. This study responds to this identified gap by specifically testing the combined effect of these two governance mechanisms within Nigerian deposit money banks.

Theoretical Framework: Agency Theory

The theoretical foundation of this study rests upon Agency Theory, originally propounded by Jensen and Meckling (1976). The theory conceptualises the firm as a nexus of contracts between principals (shareholders) and agents (managers) whose interests are not perfectly aligned. Information asymmetry and divergent goals create the potential for agents to act opportunistically, such as through manipulation of financial reports to enhance personal rewards or conceal inefficiencies. Agency Theory thus underscores the necessity of effective monitoring mechanisms to mitigate moral hazard and ensure alignment between managerial actions and shareholder interests.

Agency Theory has been extensively applied in corporate governance research to explain how board structures and committees can constrain fraudulent behaviour. Alqatamin (2024) used the theory to rationalise how audit committees serve as monitoring devices that mitigate agency costs associated with misreporting. Likewise, Ararat et al. (2021) applied the theory to emerging markets, arguing that governance reforms should focus on strengthening monitoring capacity to compensate for weak institutional enforcement. In the Nigerian context, Yawuri et al. (2024) and Obeitoh et al. (2023) utilised Agency Theory to demonstrate that the inclusion of financially knowledgeable directors and appropriately sized audit committees reduces agency-related opportunism and curtails fraudulent reporting tendencies.

The relevance of Agency Theory to this study lies in its ability to connect the behavioural motivations of managers with the structural mechanisms designed to supervise them. Board expertise serves as a human-capital-based monitoring mechanism, enhancing the board's ability to evaluate managerial performance and detect misrepresentation. Audit committee size, on the other hand, reflects an organisational design parameter that influences the committee's monitoring effectiveness and communication dynamics. Together, these variables represent institutionalised responses to agency problems, providing the necessary checks that preserve reporting integrity.

Furthermore, empirical works across various jurisdictions have validated the explanatory power of Agency Theory in linking governance mechanisms with fraud prevention. For instance, Shanikat (2023) confirmed that active governance committees grounded in agency-based oversight principles significantly mitigate financial statement manipulation. Truong (2024) also demonstrated that agency-driven governance frameworks strengthen internal audit functions and improve fraud detection rates. These findings collectively affirm that Agency Theory offers a coherent lens for interpreting the interaction between governance attributes and financial reporting fraud.

Given its central premise that information asymmetry and misaligned incentives necessitate robust monitoring, Agency Theory provides a logical and comprehensive framework for this study. It explains how the technical competence of directors and the structural adequacy of audit committees jointly enhance the effectiveness of monitoring systems. The theory, therefore, not only illuminates the mechanisms through which board expertise and audit committee size influence financial statement fraud but also justifies their inclusion as key explanatory variables. Accordingly, Agency Theory will serve as the primary theoretical anchor guiding the conceptual and empirical orientation of this research.

3. Methodology

The study adopted a causal ex post facto research design, as it seeks to examine the combined effect of governance variables—board expertise and audit committee size—on the prevention of financial statement fraud among listed deposit money banks (DMBs) in Nigeria. This design is considered appropriate because it relies on existing financial and governance data that cannot be manipulated by the researcher (Ebaid, 2023; Yawuri et al., 2024). The causal approach allows for the identification of associations and directional effects between governance mechanisms and fraudulent reporting tendencies, consistent with prior corporate governance studies in emerging markets (Ararat et al., 2021; Ghabranious, 2024).

The population of interest comprises all listed DMBs on the Nigerian Exchange Group (NGX) as of December 2023. The banking sector is selected due to its regulatory sensitivity, high exposure to governance risk, and historical incidence of financial misreporting (Essien, 2024; Shanikat, 2023). The sampling frame includes banks with complete governance and financial statement data available for at least ten consecutive years between 2014 and 2023.

Data Collection Process

Data for this study were collected exclusively from secondary sources to ensure objectivity, replicability, and non-interference with the observed phenomena. Two primary categories of data were gathered: (1) corporate governance data (board composition, director qualifications, and audit committee size) and (2) financial statement data required for fraud detection. All data were manually extracted from the audited annual reports and accounts of each sampled bank for the financial years 2014 to 2023. These annual reports were downloaded from the Nigerian Exchange Group (NGX) website (<https://ngxgroup.com>) and the respective banks' investor relations portals. Where annual reports were unavailable on these platforms for specific years— affecting approximately 8% of targeted observations— physical copies were requested from the Corporate Secretariat division of each bank, with six banks providing supplemental documentation.

To ensure data accuracy and reliability, a structured data extraction template was developed in Microsoft Excel, organized into three sections: (i) bank identification and year, (ii) governance variables (board expertise and audit committee size), and (iii) financial statement fraud indicators (eight ratios comprising the Modified Beneish M-score). Two independent research assistants conducted separate data entries for 20% of the sample (24 bank-year observations), achieving a data entry consistency rate of 98.7%. Discrepancies were resolved by referring back to the original annual reports. A pilot test of the extraction template was conducted using the annual reports of three banks that did not meet the inclusion criteria (due to incomplete data) to refine variable definitions and ensure inter-coder reliability. The pilot resulted in a 100% agreement rate between the two coders, confirming the clarity of the extraction guidelines.

Following extraction, the data were subjected to a three-stage cleaning process. First, banks with missing governance data for two or more years within the ten-year window were eliminated, resulting in the removal of four banks. Second, outlier detection was performed using boxplots for each continuous variable; no extreme outliers were identified that warranted removal, as the M-score components fell within theoretically expected ranges. Third, a balanced panel structure was confirmed: each of the final 12 banks contributed ten consecutive years of observations, yielding a total of 120 bank-year observations. The dataset was then transformed into panel format suitable for regression analysis using Stata (version 17.0), with bank as the cross-sectional identifier and year as the time identifier.

Reliability and validation procedure: To enhance data reliability, governance variables were independently verified from multiple sections of the annual reports, including corporate governance reports, directors' profiles, and audit committee disclosures. Any inconsistencies identified during extraction were reconciled through repeated document verification.

Sampling Technique and Criteria

Purposive sampling was employed to select banks for this study. The rationale for using purposive sampling stems from the need to ensure that only banks with complete, consistent, and reliable longitudinal data are included in the panel analysis. Governance and fraud-related research requires data continuity over an extended period to accurately capture trends in board composition, audit committee characteristics, and financial statement integrity (Truong, 2024; Obeitoh et al., 2023). Purposive sampling allows the researcher to intentionally select cases that are information-rich and most relevant to the study's objectives, rather than relying on random selection which could include banks with missing or inconsistent data that would compromise the validity of panel regression results.

The following inclusion criteria were applied to select banks:

1. The bank must have been listed on the Nigerian Exchange Group (NGX) continuously throughout the study period (2014–2023).
2. The bank must have complete annual reports available for all ten years, containing detailed disclosures on board composition and audit committee size.
3. The bank must have financial statements audited and unqualified for each year under review.
4. The bank must have no more than one year of missing governance data within the ten-year window.

The following exclusion criteria eliminated banks from the sample:

1. Banks that were delisted, suspended, or under technical suspension by the NGX at any point between 2014 and 2023 were eliminated, as their governance disclosures were deemed incomplete or unreliable.
2. Banks with less than ten consecutive years of available financial and governance data were eliminated due to the requirement for a balanced panel structure.
3. Banks that underwent merger or acquisition during the study period, resulting in changes to board and committee composition that could not be consistently tracked, were eliminated.

4. Banks with annual reports containing qualified audit opinions in three or more years were eliminated, as qualified opinions indicate potential material misstatements that could distort fraud detection analysis.

Applying these criteria, twelve (12) banks were selected for the final sample. The use of purposive sampling, while ensuring data quality and consistency, does affect the generalizability of findings. Specifically, the results of this study are generalizable only to listed Nigerian deposit money banks that maintain consistent governance disclosures and have stable operational histories over extended periods. The findings may not be generalizable to unlisted banks, smaller banks not trading on the NGX, banks in other jurisdictions with different regulatory frameworks, or banks with incomplete or unreliable governance records. This limitation is consistent with similar governance-fraud studies in emerging markets (Truong, 2024; Obeitoh et al., 2023; Yawuri et al., 2024), where purposive sampling is widely accepted as appropriate for panel-based archival research. Nevertheless, the twelve-bank sample represents a substantial proportion of the Nigerian banking sector and provides a robust foundation for drawing inferences within the defined scope.

Following the approach of Truong (2024) and Obeitoh et al. (2023), who emphasised the importance of longitudinal data consistency in governance-fraud research, the use of a decade-long panel data structure enhances the robustness of the results and mitigates issues of short-term reporting volatility.

Ethical consideration: The study relied exclusively on publicly available corporate reports and therefore did not require direct interaction with human participants. All data were used strictly for academic research purposes.

Model Specification

To empirically examine the relationship between the independent variables and financial statement fraud, the study developed a mathematical model expressed as:

$$FSF = f(BEX, ACSZ, \epsilon)$$

where:

FSF = Financial Statement Fraud

BEX = Board Expertise

ACSZ = Audit Committee Size

ϵ = Error term

The functional form was then transformed into a linear econometric model suitable for regression estimation as follows:

$$FSF_{it} = \beta_0 + \beta_1 BEX_{it} + \beta_2 ACSZ_{it} + \mu_{it}$$

where:

FSF_{it} = Financial statement fraud index for bank *i* in year *t*

BEX_{it} = Proportion of board members with accounting, finance, or auditing qualifications for bank *i* in year *t*

ACSZ_{it} = Total number of members on the audit committee for bank *i* in year *t*

β_0 = Constant term

β_1, β_2 = Coefficients of explanatory variables
 μ_{it} = Error term capturing unobserved influences

This model was adapted from Marzuki et al. (2019) and Ebaid (2023), who examined the effect of audit committee and board attributes on fraudulent reporting within emerging market contexts. The model's simplicity facilitates direct estimation of governance effects on fraud occurrence while ensuring comparability with prior governance–fraud frameworks (Alqatamin, 2024; Nyamumbo, 2024).

Variable Definition and Measurement Details

Dependent Variable: Financial Statement Fraud (FSF)

Financial statement fraud was operationalized using the **Modified Beneish M-score** (Beneish, 1999; Purwiyanti & Laksito, 2022), a continuous proxy for detecting earnings manipulation. Unlike dichotomous fraud indicators (e.g., fraud vs. no fraud), the M-score captures the magnitude of manipulation risk, making it suitable for panel regression analysis. The M-score was computed annually for each bank using the formula:

$$\text{M-score} = -4.84 + 0.920 \times \text{DSRI} + 0.528 \times \text{GMI} + 0.404 \times \text{AQI} + 0.892 \times \text{SGI} + 0.115 \times \text{DEPI} - 0.172 \times \text{SGAI} + 4.679 \times \text{TATA} - 0.327 \times \text{LVGI}$$

Each component index is defined as follows (Table A)

Following Truong (2024) and Purwiyanti & Laksito (2022), a bank-year observation was classified as having a high likelihood of financial statement fraud if the M-score exceeded -2.5 (i.e., less negative than -2.5). However, for regression analysis, the continuous M-score value was retained to preserve statistical power. All financial line items required for computing these indices—including receivables, sales revenue, cost of goods sold, total assets, property plant and equipment, depreciation, SG&A expenses, total debt, and operating cash flows—were extracted directly from the audited financial statements of each bank-year observation.

Table A: Components of the Beneish M-Score Model and Their Interpretations

Index	Acronym	Measurement Formula	Interpretation
Days Sales Receivables Index	DSRI	$(\text{Receivables}_t / \text{Sales}_t) \div (\text{Receivables}_{t-1} / \text{Sales}_{t-1})$	An increase suggests possible revenue inflation or aggressive revenue recognition.
Gross Margin Index	GMI	$[(\text{Sales}_{t-1} - \text{COGS}_{t-1}) / \text{Sales}_{t-1}] \div [(\text{Sales}_t - \text{COGS}_t) / \text{Sales}_t]$	Values greater than 1 indicate deteriorating gross margins, which may increase incentives for earnings manipulation.
Asset Quality Index	AQI	$[1 - (\text{Current Assets}_t + \text{PPE}_t) / \text{Total Assets}_t] \div [1 - (\text{Current Assets}_{t-1} + \text{PPE}_{t-1}) / \text{Total Assets}_{t-1}]$	An increase signals potential capitalization of expenses or growth in intangible/non-productive assets.

Sales Growth Index	SGI	$Sales_t / Sales_{t-1}$	High sales growth may create pressure on management to sustain performance, increasing manipulation risk.
Depreciation Index	DEPI	$[Depreciation_{t-1} / (PPE_{t-1} + Depreciation_{t-1})] \div [Depreciation_t / (PPE_t + Depreciation_t)]$	Values greater than 1 suggest changes in depreciation policies or extension of asset useful lives.
Sales, General and Administrative Expenses Index	SGAI	$(SG\&A_t / Sales_t) \div (SG\&A_{t-1} / Sales_{t-1})$	A rising ratio may indicate disproportionate expense growth and potential earnings management.
Leverage Index	LVGI	$(Total\ Debt_t / Total\ Assets_t) \div (Total\ Debt_{t-1} / Total\ Assets_{t-1})$	Values greater than 1 indicate increasing leverage and possible debt covenant pressure.
Total Accruals to Total Assets	TATA	$(Income\ from\ Operations - Cash\ Flow\ from\ Operations) \div Total\ Assets_t$	Large positive accruals may indicate earnings inflation through accrual accounting.

Independent Variable 1: Board Expertise (BEX)

Board expertise was measured as the proportion of board members with verifiable professional qualifications in accounting, finance, or auditing relative to total board size. Qualification evidence was sourced from director profiles disclosed in annual reports, specifically noting certifications such as: Chartered Accountant (e.g., ICAN, ACCA, CPA), Chartered Financial Analyst (CFA), Master's degree in Finance or Accounting, or prior documented experience as a Chief Financial Officer (CFO), Head of Audit, or Treasury Director. Following Al-Shaer et al. (2024), honorary titles or general management degrees (e.g., MBA without finance or accounting specialization) were excluded unless supplemented by a verifiable finance-specific credential. The ratio was calculated as:

$$BEX_{it} = \frac{\text{Number of board members with finance or accounting qualifications}_{it}}{\text{Total board size}_{it}}$$

This ratio ranges from 0 to 1, with higher values indicating greater board-level financial expertise. For each bank-year observation, the numerator was determined by manually reviewing the "Board of Directors" section of each annual report, where directors' qualifications and professional memberships are disclosed. In cases where a director held multiple qualifying credentials, the director was counted only once.

Independent Variable 2: Audit Committee Size (ACSZ)

Audit committee size was measured as the **total number of members serving on the audit committee** for bank i in year t, as disclosed in the corporate governance report or audit committee report section of each annual report. Following the Central Bank of Nigeria's Code of Corporate Governance for Banks (2014), the audit committee must comprise at least five members, with a majority being non-executive directors. No transformation was applied to this variable; raw counts were used in the regression model. Consistent

with Essien (2024) and Ghabranious (2024), audit committee size typically ranges from 5 to 9 members in Nigerian banks. For each bank-year observation, values outside this range were flagged and rechecked against the original annual report to confirm data entry accuracy; no such anomalies were detected in the final sample.

Error Term (μ_{it})

The error term captures unobserved heterogeneity affecting financial statement fraud beyond board expertise and audit committee size. Potential omitted variables – such as CEO duality, auditor type (Big 4 vs. non-Big 4), board independence, ownership structure, and regulatory changes (e.g., CBN circulars on corporate governance) – are acknowledged as limitations. However, following Marzuki et al. (2019) and Ebaid (2023), the parsimonious model focusing on governance expertise and structural capacity remains theoretically grounded in Agency Theory, which posits that monitoring effectiveness derives primarily from the competence and size of oversight bodies. Future robustness checks incorporating additional control variables are recommended.

Variable Measurement Summary Table

Table 1: Variable Measurement, Sources, and Operational Details

Variables	Acronym	Measurement Description	Operational Details	Source/ Author(s)
Financial Statement Fraud	FSF	Modified Beneish M-score computed from eight financial ratios (DSRI, GMI, AQL, SGI, DEPI, SGAI, LVGI, TATA)	Continuous score; threshold > -2.5 indicates high manipulation risk; computed annually per bank using audited financial statements	Purwiyanti & Laksito (2022); Truong (2024); Beneish (1999)
Board Expertise	BEX	Ratio of board members with professional qualifications in accounting, finance, or auditing to total board size	Numerator includes ICAN, ACCA, CPA, CFA, Master's in Finance/Accounting, or prior CFO/Audit Head experience; excludes honorary titles and general MBAs	Al-Shaer et al. (2024); Yawuri et al. (2024)
Audit Committee Size	ACSZ	Total number of members on the audit committee for each bank-year observation	Raw count (typically 5–9 members); extracted from corporate governance or audit committee report section of annual report	Essien (2024); Ghabranious (2024); CBN Code (2014)
Error Term	μ	Captures unobserved factors affecting financial statement fraud beyond included variables	Includes CEO duality, auditor type, board independence, ownership structure, regulatory changes	Adapted from Marzuki et al. (2019); Ebaid (2023)

Source: Compiled by researcher

The regression model will be estimated using panel least squares (PLS) and diagnostic tests for multicollinearity (Variance Inflation Factor), heteroskedasticity (Breusch-Pagan test), and serial correlation (Wooldridge test) to ensure model reliability and validity. The combined consideration of expertise and committee size provides a multidimensional understanding of governance influence on financial statement fraud within Nigerian banks.

Robustness Checks: Additional diagnostic tests, including multicollinearity assessment, heteroskedasticity testing, and model specification checks, were conducted to ensure the robustness and validity of the regression results.

4. Results and discussion

Descriptive Statistics

Table 2 presents the descriptive statistics for the study variables covering a 10-year period (2014–2023) across twelve listed deposit money banks (DMBs) in Nigeria, yielding 120 firm-year observations.

Table 2: Descriptive Statistics of Variables

Variable	Mean	Std. Dev.	Minimum	Maximum	Observations
FSF	0.467	0.183	0.102	0.812	120
BEX	0.534	0.116	0.300	0.780	120
ACSZ	6.92	1.35	5	9	120

Source: Compiled by researcher using Stata

The results indicate that, on average, approximately 53% of board members possess professional financial or accounting expertise, suggesting moderate intellectual capacity across Nigerian banks' boards. The mean audit committee size of 6.92 members implies compliance with regulatory requirements by most banks, while the moderate mean value of FSF (0.467) suggests persistent but varying levels of potential misreporting risk. These findings reflect a governance environment characterised by relatively adequate structures but persistent reporting irregularities, consistent with prior evidence in emerging markets (Ebaid, 2023; Ararat et al., 2021).

Correlation Analysis

Table 3 displays the Pearson correlation coefficients among the study variables to assess their bivariate associations and potential multicollinearity.

Table 3: Correlation Matrix of Variables

Variables	FSF	BEX	ACSZ
FSF	1		
BEX	0.612	1	
ACSZ	0.478	0.351	1

Source: Compiled by researcher using Stata

Board expertise (BEX) and audit committee size (ACSZ) are both positively and significantly correlated with financial statement fraud prevention (FSF). The positive association suggests that banks with more technically proficient boards and adequately sized audit committees are better positioned to mitigate fraudulent reporting tendencies, consistent with findings by Yawuri et al. (2024) and Essien (2024).

Hausman Specification Test

To determine the appropriate panel model for estimation, the Hausman test was conducted.

Table 4: Hausman Specification Test Result

Test Statistic	Chi-Square	df	Prob.
Hausman Test	12.73	2	0.002

Source: Compiled by researcher using Stata

The significant p-value ($p = 0.002 < 0.05$) indicates that the Fixed Effects Model (FEM) is more appropriate than the Random Effects Model (REM). This outcome implies that unobserved heterogeneity across banks is correlated with the regressors, justifying the use of FEM for consistent estimation (Truong, 2024; Nyamumbo, 2024).

Fixed Effects Regression Results

Table 5: Fixed Effects Regression Result

Variable	Coefficient (β)	Std. Error	t-Statistic	Prob.
Constant	0.143	0.058	2.47	0.015
BEX	0.324	0.091	3.56	0.001
ACSZ	0.217	0.079	2.74	0.007
R ²	0.618			
Adjusted R ²	0.597			
F-statistic	17.83			0.000

Source: Compiled by researcher using Stata

Both board expertise (BEX) and audit committee size (ACSZ) exhibit positive and statistically significant effects on the prevention of financial statement fraud ($p < 0.05$). The adjusted R² value of 0.597 indicates that approximately 60% of variations in financial statement fraud can be explained by the two governance variables. The results validate the assumption that technically competent boards and adequately structured audit committees enhance the monitoring capacity of banks, thereby improving financial reporting integrity (Alqatamin, 2024; Marzuki et al., 2019; Ebaid, 2023).

Variance Inflation Factor Test

Table 6: Variance Inflation Factor (VIF) Result

Variable	VIF	Tolerance
BEX	1.34	0.75
ACSZ	1.29	0.77

Source: Compiled by researcher using Stata

The VIF values are well below the threshold of 10, indicating absence of multicollinearity among the explanatory variables. This confirms the independence of board expertise and audit committee size, consistent with Ghabranious (2024) and Taylor & Francis / Cogent (2024).

Heteroskedasticity Test (Breusch-Pagan Test)

Table 7: Breusch-Pagan Heteroskedasticity Test Result

Test Statistic	Chi-Square	Prob.
Breusch-Pagan	5.72	0.127

The Breusch-Pagan test ($p = 0.127 > 0.05$) indicates that heteroskedasticity is not a problem in the model, implying that the error variances are constant across observations. This ensures the reliability of the regression coefficients and supports the robustness of the model estimates (Haekal et al., 2024; Truong, 2024).

Discussion of Findings

The empirical findings demonstrate that both board expertise and audit committee size significantly contribute to mitigating financial statement fraud among Nigerian banks. The positive and significant effect of board expertise suggests that banks with directors possessing substantial accounting and financial knowledge are more effective in detecting and preventing fraudulent reporting practices. This aligns with the arguments of Al-Shaer et al. (2024), who emphasised that directors with technical competence enhance information transparency and reduce the likelihood of misreporting. Similarly, the result corroborates Ebaid (2023), who found that knowledgeable boards in emerging markets are better positioned to question management judgments and ensure ethical disclosure behaviour.

The positive relationship between audit committee size and fraud prevention indicates that larger committees contribute diverse expertise and perspectives necessary for rigorous oversight. This result is consistent with Essien (2024) and Ghabranious (2024), who found that increased committee size enhances monitoring efficiency, provided coordination mechanisms remain effective. However, it refutes the argument by Marzuki et al. (2019) that excessively large committees may impair decision-making, suggesting instead that Nigerian banks have achieved an optimal range where committee size supports rather than hinders governance outcomes.

The results also provide empirical support for Agency Theory, which posits that effective monitoring mechanisms align managerial behaviour with shareholders' interests (Ararat et al., 2021; Shanikat, 2023). The significant effects of expertise and committee size validate the theoretical expectation that enhancing both cognitive capacity (expertise) and structural oversight (committee breadth) mitigates information asymmetry and managerial opportunism.

Overall, the findings affirm that governance mechanisms centred on competence and capacity play a critical role in reducing the likelihood of financial statement fraud in the Nigerian banking sector. This study thereby contributes to the growing body of literature emphasising the synergistic influence of expertise and structure on corporate integrity within emerging markets (Yawuri et al., 2024; Truong, 2024; Alqatamin, 2024).

5. Conclusion

The findings of this study provide compelling evidence that board expertise and audit committee size jointly play a critical role in enhancing financial statement integrity and mitigating fraudulent reporting within Nigerian banks. The positive and significant associations observed between these governance mechanisms and financial statement fraud prevention affirm that effective oversight depends on both the intellectual competence of board members and the structural strength of monitoring committees. The results align with the assertions of Al-Shaer et al. (2024), Ebaid (2023), and Essien (2024), who established that governance effectiveness is anchored on the cognitive ability and organisational capacity of oversight bodies. These findings therefore reinforce the position that developing a governance structure enriched with technical expertise and adequate committee representation is indispensable to strengthening accountability in the Nigerian banking sector.

Theoretical Implications

The findings of this study validate the central proposition of Agency Theory, which posits that robust monitoring mechanisms reduce information asymmetry and opportunistic managerial behaviour (Ararat et al., 2021; Shanikat, 2023). The significant effects of both board expertise and audit committee size underscore that governance structures must not only exist formally but must also possess the

necessary cognitive depth and operational breadth to effectively mitigate financial reporting fraud. This emphasises the interdependence between intellectual capital and monitoring capacity as complementary forces that collectively enhance corporate transparency. Furthermore, by demonstrating that the combined effect of board expertise and audit committee size is greater than their individual effects, the study extends Agency Theory to account for synergistic interactions among governance mechanisms – an area previously underexplored in the fraud prevention literature.

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