

Audit Quality Characteristics and the Likelihood of Financial Statement Fraud in Nigerian Listed Firms

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Abstract: *This study examines audit quality characteristics' impact on financial statement fraud likelihood in Nigerian listed firms, using input-process-output factors and controlling for firm size and profitability. Panel design was adopted with a population of 151 firms listed on Nigerian exchange group as at 31st December, 2024. A sample of 110 firms was selected using Yamane formula and stratified random sampling was employed with System GMM applied as the estimation technique. The findings showed that from Audit Input angle, Audit tenure and firm size negatively but insignificantly affect fraud likelihood; audit independence positively insignificant. From Audit Process, Board size negatively affects fraud; board independence negative but insignificant; board meetings significantly positive. Lastly, Audit Output revealed that Audit committee independence and financial expertise significantly negative; committee meetings positively insignificant. It was recommended among others that financial regulators (ICAN, ANAN, FRCN) should standardize audit fees by company size and sector to ensure independence. Increase independent non-executive directors on boards and audit committees; raise financial/accounting experts in audit committees to enhance oversight and reduce fraud risk.*

Keywords: audit quality, financial statement fraud, audit input, audit process, audit output

JEL Classification: M42, M41, G34, G38, K42

INTRODUCTION

Financial statements facilitate management accountability and stakeholder economic decisions, balancing interests of board, shareholders, and others (Ogunbade et al., 2021). Stakeholders rely on their credibility, ensured through quality auditing. Audits enhance confidence and integrity in corporate reports (Kazeem,

2019). They strengthen reliability and user trust in accounting information, reflected in audited annual reports (Mgbame et al., 2012). Audit ensures accountability and transparency in corporate and government financial statements (Masood & Afzal, 2016). High-quality audits, per regulatory guidelines and objectivity, detect and report material misstatements (Meibi & Akpoveta, 2023). Therefore, audit quality is the likelihood auditors identify and disclose manipulations using proficiency (Meibi & Akpoveta, 2023), ensuring reliable input, process, and output independent of management (Wahhab & Khalif, 2022). Agency conflicts arise when management prioritizes self-interest, leading to earnings manipulation and fraud (Masood & Afzal, 2016).

Kassem (2019) defines corporate fraud as intentional misuse of company resources for personal gain, encompassing financial statement fraud, asset misappropriation, and corruption. This study focuses on financial statement fraud—the costliest, most damaging form (Subair et al., 2020). Beyond monetary loss, it erodes investor confidence in capital markets and audit services due to reputational harm (Kassem, 2019). Fraudulent reporting adversely impacts the economy, society, and workforce. Therefore, board of directors, audit committee, and other stakeholders must collaborate to detect fraud via strong internal controls. While primary responsibility lies with the board, auditors face liability for negligence if engagement depth fails to uncover irregularities (Subair et al., 2020).

The extent and depth of audit engagement determine the level of reliance the users will place on the report of such an audit exercise. In spite of the audit quality role in the capital market stability, there have been a number of divergent findings regarding its meaning, makeup, measurement basis, and influence in ensuring financial statement accuracy (Christensen et al., 2016). The Enron (2001), WorldCom (2002), Xerox (2002), Parmalat (2003), and Cadbury (2006) crises are just a few of the significant firms implicated in capital market infringement cases that had a negative impact on public confidence (Anshori, 2015). Even in the first quarter of 2023, it was reported that Nigerian banks lost up to ₦472m due to fraudulent activities, and even in the last quarter of 2022, also, this same sector lost ₦3.18b due to fraud (basically forgeries). These fraudulent activities can be committed through a wide a range of channels, such as automated teller machines (ATM), web, mobile banking platforms (USSD and e-Naira), and point of sale (POS) terminals (Michael, 2023).

The causes and effects of financial statement fraud have been examined in several studies (Ilaboya & Lodikero, 2017; Jayeola et al., 2017; Anichebe, 2019; Kazeem, 2019; Uwuigbe et al., 2019; Sabatian & Hutabarat, 2020; Subair et al., 2020; Aulia & Bernawati, 2021; Krismiaji, 2021; Syam et al., 2021; Ugalla, 2021; Meibi & Akpoveta, 2023). The existence of financial statement fraud appears to be correlated with the firm's financial and operating characteristics, management's motivations, poor long-term financial performance, lack of a sound corporate governance system, and poor audit quality, as evidenced by Beneish (1999), Beasley et al. (2000), Farber (2005), Brennan and Megrath (2007), Leng et al. (2011), Chen et al. (2013), Kazeem (2019), Sabatian, and Hutabarat (2020), which were all conducted in other countries apart from Nigeria. Anichebe (2019) conducted research on what determines the possibility of fraud in Nigerian companies; Ilaboya and Lodikero (2017) focused on the extent to which independence of the board influences financial statement fraud in Nigeria; and Subair et al. (2020) investigated the influence of board characteristics on financial statement fraud in Nigeria. These studies focused on audit process factors only as they relate to board characteristics but never considered other factors, apart from the study in Ehiedu and Toria (2022) that combined both audit input factors such as audit independence and audit firm size and

audit output factors such as audit committee meetings and audit committee financial expertise as proxies but concentrated on just three manufacturing firms quoted in Nigeria.

The studies of the likes Eyenubo et al. (2017), Nwanyanwu (2017), Bala et al. (2018), Ikpanan and Daferighe (2019), and Ogungbade et al. (2021) all carried out research on audit quality and financial statement quality and pointed out that financial ties between the audit firm and the clients will reduce auditors' independence. They noted that biases in reported earnings are more difficult for the auditor to overcome when their independence is compromised. Meanwhile, a greater number of these studies only focus on audit input factors or audit firm characteristics (that is, audit independence, tenure or rotation, audit firm size, audit firm specialisation, and so on), while some focus on board characteristics as it relates to audit process factors. However, as stated by IAASB (2020), the main factors that guarantees audit quality involve the audit input factors (audit independence, firm size, and tenure), audit process factors (board size, board independence, and board meetings), and output factors (audit committee independence, audit committee meetings, and audit committee financial expertise), along with the contextual factors and interacting variables.

The only known study that focused on input, process, and output factors as audit quality determinants was conducted by Syam et al. (2021) on Indonesian public accounting firms, and the study did not look at its effect on financial statement fraud. Also, most of these studies (Ilaboya & Lodikero, 2017; Jayeola et al., 2017; Anichebe, 2019; Kazeem, 2019; Uwuigbe et al., 2019; Sabatian & Hutabarat, 2020; Subair et al., 2020; Aulia & Bernawati, 2021; Krismiaji, 2021; Syam et al., 2021; Meibi & Akpoveta, 2023; and so on) concentrated on certain sectors in the Nigerian Exchange Group (NGX). Meanwhile, this study focuses on all the companies listed under the Nigerian Exchange Group in order to have robust findings and conclusions on the effect of audit quality characteristics and the likelihood of financial statement fraud in Nigerian quoted companies. Based on the above, this study investigates audit quality characteristics effect on the likelihood of financial statement fraud by specifically and jointly considering audit input-process-output factors in all listed Nigerian companies to cover the identified gaps.

LITERATURE REVIEW

Financial Statement Fraud

Financial statements record an organization's financial activities, position, and performance to aid users' economic decisions (Ogungbade et al., 2021). High-quality statements integrate qualitative traits: relevance, comparability, faithful representation, verifiability, timeliness, and understandability. Fraud undermines this quality. ACFE (2022) classifies fraud into financial statement fraud, asset misappropriation, and corruption. Financial statement fraud (FSF) could involve altering reports to conceal true performance for stakeholder benefit. Goel and Gangolly (2012) define FSF as misrepresenting or omitting key facts from the reported financial information. It could be mainly referred to as management-driven unethical practices (that is, management fraud) which could at times involve employees, vendors, or customers collaborating in creative accounting, window dressing, or earnings management which is later referred to as corporate fraud (Kassem, 2019; Joseph & Isiaka, 2022). These frauds are of different types.

Among the most frequent types of fraud are the following: improper revenue recognition, hidden liabilities, overvaluation of assets, and incorrect disclosures and so on (Kassem, 2019). In terms of measurement models, there are several, the most well-known being the Beneish M-Score, Dechow F-Score, Altman Z-

Score, Pustynnick P-Score, and Montier C-Score. Among these, the Beneish M-Score is the most reliable one, as it considers eight ratios: Days Sales in Receivables Index, Gross Margin Index, Asset Quality Index, Sales Growth Index, Depreciation Index, SG&A Expense Index, Leverage Index, and Total Accruals. When the M-Score value exceeds -2.22, it indicates a high probability of fraud (the score is 1); if it is -2.22 or lower, the firm's statements are clean (score = 0). Parikh and Shah (2022) support M-Score's ability to find fraud and improve the quality of statements, thereby keeping investors safe. The current study uses the Beneish M-Score to evaluate the probability of fraud in companies listed in Nigerian Exchange Group (NGX)

Audit Quality Characteristics

Stakeholders rely on audit quality to guarantee the accuracy and dependability of financial statements. Companies and Allied Matter [CAMA] (2020), Section 406(1) strictly prohibits any such actions that would coerce or mislead auditors into providing false reports, thus requiring the independent detection and reporting of material misstatements. Therefore, by regulation, audit quality is required. According to Ogungbade et al. (2021), audit quality refers to the delivery of exact and pertinent financial information. Nwanyanwu (2017) views the audit quality as that capacity of audits to detect errors, shorten the gap of assumptions, and secure investors interest and it helps to reduce both errors and income manipulation. Tomy et al. (2019) argue that when the auditors are competent and the board permits full engagement, fraud risk is decreased and financial performance is improved. Ikpanan and Daferighe (2019) assess audit quality based on inputs, outputs, and stakeholder involvement, which can have a direct or indirect effect on quality. IAASB (2020) enumerates five elements of audit quality: inputs (auditor values and skills), process, outputs (reports), interactions, and contextual factors (regulations and company environment). The present research takes IAASB's (2020) model as the base, placing great emphasis on three major aspects; audit inputs (such as auditor expertise), audit process (engagement procedures), and audit outputs (report reliability). The diagram in Figure 2.1. depicts this model, showing the integration of personal characteristics, regulatory control, and corporate environment for attaining high-quality audits and fraud prevention.

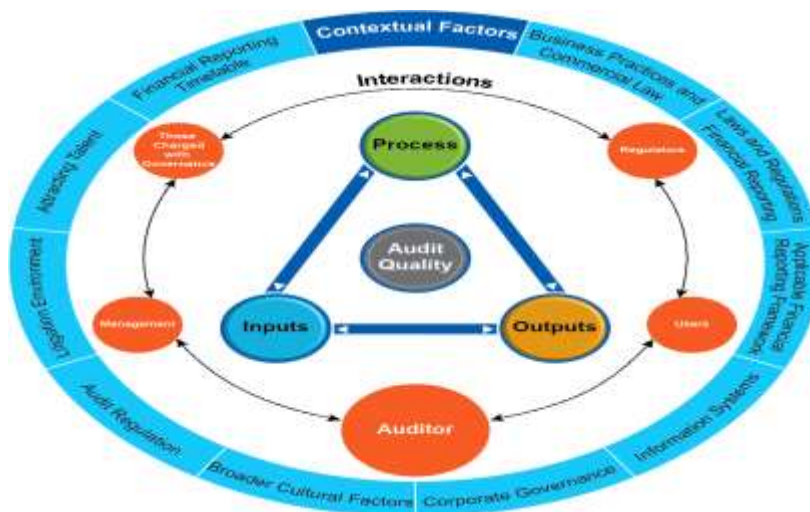


Figure 2.1: Audit Quality Framework (IAASB, 2020)

Majorly, audit quality characteristics as considered in this study are the inputs, process and outputs which are surrounded by other interacting variables and contextual factors. These are further discussed in this study.

Audit Input Factors

Al-Qatamin and Saleh (2020) pointed that audit input factors are qualified expertise, unique experience, and skilled skepticism, as it directly relating to higher skepticism with enhanced audit quality. IAASB (2020) emphasizes inputs including sufficient time, qualifications, skills, ethics, experience, and appropriate values, attitudes, and behaviors at national, firm, and engagement levels. Syam et al. (2021) align with IAASB (2020), measuring inputs via knowledge, norms, values, attitude, ethics, skills, and expertise at engagement and firm levels. Studies develop various input indicators: Al-khaddash et al. (2013) include firm size, internal control, fees, independence, image, specialist knowledge, and qualifications, prioritizing independence, expertise, and ethics. Rajgopal et al. (2021) proposes demographics, audit experience (industry/specialization), auditor size, and fees. Ahmed et al. (2023) focus on tenure, fees, and firm size. Bala et al. (2018a) emphasizes the brand reputation of the Big 4 as a driver of audit quality by their excellent knowledge and motivation. Erasmus and Micah (2021) as well as Zayol et al. (2019) use audit independence, tenure, and firm size, which are the same factors taken in this study, as proxies to measure the audit input factor of audit quality. It can therefore be noted that, auditor's knowledge, ethics, values, norms, attitudes, skills, and expertise are all factors that could positively impact the engagement and the quality at the audit firm level which could later reduce the likelihood of financial statement fraud. Hence, the posited Hypothesis (Ho1) is that: *The input factors of the audit do not have a negative significant effect on the likelihood of financial statement fraud.*

Audit Process Factors

The audit process entails the gathering of audit evidence through ongoing conversations and thus reports that are reliable, lessening the risk of material misstatements, and reducing the audit liability (Ying et al., 2019). It uncovers fewer errors, thus offering reasonable assurance and gaining the trust of stakeholders in the financial statements (Syam et al., 2021). The factors of the audit process operate at the levels of engagement, firm, or country (Al-Qatamin & Salleh, 2020; IAASB, 2020), and include the rigorous procedures, quality controls, standards compliance, firm methodologies, as well as the internal guidelines for task distribution (IAASB, 2020). Syam et al. (2021) evaluate the audit process's role in audit quality as per IAASB (2020), assessing through adherence to auditing standards, regulations, and quality mechanisms. IAASB (2020) mentions the effective communication with audited entities and the development of the board plans for the engagement and the firm-level process efficiency as part of the audit process. According to Bhaskar et al. (2019), auditors regard the board's influence on independence in making judgments; weaker board control over the adjustments when there are high motives for earnings management. Lee et al. (2019) reveal that the strong process factors define the decisions of the pre-negotiation auditor. Alves (2021) points out the boards are crucial in the audit process quality as the main internal overseers, confirming the financial accuracy. The vigorous boards arrange quality processes, internal controls, and compliance that aid in the reduction of litigation, overcompensation, and fraud risks (Alves, 2021). Syam et al. (2021) state that the auditors require strict processes that are in line with the controls set by the board if there must be a quality engagement. This research, in terms of audit process factors considers elements such as board independence, size, and meetings as they many affect the internal control and audit engagement processes towards reducing the occurrence of financial statement fraud. Therefore, the stated hypothesis (Ho2) here is that: *Audit process factors does not have negative significant effect on the likelihood of financial statement fraud.*

Audit Output Factors

Deloitte (2017) posited that financial statement quality is a prominent audit output as judged by utility, relevance, and appropriateness. Stakeholders-qualified outputs are received in varying ways by management, audit committees, and governance bodies to reinforce the quality of direct knowledge underpinnings and to redress weaknesses within internal controls in prosecuting the outputs (IAASB, 2020). It is imperative for audit committees to provide external stakeholders with feedback. Wahhab and Al-Shammari (2021) describe audit committees as committees to oversee the independence and impartiality of internal and external auditors and to consider the financial records and reports prepared by auditors to improve its quality. Hasan et al. (2020) state that audit committees oversee financial management. Section 404(1-7) of CAMA (2020) stipulates that the accuracy of the annual report is required to be formally verified. Pradikan and Hoesad (2019), audit committee helps to prevent fraudulent acts by ensuring that financial statements are reliable, supporting the control of financial operations to increase stakeholder confidence and transparency, as acknowledged by regulators and professional bodies. Syam et al. (2021), audit output impact on quality can be measured in line with IAASB (2020), linking them with outputs for auditor reports to governance authorities and firm reputation. A competent audit committee is expected to critically review the financial reports to keep them free from manipulation. This study considers audit committees factors such as independence of the audit committee, meetings, and financial expertise to study their effect on the likelihood of financial statement fraud. Hence, the stated hypothesis (Ho3): *Audit output factors does not have negative significant effect on the likelihood of financial statement fraud.*

Conceptual Framework

Financial statement fraud (dependent variable) is influenced by audit input (auditor independence, tenure, firm size which are proxies for honesty, consistency, competency), audit process (board size, independence, meetings determining internal control effectiveness, tone at the top, monitoring), and audit output factors (audit committee independence, meetings, financial expertise—ensuring unbiased, accurate statements). The conceptual framework links these interconnected factors to fraud likelihood as displayed in figure 2.2:

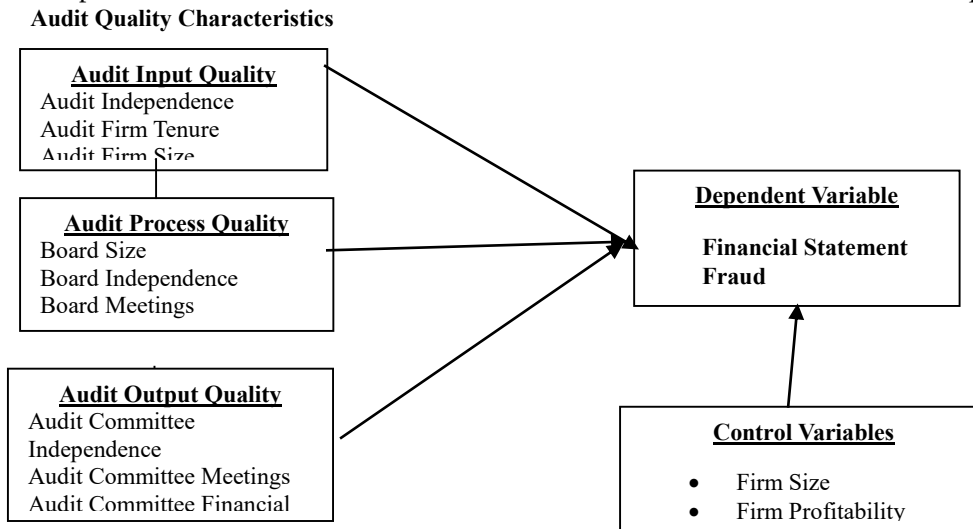


Figure 2.1: Conceptual Framework (Authors' Design, 2025)

Theoretical Review

This review is centered around the stakeholders' theory and fraud pentagon theory. The research is anchored on stakeholders' theory.

Stakeholders' Theory

The stakeholder theory was propounded for the first time by Freeman (1984), who pointed out that a company's efficacy is determined by its capacity to meet the expectations of everyone who have a stake in the company. Stakeholder theory originated with agency theory. Any modern organisation is made up of inter-relationship among the principals and their agents in accordance with the agency hypothesis. The managements, who are mostly to oversee the daily operations of the firm, are the agents, and the shareholders who are owners of the company forms the principals. Unequal access to Information results from this relationship, and according to analysts, managers have advantages over the shareholders and other stakeholders. Efficient monitoring is thus essential, highlighting the significance of the audit function in conducting an independent examination of the company's activities and providing evaluation on the company's financial statements. The auditor's therefore is expected to expressed opinion that forms the basis for the "faith" and "confidence" placed in the financial statements (Ndubuisi et al., 2017).

The stakeholder theory is logically consistent with the agency theory though broader in terms of the extent of engagement. Accordingly, the theory noted that, every entity consists of interactions between agents, principals, and other connected parties. These partnerships will encompass all stakeholders who have a vested interest in the different activities of the organisation, which include the immediate community, board, potential shareholders, investors, bankers, creditors, the government, and other relevant parties. Consequently, the organisation is faced with heightened expectations to disclose information, thereby placing greater responsibility on the audit to ensure the financial statements are precise and devoid of significant misrepresentation, misappropriation, and errors through thorough auditing (Ndubuisi et al., 2017). It is therefore very important that the board of directors, audit committee and external auditor work in tandem to ensure audit quality and financial statement that is devoid of errors and material misstatements.

In view of this, this study is anchored on the stakeholder's theory, since stakeholders demands a clean financial statement that is free from errors, misappropriations and manipulations. Therefore, board, management, auditors, audit committees and other connected stakeholders must ensure that a quality report is prepared, verified and presented in the best in of all the stakeholders.

The Fraud Pentagon Theory

An idea to look into the root causes of fraud is what brought about fraud triangle as postulated by Cressey (1953), a criminologist, who first looked into the causes of fraud in 1950. Donald Cressey named the concept "the fraud triangle" in 1953. He investigated the reasons behind breaches of trust. He carried out studies on 250 criminals whose acts met with the two criteria that: they had to have betrayed the confidence they had been given to in good faith, and they had to have accepted the position of trust. Cressey (1953) proposed the following function to explain accounting fraud: Pressure, Opportunity, Rationalization = FRAUD. This was further adjusted by Wolfe and Hermanson (2004), who felt it appropriate to add "Competence or capability" as the fourth criterion in response to some criticism. They believed that if a person lacked the abilities, technological know-how, or capability to commit the fraud, it would not have happened. They argue that three things determine a person's ability to commit fraud: having a position of authority within a particular organisation; knowing that they would be quickly released if they were caught;

and having the ability to understand, outsmart, and subvert the organization's accounting and internal control systems in to their own selfish interests.

Crowe (2011) introduced the fifth element which is arrogance or ego. Therefore, these components might be regarded as the key factors that determine fraudulent practices. Tjahjani et al. (2022) described arrogance as a conceited attitude or superiority possessed by individuals who believes that internal control procedures and company policies do not apply to him. An attitude of arrogance is displayed by an employee who believes that because of their political affiliation or level of familiarity with upper management, they are smarter, more powerful, and superior to everybody else. The nature of arrogance is often attached to individuals who are in the top positions or persons involve in the rapid development of the business or a pioneer member (Tjahjani et al., 2022). This believe give such a person room for committing and having the notion that he is untouchable even when his unethical activities is exposed. All these elements together are factors that encourage fraudulent activities in an organisation and increases the likelihood of financial statement fraud if not dealt with. The understanding of these elements and its prevention will reduce the possibilities of financial statement fraud.

Empirical Review

Ehiedu and Toria (2022) analyzed audit quality's impact on Nigerian manufacturing firms' performance (2003–2020). Audit committee financial expertise and independence significantly boosted earnings per share in Unilever, Meyer, and Beta Glass Plc ($p < 0.05$). Micah et al. (2022) established a positive association between Big-4 firm size and real earnings management, advising that greater attention be paid. Ariyanto et al. (2021) said management changes are a signal for fraud risk in Indonesian pharmaceutical firms, while factors such as CEO numbers, auditor competence, and financial need were rendered insignificant. Aulia and Bernawati (2021) showed that the audit committee's expertise actually increases earnings management, whereas, ironically, such earners themselves through audit. From the perspective of high audit fees would affect statement quality by aiming for precision in Portuguese and Spanish firms (Alves, 2021). Barghathi et al. (2021) interviewed auditors from the UAE and found that the non-Big-4 are most prone to succumbing to client pressure at the expense of quality. Khushboo (2021) documented that long auditor tenure encourages accrual manipulation, detrimental to quality, notwithstanding Big-4 do the opposite. Girau et al. (2021) identified board size and compensation as fraud mitigators in Malaysia; independence, meetings, duality insignificant. Haron et al. (2021) linked board experience, independence, and female/gender diversity to lower Malaysian fraud.

Krismiaji (2021) emphasized audit firm integrity over size for statement quality. Syam et al. (2021) confirmed input (knowledge, ethics), process, and output factors drive Indonesian audit quality. Al-Marayeh et al. (2020) found no Jordanian institutional link to earnings management regardless of auditor size/fees. Awa and Obinabo (2020) showed auditor tenure negatively affects Nigerian industrial profitability; independence and size positively significant. Masoomah et al. (2020) linked auditor independence, rotation, specialization, and size to reduced earnings management. Subair et al. (2020) associated higher board independence, expertise, and effectiveness with lower Nigerian manufacturing fraud. Ugwu et al. (2020) found positive performance-Big-4 size link, negative fraud correlation. Anichebe et al. (2019) attributed over 52 percent fraud likelihood in Nigerian agricultural firms to board size, independence, expertise, and audit committee independence. Ikpantan and Daferighe (2019) found no significant fraud-fees/tenure link. Kalabeke et al. (2019) found that longer audit tenure reduces statement accuracy, risking audit objectivity. Uwuigbe et al. (2019) found no significant relationship between fraud,

board composition/audit committee independence link, advocating broader stakeholder involvement beyond qualifications.

Gaps in Literature

Extant literature reveals limited research on audit quality characteristics' effect on financial statement fraud. Most studies focus on audit quality-financial statement quality correlations, emphasizing audit input factors (independence, firm size, tenure, fees) tied to skills, experience, and ethics. Others explore corporate governance/board traits and fraud likelihood. Non-Nigerian studies address audit quality-earnings management links, though earnings management is only one fraud aspect. Only Syam et al. (2021) in Indonesia categorized audit quality into input, process, and output per IAASB (2020). Nigerian studies target single sectors or select NGX firms. This study uniquely combines IAASB (2020) input-process-output factors to examine fraud likelihood across all NGX-listed firms as of 31 December 2024, filling a critical research gap.

METHODOLOGY

his study employed a panel research design, combining cross-sectional and time-series data from 2013–2024, covering post-IFRS adoption in Nigeria to the latest available annual reports for uniformity with international standards. The population comprised 151 firms listed on the Nigerian Exchange Group (NGX) as of 31 December 2024 (NGX, 2024). Secondary data were sourced from companies' annual reports. Stratified random sampling ensured equal sectoral representation. Using the Yamane formula, a sample of 110 firms (73 percent of the population) was selected for robust analysis of audit quality characteristics' effect on financial statement fraud. The 12-year period (2013–2024) captures IFRS-aligned, comparable financial statements. After diagnostic tests (Variance Inflation Factor, heteroskedasticity, endogeneity), the System Generalized Method of Moments (SGMM) was applied as the estimation technique to address model biases and ensure reliable inference.

Model Specifications

To examine financial statement fraud in Nigerian, the multiple linear models developed by Subair et al. (2020) was adapted for this study. This study adapted the aforementioned model but modified it to captures the correlation between audit quality characteristics and financial statement fraud that was measured by the Beneish M-score model. The control variables for this study are firm size and firm profitability which are major factors that influences audit quality and can determine the extent of the likelihood of financial statement fraud. The functional form of the model is expressed below:

$$LFSF = f(AUQC)$$

The composite independents variables are:

$$AUQC = (AIFA, APFA, AOFA)$$

Where AIFA, APFA, AOFA are decomposed as follows:

$$AIFA = AIND, AFTN, AFSZ$$

$$APFA = BIND, BSIZ, BMET$$

$$AOFA = ACID, ACMT, ACFE$$

Therefore:

The Models for specific objectives 1 – 3 i.e. audit input factors, audit process factors and audit output factor respectively would be stated as follows:

$$\text{LFSF}_{it} = \beta_0 + \beta_1 \text{AIND}_{it} + \beta_2 \text{AFTN}_{it} + \beta_3 \text{AFSZ}_{it} + \beta_4 \text{FSIZ}_{it} + \beta_5 \text{FPRF}_{it} + \mu_{it} \dots\dots\dots \text{Eqn. 3.2}$$

$$\text{LFSF}_{it} = \beta_0 + \beta_1 \text{BIND}_{it} + \beta_2 \text{BSIZ}_{it} + \beta_3 \text{BMET}_{it} + \beta_4 \text{FSIZ}_{it} + \beta_5 \text{FPRF}_{it} + \mu_{it} \dots\dots\dots \text{Eqn. 3.3}$$

$$\text{LFSF}_{it} = \beta_0 + \beta_1 \text{ACID}_{it} + \beta_2 \text{ACMT}_{it} + \beta_3 \text{ACFE}_{it} + \beta_4 \text{FSIZ}_{it} + \beta_5 \text{FPRF}_{it} + \mu_{it} \dots\dots\dots \text{Eqn. 3.4}$$

Where:

LFSF = likelihood of Financial Statement Fraud

AUQC = Audit Quality Characteristics

AIFA = Audit Input Factor

APFA = Audit Process Factor

AOFA = Audit Output Factor

AIND = Audit Independence

AFTN = Audit Firm Tenure

AFSZ = Audit Firm Size

BIND = Board Independence

BSIZ = Board Size

BMET = Board Meetings

ACID = Audit Committee Independence

ACMT = Audit Committee Meetings

ACFE = Audit Committee Financial Expertise

FSIZ = Firm Size

FPRF = Firm Profitability

β_0 = proportion of the change in the likelihood of financial statement fraud that is not explained by changes in the explanatory variables.

$\beta_1 - \beta_{11}$ = Slope of AIND, AFTN, AFSZ, BIND, BSIZ, BMET, ACID, ACMT, ACFE, FSIZ, FPRF.

i = firm 1 to 151 for the sampled firms; t = year 2013 to 2024 for each of the 151 sampled firms.

μ = Stochastic Error Term.

A priori expectations in line with extant literature to be $\beta_1 - \beta_{11} < 0$

3.2. Measurement and Operationalization of Variables

Table 3.1. Operationalization of Variables

	Variable Names	Description	Measurement	Literatures
	Dependent Variables			
1	Likelihood of Financial statement Fraud (LFSF)	This shows the likelihood of the present of fraudulent practices in the financial statement or not	Using Beneish M-score model. Beneish M-score model that was developed by Beneish (1999) to estimate the probability of financial statement manipulation. If the predictive M-score is greater than - 2.22 the companies had red flags indicating that there was a possibility of financial statement fraud and if otherwise less than -2.22, then, the company might be free from possibility of financial statement fraud.	Ilaboya and Lodikero (2017) Subair et al. (2020)
	Independent Variables			
2	Audit Independence	This is how objective the auditor could stand	Log of audit fees	Ugwunta et al. (2019)

	(AIND)	on objective criteria		and Zayol et al. (2019)
3	Audit Firm Tenure (AFTN)	The period an auditor had been on audit engagement with a client	“1” if spent above 3 years and “0” if otherwise	Erasmus and Micah (2021) Ahmed et al. (2023)
4	Audit Firm Size (AFSZ)	It shows how big an audit firm is in term of staff strength, experience and the extent to which they value their reputations	Score 1 if a firm uses any of the Big 4 audit firm and 0 if otherwise	Erasmus and Micah (2021) Ahmed et al. (2023)
5	Board Independence (BIND)	The ratio of the directors not involved in the day to days running of the business to total number of those involved.	Non-Executive Directors divided by the total numbers of the Directors	Kanakriyah (2021) Subair et al. (2020)
6	Board Size (BSIZ)	The total numbers of the board of directors often affects the internal control formation.	The total numbers of the board of Directors	Kanakriyah (2021) Subair et al. (2020)
7	Board Meetings (BMET)	The total number of meetings of the board can determine how diligence they would be in dealing with the company’s internal control.	Frequency of meetings attended by the board members	Subair et al. (2020) Alves (2021)
8	Audit Committee Independence (ACID)	Ratio of audit committee members not involved in the day to days running of the business to total number of those involved.	Non-Executive Director member of audit committee divided by the total number of the audit committee members.	Kharashgah et al. (2019) Qeshta et al. (2021)
9	Audit Committee Meetings (ACMT)	This is numbers of meeting held by the committed-on audit output which shows how effective they are	Frequency of meetings attended by the audit committee members	Khan et al. (2022) Qeshta et al. (2021)
10	Audit Committee Financial Expertise (ACFE)	The financial expertise of the audit committee member in terms of being a member of certified accountancy body in Nigeria (ICAN, ANAN and so on) determines the extent they can ensure clean audit financial statement	Ratio of audit committee members with the financial expertise (A member of ICAN or ANAN) to the total number of the audit committee member.	Abdel-Hafeez Mostafa & Ali, Salah (2022) Qeshta et al. (2021)
11	Firm Size (FSIZ)	This shows how big the company is in term of their net worth. This could determine the extent they would go to ensure quality audit engagement and ensure they have financial statement the is free from fraud because of the company’s goodwill and reputation	Natural log of the company’s total assets.	Saeed & Saeed (2018); Subair et al. (2020)
12	Firm Profitability (FPRF)	This shows the rate at which the company earn return on their total assets which is a measure of their performance for any year. If the performance level is low, shareholders might lose confidence in the management and might also affect other connected stakeholders that might want to invest in the company. Therefore, the profitability level might trigger likelihood of financial statement fraud if management want the face of the profitability level to look robust than what it is.	Measured using return on assets ratio (that is, Net Operating Income divided by Total Assets.	Saeed & Saeed (2018); Adedeji et al. (2020)

Source: Researchers Compilation (2025).

Data Presentation, Analyses and Discussion of Findings***Descriptive Statistics******Table 4.1. Descriptive Statistics***

Variable	Obs.	Mean	Std. Dev.	Min	Max
LFSF	1320	-2.257	0.794	-4.800	-0.170
AIND	1320	4.291	0.713	2.230	7.170
AFTN	1320	0.743	0.437	0.000	1.000
AFSZ	1320	0.565	0.496	0.000	1.200
BSIZ	1320	9.496	3.142	3.000	23.000
BIND	1320	0.691	0.139	0.170	1.000
BMET	1320	4.885	1.648	3.000	16.000
ACID	1320	0.570	0.224	0.000	1.200
ACMT	1320	4.060	1.079	3.000	11.000
ACFE	1320	0.387	0.245	0.160	1.000
FSIZ	1320	7.339	0.984	4.840	10.070
FPRF	1320	0.085	0.106	-0.080	0.546

Source: Researcher's Computation 2025

Table 4.1 presents descriptive statistics for 1,320 observations from 110 Nigerian listed companies over 2013–2024. The dependent variable, Likelihood of Financial Statement Fraud (LFSF, Beneish M-Score), averages -2.257 (SD 0.794), ranging from -4.80 to -0.17, suggesting moderate manipulation risk across firms, though some show no fraud signals.

Audit Independence (AIND), the Mean of audit fees ₦4.291 billion (SD 0.794), ranging ₦2.23–₦7.17 billion. High variation reflects firm size, profitability, or engagement scope; inconsistent fees may impair auditor objectivity. The Auditor Tenure (AFTN) has a Mean value of 0.743 (74.3 percent long tenure, SD 0.437). Most firms retain auditors for long periods, believing that the familiarity arising from this long-term relationship if anything helps in detection of fraud, while some prefer rotation to avoid such over-familiarity. The Audit Firm Size (AFSZ) has a Mean value of 0.565 (56.5 percent Big4, SD 0.496). The majority use Big4 firms because of their expertise and resources.

Board size (BSIZ) has a range from 3 to 23 members with a Mean of 9 (SD 3.142). Small boards can reach decisions quickly; large boards help provide more oversight but slow down decisions. Board Independence (BIND) has a Mean value of 0.691 (69.1 percent independent, SD 0.139). A number of non-executives present on a board heighten unbiased governance. Board Meetings (BMET) have a Mean of 5 (SD 1.648), ranging from 3 to 16. Higher meeting frequency translates to better control and hence, better audit quality.

Audit Committee Independence (ACID), the Mean 0.570 (57 percent, SD 0.224), range 0–1.2. Some lack independence (pre-CAMA), others exceed requirements. Audit Committee Meetings (ACMT), the Mean 4 times (SD 1.079), range 3–11 times. Higher frequency strengthens financial oversight. For Audit Committee Financial Expertise (AFCE), the Mean 0.387 (38.7 percent, SD 0.245), range 0.16–1.0. Nearly 39 percent have professional qualifications, aiding fraud detection and audit quality.

Overall, results indicate moderate governance strength but highlight risks from fee inconsistency, tenure debates, and uneven committee expertise.

Diagnostic tests

To ascertain the best estimation method, the following diagnostic tests were conducted

Table 4.2. Multicollinearity Test

Variable	VIF	1/VIF
AIND	2.38	0.419535
BSIZ	1.6	0.624814
AFSZ	1.59	0.630528
BMET	1.25	0.801929
ACMT	1.16	0.860998
ACID	1.13	0.883299
BIND	1.11	0.898047
FSIZ	1.09	0.92096
FPRF	1.06	0.9417
ACFE	1.01	0.988236
AFTN	1.01	0.993652
Mean VIF	1.31	

Source: Researcher's Computation 2025

Table 4.2. revealed that the multicollinearity test result of all the variable explained and showed that the mean value of the VIF was 1.31 which is less than that of 10 benchmarks (Noora, 2020). This is an indication that the VIF evidently sufficient enough to proof that the explanatory variables do not have the problem of multicollinearity.

Table 4.3. Endogeneity Test

ENDOGENITY
 . reg FRIF error-
 term

Source	SS	df	MS	Number of obs = 1320 F (1, 1318) = 54852.39 Prob > F = 0.0000		
Model	812.34975	1	812.349756	R-squared = 0.9765		
Residual	19.519238	1318	0.01480974	Adj. R-squared = 0.9765		
Total	831.86899	1319	0.63068157	Root MSE = .1217		
FRIF	Coef.	Std. Err.	t	P> t	[95 % Conf.]	Interval]
Error-term	1	0.0042697	234.21	0.0000	0.991624	1.008376
_cons	-2.256561	0.0033496	-673.69	0.0000	-2.263132	-2.24999

Source: Researcher's Computation 2025

Breusch-Pagan / Cook-Weisberg test for heteroskedasticity

Ho: Constant variance

Variables: fitted values of FRIF

chi2(1) = 8.55

Prob > chi2 = 0.0035

Breusch-Pagan-Godfrey test revealed presence of heteroskedasticity (p=0.0035), rejecting homoskedasticity. Endogeneity test (p=0.0000) confirmed correlation bias. OLS invalid due to unequal variance and omitted causes. System GMM adopted as robust alternative for reliable causal inference.

Regression Results

The study conducted regression using a Two-Stage Least square estimation technique (System Generalized Method of Moments [SYS. GMM]) since we cannot use OLS due to the failure of test of heteroskedasticity and endogeneity conducted. The regression as shown in Tables 4.4., and 4.5. are for the combined effect of audit input-output-process factors and the specific effect of each of the factors.

Table 4.4. Combined Effect of Audit Input-Output-Process Factors

	(1)	(2)
Variables	DIFFERENTIAL GMM	SYSTEM GMM
AIND	0.036 (0.886)	0.075 (0.392)
AFTN	-0.053 (0.442)	-0.052 (0.118)
AFSZ	0.005 (0.976)	-0.022 (0.748)
BSIZ	-0.035 (0.064)	-0.044*** (0.000)
BIND	-0.052 (0.863)	-0.061 (0.594)
BMET	0.028 (0.238)	0.032*** (0.002)
ACID	-0.202 (0.131)	-0.216*** (0.000)
ACMT	0.023 (0.531)	0.020 (0.106)
ACFE	-0.249 (0.278)	-0.221*** (0.002)
FSIZ	-0.040 (0.521)	-0.014 (0.574)
FPRF	-0.267 (0.593)	-0.270 (0.070)
L.LFSF	-0.096*** (0.001)	-0.090*** (0.000)
Intercept	-1.925 (0.104)	-2.176*** (0.000)
Observations	1320.000	1320.000
R ²		
F-Stat.	19.65(0.0741)	704.69(0.0000)
Endo		1 {0.000}
Sargan		1.713 {0.301}
Hettest		8.55 {0.004}
AR1		-8.158 {0.000}
AR2		-0.854 {0.393}
VIF		1.31

Notes: *p-values are in parentheses. *** $p < .01$, ** $p < .05$*

Source: Researcher's Computation 2025

Table 4.4 presents System GMM regression results on the combined effects of audit input, process, and output factors on the likelihood of financial statement fraud (LFSF) among 110 Nigerian listed firms (2013–2024). The model is robust, with F-statistic 704.69 ($p=0.000$), confirming joint significance. Sargan test (1.713, $p=0.301$) validates instruments; heteroskedasticity test (8.55, $p=0.004$) supports GMM over OLS. No second-order autocorrelation (AR1 significant, AR2 insignificant). $R^2 = 21$ percent, indicating moderate explanatory power.

For Audit Input Factors: Audit Independence (AIND): Positive, insignificant ($\beta=0.075$, $p=0.392$). Higher fees unexpectedly increase fraud likelihood by 7.5 percent, suggesting independence is compromised without supportive mechanisms. Hypothesis of no significant effect accepted. Audit Firm Tenure (AFTN): Negative, insignificant ($\beta=-0.052$, $p=0.118$). Longer tenure reduces fraud by 5.2 percent via familiarity, but not statistically. Hypothesis accepted. Audit Firm Size (AFSZ): Negative, insignificant ($\beta=-0.022$, $p=0.748$). Big4 firms' lower fraud risk by 2.2 percent due to reputation and expertise, but insignificant. Hypothesis accepted.

For Audit Input Factors: Audit Independence (AIND) marks positive and insignificant ($\beta=0.075$, $p=0.392$). The larger fees increase fraud likelihood by 7.5 percent, disclosing compromised independence in the absence of countervailing mechanisms. The hypothesis of no significant effect has therefore been accepted. Audit Firm Tenure (AFTN): Negative and not significant ($\beta=-0.052$, $p=0.118$). The longer the period, the more the fraud is lessened by 5.2 percent through the familiarity, yet it is not statistically significant. The hypothesis is accepted. Audit Firm Size (AFSZ): Negative and insignificant ($\beta=-0.022$, $p=0.748$). Big4's reputation and expertise slightly cut the possibility of fraud by 2.2 percent, but this has no significance statistically. Hypothesis accepted.

For Audit Process Factors: Board Size (BSIZ): Negative and very significant ($\beta=-0.044$, $p=0.000$). Large boards reduce fraud by 4.4 percent because of their diverse oversight and strength in establishing internal control. Hypothesis rejected. Board Independence (BIND): Negative and insignificant ($\beta=-0.061$, $p=0.594$). Thus, more non-executives reduce fraud by 6.1 percent but not significantly. Hypothesis accepted. Board Meetings (BMET): Positive and significant ($\beta=0.032$, $p=0.002$). Higher frequency of meetings induces a 3.2 percent higher risk of fraud, maybe through higher governance costs triggering income manipulation (Hypothesis rejected).

For Audit Output Factors: Audit Committee Independence (ACID): Negative and highly significant ($\beta=-0.216$, $p=0.000$). Augmenting presence of non-executives results in a reduction of fraud by 21.6 percent (Hypothesis rejected). Audit Committee Meetings (ACMT): Positive and insignificant ($\beta=0.020$, $p=0.106$). Increase in meetings slightly advances fraud (2 percent), probably cost-driven, but insignificant (Hypothesis accepted). Audit Committee Financial Expertise (ACFE): Negative and significant ($\beta=-0.221$, $p=0.002$). Professional expertise reduces fraud by 22.1 percent—the strongest impact (Hypothesis rejected).

Conclusion: Audit committee financial expertise and independence, with the board size, constitute the highest deterrents to financial statement fraud. Frequent board/committee meetings, on the contrary, may facilitate manipulation through cost-pressure channels. The audit input factors are in the expected directions but are insignificant, underscoring the contextual deficiencies of Nigerian corporate governance.

Table 4.5: Baseline Regression for Specific Effect

Variables	(1) INPUT	(2) PROCESS	(3) OUTPUT
L.LFSF	-0.093*** (0.000)	-0.088*** (0.000)	-0.090*** (0.000)
AIND	-0.013 (0.746)		
AFTN	-0.037 (0.073)		
AFSZ	0.029 (0.366)		
BSIZ		-0.037*** (0.000)	
BIND		-0.211*** (0.002)	
BMET		0.029*** (0.000)	
ACID			-0.125*** (0.000)
ACMT			0.032*** (0.000)
ACFE			-0.221*** (0.000)
Intercept	-2.085*** (0.000)	-1.879*** (0.000)	-2.158*** (0.000)
FSIZ	-0.041*** (0.000)	-0.028 (0.203)	-0.035 (0.075)
FPRF	-0.224*** (0.005)	-0.293** (0.014)	-0.262** (0.018)
F-Stat.	2646.57(0.0000)	836.51(0.0000)	800.79(0.0000)
Observations	1320	1320	1320
Sargan	1.713{0.301}	1.713{0.301}	1.713{0.301}
AR1	-8.158{0.000}	-8.158{0.000}	-8.158{0.000}
AR2	-0.854{0.393}	-0.854{0.393}	-0.854{0.393}

Notes: *p*-values are in parentheses. *** *p*<.01, ** *p*<.05

Source: Researcher's Computation 2025

Table 4.5 shows a System GMM analysis of specific effects of audit input, process, and output factors on the likelihood of financial statement fraud in the Nigerian listed firms. Audit Input Factors: F-stat of 2466.57 (*p*=0.000) which jointly indicates significance. The Sargan test (1.713, *p*=0.301) confirms that the instruments used were valid. None significant at 5 percent: Audit Independence (β =-0.013, *p*=0.746), Audit Firm Tenure (β =-0.037, *p*=0.073), Audit Firm Size (β =0.029, *p*=0.366). Audit characteristics alone insufficient without board support; engagement scope depends on enabling environment.

Audit Process Factors: F-stat 831.51 (*p*=0.000). All significant: Board Size (β =-0.037, *p*=0.000), Board Independence (β =-0.211, *p*=0.002), Board Meetings (β =0.029, *p*=0.000). Larger, independent boards reduce fraud; frequent meetings increase risk (cost-driven manipulation). Boards critical in creating internal controls and audit-enabling conditions "he who pays the piper dictates the tune."

Audit Output Factors: F-stat 800.79 ($p=0.000$). All significant: Audit Committee Independence ($\beta=-0.125$, $p=0.000$), Financial Expertise ($\beta=-0.221$, $p=0.000$), Meetings ($\beta=0.032$, $p=0.000$). Independence and expertise strongly deter fraud; more meetings raise risk. Audit committees pivotal in ensuring error-free, reliable financial statements and high-quality audit outputs.

Overall, process and output factors are driven by board and audit committee significantly influence audit quality and fraud reduction, while input factors lack standalone impact without supportive structures from process and output factors.

DISCUSSION OF FINDINGS

The discussion analyzes findings from Tables 4.4 and 4.5 on audit firm characteristics (input, process, output factors) and financial statement fraud likelihood in Nigerian listed firms. Audit Input Factors: None significantly affect fraud likelihood in combined or specific effects. Audit independence (fees) shows positive insignificant impact, implying high fees strengthen client ties, impairing objectivity and increasing fraud risk, especially in large firms (Awa & Obinabo, 2020; Masoomah et al., 2020). Contradicts Bala et al. (2018) and Alves (2021), who argue higher fees motivate precision. Ikpantan and Daferighe (2019) find no correlation. Audit firm tenure has negative insignificant effect; longer tenure aids operational familiarity but insufficient for fraud reduction (Ikpantan & Daferighe, 2019; Kalabeke et al., 2019). Opposes Eyenubo et al. (2017) and Masoomah et al. (2020) on familiarity impairing independence. Audit firm size shows negative insignificant effect; Big4 expertise expected to enhance quality, but size alone inadequate (Khanh and Khuong, 2018; Sani et al., 2018). Al-Smairat et al. (2019) find positive link; Khushboo (2021) emphasizes reputation; Micah et al. (2022) note attraction for creative accounting. Input factors require board/audit committee support. Audit Process Factors: Mostly significant. Board size negatively and significantly reduces fraud via diverse oversight and internal controls in combined, specific, and large industry effects (Girau et al., 2021; Haron et al., 2021). Contradicts Uwuigbe et al. (2019) and Anichebe et al. (2019). Board independence negatively significant in specific and small industry effects, minimizing conflicts (Ilaboya & Lodikero, 2017; Subair et al., 2020; Haron et al., 2021). Opposes Uwuigbe et al. (2019) and Girau et al. (2021). Board meetings positively significant, increasing fraud via governance costs prompting income manipulation (Subair et al., 2020, negative relationship noted). Boards dictate audit environment. Audit Output Factors: Largely significant. Audit committee independence negatively significant in combined, specific, and large industry effects, ensuring objective oversight (Ehiedu & Toria, 2022; Aulia & Bernawati, 2021). Contradicts Uwuigbe et al. (2019). Committee meetings positively significant in specific and small industry effects (insignificant combined), raising costs and fraud incentives (Ehiedu & Toria, 2022; Anichebe et al., 2019). Audit committee financial expertise negatively significant in combined and specific, enhancing fraud detection (Ehiedu and Toria, 2022), though Aulia and Bernawati (2021) study disagreed with this.

Meanwhile, the general implication of the study is that process and output factors (board/audit committee) drive audit quality and fraud deterrence; input factors (auditor) is insufficient alone. Therefore, request the need for a collaborated effort to enhance audit quality.

CONCLUSION

This study examines the combined and specific effects of audit quality characteristics on financial statement fraud likelihood in Nigerian listed firms. Unlike prior research focusing solely on audit firm traits (input factors like independence, tenure, size), findings reveal these are insufficient. True audit quality that would detect and report material misstatements depends heavily on board and audit committee effectiveness

(process and output factors). The combined effect shows that integrating board oversight, internal controls, and audit committee functions creates an enabling environment for auditors to operate independently and effectively. Cutting down fraud risk through audit input factors alone is quite difficult. The argument that "he who pays the piper dictates the tune" holds that engagement scope is dictated by the board. Board size and independence; effective board/committee meetings (without excessive cost burdens); audit committee independence; and members' accounting/finance professional expertise become the key quality determinants of an audit. According to IAASB (2020), these factors enhance both audit processes, and the integrity of financial reporting, with a deterrence to fraud. The study argued that there must be governance in general, not just related to the auditors, for a high-quality audit to happen and thus reduce the chance of fraud and foster stakeholder confidence in the financial statements.

Recommendations

The regulatory bodies (ICAN, ANAN, FRCN) should set standard audit fees per sector, which should curb any impairments to independence because of over- or under-charging, thereby enhancing audit quality and minimizing occurrences of fraud in financial statements with Nigerian-listed entities. The tenure of auditors should be limited to between three and five years so that over-familiarity does not set in. Consider instead engagement integrity, i.e., the history of the audit firm for the client, feedback from clients, and the level of engagement quality, rather than size.

Boards should be set at an optimum level with accounting and finance expertise and predominance of independent non-executive directors to enhance internal control and auditor independence without any conflicting interests. Limit board meetings to strategic ones, avoiding too many meetings or meeting expenses that would trigger aggressive accounting. The independence of the audit committee must be sustained, with a majority of non-executive directors.

The audit committee meetings should be limited strictly to the essential reviews that reward the accuracy of the statement. Keep the current rule about having accounting or finance experts on the committee and possibly raise the number to two so that objectivity is ensured. More so, stakeholders must come together with input (auditor characteristics), process (board governance), and output (committee oversight) factors-the size, independence, expertise, qualifications, and integrity of each-to ensure that audit quality is preserved and the possibility of fraud minimized.

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