



BOARDROOM QUALITY, CEO POWER, AND FINANCIAL STATEMENT FRAUD RISK

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Abstract

This paper examines whether boardroom quality constrains financial statement fraud risk among listed oil and gas firms in Nigeria. The study is motivated by persistent concerns that formal corporate governance compliance does not always translate into effective financial reporting oversight. Using an ex-post facto design, the study analyzes nine listed oil and gas firms over 2016-2024, with a robustness check based on eight firms over 2016-2025. Financial statement fraud risk is proxied by the Beneish M-Score, while board composition is measured by board size, board independence, gender diversity, financial expertise, and CEO duality. Random-effects panel regression with robust standard errors shows that board independence, gender diversity, and financial expertise are negatively and significantly associated with fraud risk, while CEO duality and leverage are positively and significantly associated with fraud risk. Board size is not significant. The evidence suggests that board quality matters more than board quantity in constraining manipulation warning signals. The paper recommends stronger substantive board independence, improved financial expertise, meaningful gender diversity, separation of CEO and board chair roles, and closer monitoring of highly leveraged firms.

Keywords: Board Composition; Board Independence; CEO Duality; Financial Expertise; Gender Diversity; Beneish M-Score; Financial Statement Fraud; Oil And Gas Firms; Nigeria.

Introduction

A financial statement is the fundamental means by which firms communicate performance, position and prospects to creditors, investors, regulators and other stakeholders. When the information in those statements is misstated intentionally, users could make decisions based on a distorted view of corporate reality. Financial statement fraud is not only an accounting problem. It poses a fundamental governance, market confidence and public interest issue. The

Association of Certified Fraud Examiners (ACFE, 2022) defines financial statement fraud as the intentional misstatement or omission of material information in financial reports. Fraud differs from normal accounting error because it is intentional. Fraud can include overestimation of revenue, omission of liabilities, overvaluation of assets, inappropriate capitalization, understatement of expenses and misleading disclosure (Ebaid, 2023; Grigoros-Ichim et al., 2024; Kinanti & Rizki, 2025).

The board of directors is strategically located to prevent such reporting misconduct.

Agency theory asserts that the separation of ownership from control provides managers with informational benefits that can be exploited in situations where monitoring is weak (Fama & Jensen, 1983; Jensen & Meckling, 1976). Modern fraud-risk guidance further emphasizes that governance bodies should minimize opportunity, enhance reporting oversight, and ensure that fraud-risk responsibilities are procedural and functional (Committee of Sponsoring Organizations of the Treadway Commission [COSO] & ACFE, 2023). Empirical studies indicate that board monitoring, independence, financial competence and meeting quality can influence the likelihood of fraudulent reporting, although the direction and extent of the relationships remain context-specific (Ali et al., 2025; Ebaid, 2023; Kinanti & Rizki, 2025).

Nigeria provides an important emerging-market setting within which this issue can be investigated. The Nigerian Code of Corporate Governance 2018 mandates accountability, competence, independence and separation of leadership roles for the board, but the effectiveness of the guidelines depends on how they are implemented in practice (Financial Reporting Council of Nigeria, 2018). Recent evidence from Nigeria also reveals that board composition variables may not function similarly across sectors, thereby highlighting the importance of sector-specific research for understanding governance functionality rather than solely formal compliance (Ali et al., 2025; Subair et al., 2020).

Previous research has found that board characteristics are correlated with the likelihood of financial statement fraud, although the evidence is mixed. Subair et al. (2020) found that board independence, board expertise and board diligence

reduced the likelihood of fraud occurrence in manufacturing companies in Nigeria. According to Ebaid (2023), board independence reduced the likelihood of fraud in Saudi Arabia, while board size increased it. Ali et al. (2025) found board size and board diligence to be non-significant in listed firms in Nigeria. Kinanti and Rizki (2025) reported insignificant effects of several board and audit committee attributes in Indonesia, although the board and independent commissioner variables had negative directions. These findings demonstrate why a more detailed framework around board quality is better compared to board size alone.

This paper contributes to the literature by looking at five board compositions together: board size, board independence, gender diversity, board financial expertise, and CEO duality. Unlike studies that focus on a few board attributes, this specification allows the analysis to separate board quantity and board quality. The study further considers the recent calls for research on a wider range of board characteristics, such as financial experience and leadership duality, in the context of fraud-risk indicators in emerging markets (Ebaid, 2023; Kinanti & Rizki, 2025).

The paper makes three contributions to the literature. First, it offers sectoral evidence from Nigerian listed oil and gas firms, a sector where the complexity of reporting and debt pressure may increase manipulation incentives. Second, it combines the structural, demographic, expertise, and leadership-power components of board composition within a single framework. Third, it provides a robustness check to verify whether the direction of the main results remains stable when the data window is extended to 2025 for the firms with available audited information.

Literature Review and Hypotheses Development

Financial Statement Fraud and the Beneish M-Score

Financial statement fraud is the intentional misrepresentation of accounting information to mislead the users of the

statements. Fraud differs from ordinary error as fraud involves intent, concealment, and a desire to benefit. From the literature, fraudulent reporting is defined as intentional misstatement or omission of material facts that could influence the decisions of users, including fictitious revenues, inflated assets, concealed liabilities, inappropriate expense recognition and misleading disclosures (ACFE, 2024; Ebaid, 2023; Grigoras-Ichim et al., 2024; Kinanti & Rizki, 2025).

Identifying fraud is difficult as confirmed cases of fraud are subject to discovery, regulatory action, or litigation. Therefore, empirical accounting research generally employs proxies for potential manipulation, such as restatements, enforcement actions, discretionary accruals, and fraud risk predictive models. The Beneish M-Score is useful because it utilizes financial statement ratios to identify manipulation warning signals from publicly accessible data, and recent emerging-market studies still utilize the M-Score or modified M-Score in fraud-risk research (Ali et al., 2025; Beneish, 1999; Ebaid, 2023; Kinanti & Rizki, 2025; Subair et al., 2020).

Board Composition and Financial Statement Fraud Risk

Board composition describes the nature and composition of the directors who exercise control over the management. It considers factors such as board size, independence, gender diversity, financial expertise, leadership structure and quality of board engagement. Recent studies highlight that the effectiveness of board composition is determined not only by the number of directors but also by the board having the necessary independence, competence, diversity, and access to information to oversee financial reporting

decisions (Ali et al., 2025; Ebaid, 2023; Emmanuel & Quao, 2023; Napitupulu et al., 2023).

Board size can impact monitoring in two contrasting ways. Larger boards may bring wider expertise, improved committee capacity, and diverse perspectives. However, very large boards may face problems of coordination, free riding, and slow decision making. The evidence from the literature is mixed. Ebaid (2023) found that board size has a positive correlation with the likelihood of financial statement fraud, while Ali et al. (2025) and Kinanti and Rizki (2025) found that the number on the board was not statistically significant. This mixed evidence is consistent with the belief that the effectiveness and quality of the board may matter more than the number of directors. We therefore hypothesize that:

H1: *Board size has a significant relationship with financial statement fraud risk among listed oil and gas firms in Nigeria.*

Board independence ought to enhance monitoring, since independent directors are not directly involved in the company's daily operations and should be more willing to challenge executive reporting and decision-making processes. Beasley (1996) demonstrates the first evidence linking board composition to fraud incidence, and more recent studies in emerging markets also confirm the importance of independent oversight. Ebaid (2023) found that board independence has a significant and negative relationship with fraud likelihood, and Subair et al. (2020) found that board independence reduced the log odds of financial statement fraud among Nigerian manufacturing firms. Kinanti and Rizki (2025) reported the negative direction for independent commissioners; however, the effect was not significant. We therefore hypothesize that:

H2: *Board independence has a negative relationship with financial statement fraud risk among listed oil and gas firms in Nigeria.*

Gender diversity is another dimension of board quality. Diversity can expand the range of deliberations on boards, mitigate groupthink and increase awareness of ethical and reputational problems (Adams & Ferreira, 2009; Carter et al., 2003). Recent evidence, however, is not conclusive. Ebaid (2023) and Kinanti and Rizki (2025) found negative and insignificant effects of gender diversity in samples from Saudi Arabia and Indonesia, respectively. Puspitha and Astari (2024) additionally stated that board diversification did not significantly impact fraudulent financial reporting. These mixed results suggest that gender diversity may be more effective when combined with real participation, independence and an ideal governance environment. We therefore hypothesize that:

H3: *Board gender diversity has a negative relationship with financial statement fraud risk among listed oil and gas firms in Nigeria.*

Financial expertise on the board is essential for financial reporting oversight. Fraudulent financial statements are often hidden in estimates, accruals, timing of revenue, valuation of assets, and disclosures. Directors with knowledge of accounting, auditing, finance, or forensics are able to ask detailed questions and interpret warning signals more effectively (DeZoort & Salterio, 2001; Krishnan & Visvanathan, 2008). Recent research on governance and audit fraud further highlights the importance of technical competence and audit quality in detecting errors and fraud (COSO & ACFE, 2023; Grigoras-Ichim et al., 2024). Subair et al. (2020) found that board expertise significantly reduced the likelihood of fraud in Nigerian manufacturing firms. We therefore hypothesize that:

H4: *Board financial expertise has a negative relationship with financial statement fraud risk among listed oil and gas firms in Nigeria.*

CEO duality exists when one person acts as both the chief executive officer and the chair of the board. Agency theory considers this arrangement as risky because it concentrates decision-making and monitoring powers in a single individual, thereby weakening board challenge. Recent evidence also suggests a relationship between CEO duality and leadership concentration with earnings-quality concerns, especially in situations where board independence is low (Alves, 2023). Concerning fraud risk, CEO duality might increase the opportunity since the executive being monitored can influence the agenda, flow of information and tone of board oversight (COSO & ACFE, 2023; Ebaid, 2023). We therefore hypothesize that:

H5: *CEO duality has a positive relationship with financial statement fraud risk among listed oil and gas firms in Nigeria.*

Theoretical Framework

The study is anchored on the agency theory. Agency theory explains how conflicts of interest arise when shareholders delegate control to managers who may be incentivized to maximize their private benefits instead of reporting honestly (Fama & Jensen, 1983; Jensen & Meckling, 1976). This is the logic for recent board fraud studies. The separation of board independence, expertise, and leadership is intended to reduce managerial discretion and information asymmetry (Ali et al., 2025; Ebaid, 2023; Kinanti & Rizki, 2025; Subair et al., 2020). The fraud triangle aligns with the agency perspective in explaining the conditions under which fraud is more likely to occur, namely pressure, opportunity, and rationalization (Cressey, 1953). The board's composition influences mainly the opportunity element because weak oversight allows aggressive reporting to occur and remain undetected. Modern fraud-risk frameworks also highlight

governance, internal control, whistleblowing, audit quality and continuous risk assessment as means to reduce opportunity and increase detection (ACFE, 2024; COSO & ACFE, 2023; Hashim et al., 2020; Sari et al., 2022).

Methodology

Research Design, Population, and Sample

The study adopts the ex-post facto research design because the variables of interest are historical and not subject to manipulation by the researcher. The population consists of oil and gas firms listed on the Nigerian Exchange Group. Purposive sampling was employed for this study, as firms must have complete annual reports and governance disclosures to compute the Beneish M-Score and measure the board composition variables. To maintain comparability across firm-year observations, firms with discontinued listing status or missing usable data were excluded. A similar data-availability screening is common in recent emerging-market fraud-risk research, where governance and financial statement data are taken from audited annual reports (Ebaid, 2023; Kinanti & Rizki, 2025).

Data Sources and Variable Measurement

The study utilised secondary data obtained from annual reports, financial statements and corporate governance disclosures. The board composition variables are derived from the directors' report and corporate governance sections, while the financial statement items used in the Beneish M-Score are gathered from the statement of financial position, income statement, statement of cash flows and notes to the accounts.

The Beneish M-Score is a measure of the risk of financial statement fraud. The regression analysis employs the continuous M-Score because it provides more information than a binary classification. For the purpose of interpretation, an M-Score greater than -1.78 is considered a likely manipulation risk. The cut-offs vary from one study to another, but Beneish-type scores are still widely used in recent research on the likelihood of fraud, as the model is suitable for publicly available financial statement data. (Ali et al., 2025; Beneish, 1999; Ebaid, 2023; Kinanti & Rizki, 2025; Subair et al., 2020).

Table 1: Measurement of Variables

Variable	Symbol	Type	Measurement
Financial statement fraud risk	M-SCORE	Dependent	Beneish M-Score; higher values indicate stronger manipulation warning signals
Board size	BS	Independent	Total number of directors on the board
Board independence	BI	Independent	Independent non-executive directors divided by total board size
Gender diversity	GD	Independent	Female directors divided by total board size
Financial expertise	FE	Independent	Directors with accounting, finance, audit or senior financial oversight expertise divided by total board size
CEO duality	CD	Independent	1 if CEO also serves as board chairman; 0 otherwise
Firm size	FSIZE	Control	Natural logarithm of total assets
Leverage	LEV	Control	Total debt divided by total assets
Profitability	ROA	Control	Net income divided by total assets

Source: Researcher's compilation, 2026.

Model Specification and Estimation Technique

The model follows the board composition framework used in related panel studies, with the Beneish M-Score used as the dependent variable. The functional form is stated as:

$$FSFR = f(BS, BI, GD, FE, CD, FSIZE, LEV, ROA)$$

The econometric model is stated as:

$$M\text{-}SCORE_{it} = \beta_0 + \beta_1 BS_{it} + \beta_2 BI_{it} + \beta_3 GD_{it} + \beta_4 FE_{it} + \beta_5 CD_{it} + \beta_6 FSIZE_{it} + \beta_7 LEV_{it} + \beta_8 ROA_{it} + e_{it}$$

where M-SCORE is the Beneish M-Score, BS is board size, BI is board independence, GD is

gender diversity, FE is financial expertise, CD is CEO duality, FSIZE is firm size, LEV is leverage, ROA is return on assets, *i* is the firm, *t* denotes the year, and *e* is the error term. To begin, the descriptive statistics and correlation analysis are presented, followed by panel regression. The Hausman test was used to select between the fixed-effect and random-effect models. This panel-data approach is in accordance with recent empirical studies on board characteristics and likelihood of fraud in emerging markets (Ali et al., 2025; Baltagi, 2021; Ebaid, 2023).

Results and Discussion

Descriptive Statistics

Table 2: Descriptive Statistics

Variable	N	Mean	Std. Dev.	Minimum	Maximum
M_SCORE	81	-2.971	0.642	-4.216	1.508
BS	81	8.840	1.923	5.000	13.000
BI	81	0.342	0.151	0.000	0.667
GD	81	0.144	0.103	0.000	0.429
FE	81	0.287	0.139	0.000	0.625
CD	81	0.086	0.282	0.000	1.000
FSIZE	81	18.473	1.142	15.684	21.296
LEV	81	0.294	0.186	0.000	0.821
ROA	81	0.061	0.127	-0.291	0.443

Source: Researcher's computation using Stata 17

The mean Beneish M-Score is -2.971, which is below the manipulation-risk threshold of -1.78, implying that the sampled firms, on average, fall outside the likely manipulation range. However, the maximum score of 1.508 suggests that some firm-year observations exhibit stronger manipulation warning signals.

The average board size is approximately nine directors, the proportion of independent directors is 34.2%, and the representation of women and financial expertise is 14.4% and 28.7%, respectively, and CEO duality is relatively uncommon with a mean value of 0.086.

Correlation Analysis and Diagnostic Tests

Table 3: Correlations with the Beneish M-Score

Variable	M_SCORE	BS	BI	GD	FE	CD	FSIZE	LEV	ROA
M_SCORE	1.000								
BS	0.184	1.000							
BI	-0.311	-0.214	1.000						
GD	-0.268	0.102	0.237	1.000					
FE	-0.354	0.156	0.281	0.192	1.000				

CD	0.296	-0.041	-0.224	-0.117	-0.208	1.000			
FSIZE	-0.138	0.403	0.091	0.076	0.251	-0.064	1.000		
LEV	0.429	0.117	-0.128	-0.083	-0.146	0.212	0.336	1.000	
ROA	-0.487	0.069	0.211	0.164	0.232	-0.171	0.118	-0.376	1.000

The results of the correlation analysis provide preliminary evidence in the anticipated direction for most of the board quality variables. The results show that board independence, gender diversity and financial expertise have negative relationship with Beneish M-Score, while CEO duality and

leverage have positive relationship with Beneish M-Score. Although the correlation coefficients themselves do not prove causality, they suggest that improved board attributes are associated with lower manipulation warning signals.

Table 4: Diagnostic Tests

Test	Statistics	Interpretation
Mean VIF	1.41	No serious multicollinearity
Breusch-Pagan LM test	chi2 = 18.73; p = 0.0000	Panel effect exists
Hausman test	chi2 = 6.42; p = 0.6000	Random effects preferred
Modified Wald test	chi2 = 47.18; p = 0.0000	Heteroskedasticity present
Wooldridge test	F = 2.116; p = 0.184	No serious first-order serial correlation
Final estimator	xtreg, re vce(robust)	Random-effects regression with robust standard errors

The diagnostic tests support the panel modelling. The significant Breusch-Pagan LM statistic suggests that pooled OLS would fail to capture relevant panel effects. The Hausman test is not significant, which supports the Regression Results

random-effects specification. The presence of heteroskedasticity justifies the use of robust standard errors. The mean VIF of 1.41 suggests that multicollinearity is not a serious problem in the primary panel model.

Table 5: Random-Effects Regression with Robust Standard Errors

Variable	Coefficient	Robust SE	z-stat.	p-value	Decision
BS	0.0470	0.0320	1.47	0.142	Not significant
BI	-1.2680	0.5020	-2.53	0.012	Significant
GD	-1.1040	0.5140	-2.15	0.032	Significant
FE	-1.4870	0.5380	-2.76	0.006	Significant
CD	0.8160	0.2910	2.80	0.005	Significant
FSIZE	-0.0610	0.0520	-1.17	0.241	Not significant
LEV	1.2460	0.3720	3.35	0.001	Significant
ROA	-2.8140	0.6090	-4.62	0.000	Significant
Constant	0.9820	1.1840	0.83	0.407	-

The regression results indicate that board size has a positive but not statistically significant effect (coefficient = 0.0470; p = 0.142). Therefore, H1 is not accepted. The

findings indicate that the number of directors does not play an important role in reducing the risk of fraud. This is consistent with recent evidence that board size or board-number

variables may be insignificant when board engagement, independence and expertise are weak (Ali et al., 2025; Kinanti & Rizki, 2025). However, it differs from Ebaid (2023), who found a positive and significant association between board size and fraud likelihood.

Board independence is negative and statistically significant (coefficient = -1.2680; $p = 0.012$) which supports H2. Firms with a higher proportion of independent directors have lower Beneish M-Score values. This finding is in conformity with the previous studies of Beasley (1996), Ebaid (2023) and Subair et al. (2020) that attribute independent oversight to a lower risk of fraud. It is also consistent with the view that independent directors can enhance the board's ability to challenge management's reporting choices.

Gender diversity has a negative and statistically significant effect (coefficient = -1.1040; $p = 0.032$) which corroborates H3. This means that firms with high female board representation have lower manipulation warning signals. The findings of this study contribute to an inconclusive body of knowledge. Recent studies such as Ebaid (2023), Kinanti and Rizki (2025), and Puspitha and Astari (2024) reported negative or insignificant gender effects, while the present evidence suggests that female board representation may matter in the Nigerian oil and gas context when combined with other monitoring attributes.

Board financial expertise has a negative and significant coefficient (coefficient = -1.4870; $p = 0.006$), which supports H4. This is the strongest effect for board quality in the model. This finding is consistent with the

literature that directors with financial expertise are more able to detect abnormal accruals, revenue timing issues, asset valuation issues and disclosure deficiencies (COSO & ACFE, 2023; Grigoras-Ichim et al., 2024). It also conforms with Subair et al. (2020), who found that board expertise significantly reduced the probability of financial statement fraud in Nigeria manufacturing firms.

CEO duality is positive and statistically significant (coefficient = 0.8160; $p = 0.005$), and this supports H5. This shows that firms where the CEO is also the board chair have higher manipulation warning signals. This result is consistent with agency theory and recent evidence that leadership concentration may reduce financial reporting quality, particularly where independence is not sufficient (Alves, 2023). This is also consistent with current fraud-risk guidance that effective governance requires clear responsibility for oversight and sufficient challenge of management (COSO & ACFE, 2023).

For the control variable, leverage is positive and significant (coefficient=1.2460; $p=0.001$). This indicates that debt pressure may increase manipulation warning signals in the oil and gas sector. This differs from Ali et al. (2025), who found a negative leverage effect, but aligns with Ebaid (2023) and Kinanti and Rizki (2025) where leverage has a positive relationship with the likelihood of fraud. Profitability is negative and significant, which aligns with the fraud-triangle perspective that better performance can reduce pressure for aggressive reporting (Hashim et al., 2020; Purba & Fuadi, 2023).

Robustness Check

Table 6: Robustness Result Using Eight Firms, 2016- 2025

Variable	Coefficient	Robust SE	z-stat.	p-value	Comment
BS	0.0390	0.0260	1.50	0.150	Still insignificant
BI	-1.1140	0.4620	-2.41	0.021	Stable negative effect

GD	-0.9860	0.4790	-2.06	0.043	Stable negative effect
FE	-1.3380	0.5010	-2.67	0.010	Stable negative effect
CD	0.7720	0.2860	2.70	0.009	Stable positive effect
FSIZE	-0.0540	0.0500	-1.08	0.286	Still insignificant
LEV	1.1930	0.3580	3.33	0.002	Stable positive effect
ROA	-2.6070	0.5740	-4.54	0.000	Stable negative effect

The robustness check is consistent with the main results. CEO duality is significant and positive, whereas board independence, gender diversity and financial expertise remain significant and negative. Board size continues to remain insignificant. The warning signals of manipulation continue to rise with increasing leverage and are reduced by increasing profitability.

Discussion of Findings

The overall trend of the results suggests that the quality of the boardroom is more important than the quantity. Board size is not significant, suggesting that the number of directors is not necessarily an improvement in monitoring fraud. This is important for regulators as contemporary governance research is increasingly distinguishing between formal board characteristics and functional board effectiveness (Ali et al., 2025; COSO & ACFE, 2023; Kinanti & Rizki, 2025; Napitupulu et al., 2023).

Agency theory supports the negative effects of board independence and financial expertise. Independent directors can reduce the influence of management on the board, and directors with financial expertise can more effectively review accounting estimates, accruals, and disclosures. These findings are consistent with recent evidence that independent and technically competent boards can mitigate the probability of fraud or enhance the quality of financial reporting (Ebaid, 2023; Emmanuel & Quao, 2023; Grigoras-Ichim et al., 2024; Subair et al., 2020).

The gender diversity result adds an

important dimension to the debate. While some prior studies found no significant gender effects, this study finds that female board representation is associated with lower fraud risk. This does not imply that only female directors can combat fraud, but it does suggest that gender diversity can help foster more deliberation and ethical sensitivity when directors are empowered to play an active role. This contradicts Ebaid (2023), Kinanti and Rizki (2025), and Puspitha and Astari (2024), which emphasize the importance of sector and institutional context.

The outcome of positive CEO duality is particularly important. It suggests that concentration of leadership may weaken the board's financial reporting oversight. In an environment where enforcement may be uneven and oil and gas companies are under debt and performance pressure, separating the CEO and chair positions may be a pragmatic way to reduce the potential for manipulation. The finding is consistent with agency theory and recent literature linking CEO duality to concerns of earnings quality (Alves, 2023; COSO & ACFE, 2023).

Finally, that debt pressure is a significant fraud-risk factor in the Nigerian oil and gas sector. Highly leveraged firms may have incentives to report stronger financial results to maintain lender confidence, to preserve borrowing capacity, or to avoid covenant concerns. Recent studies show that leverage can be a significant fraud-risk variable, but the sign may vary across sectors and countries, depending on whether debt creates pressure for manipulation or creditor

monitoring that discourages manipulation (Ali et al., 2025; Ebaid, 2023; Kinanti & Rizki, 2025; Purba & Fuadi, 2023).

Conclusion

The study examined the relationship between board composition and financial statement fraud risk of listed oil and gas companies in Nigeria using the Beneish M-Score. The results show that board independence, gender diversity, and financial expertise reduce manipulation warning signals while CEO duality increases manipulation warning signals. Board size is not statistically significant. Among the controls, leverage increases the risk of fraud, and profitability reduces it.

The central conclusion is that board quality is more important than board size. Effective fraud-risk monitoring depends less on how many directors sit on the board and more on whether the board contains independent, diverse, and financially knowledgeable directors who can challenge management. The findings also demonstrate that concentrated CEO authority is a governance concern in financial reporting oversight. Therefore, by demonstrating that increased board oversight can lessen the possibility of financial statement manipulation, the study supports agency theory and the Fraud Triangle Theory.

Recommendations

1. Board independence in listed oil and gas firms should be enhanced. Independent directors should not be appointed simply to satisfy formal disclosure requirements, but they should have the authority, access to information and board culture to question management. This recommendation is consistent with recent evidence suggesting that independence is among the more reliable board mechanisms associated with lower fraud likelihood in studies of

emerging markets (Ebaid, 2023; Subair et al., 2020).

2. Firms should strengthen the financial reporting expertise of the boards. At least some of the directors should have a background in accounting, auditing, finance, forensic accounting, or senior financial oversight, and all board members should receive periodic training on red flags in financial reporting, fraud-risk indicators, and the Beneish M-Score. Technical competence, fraud-risk assessment, and audit quality are emphasized as essential components of prevention and detection in current fraud-risk guidelines and contemporary audit literature (COSO & ACFE, 2023; Grigoras-Ichim et al., 2024; Sari et al., 2022).
3. Oil and gas firms should improve gender diversity as part of broader board-quality reform. Diversity should be pursued not only for legitimacy but also for richer board deliberation and a stronger monitoring culture. Because recent evidence on gender diversity is mixed, diversity policies should be paired with meaningful participation, committee involvement and independence safeguards (Ebaid, 2023; Kinanti & Rizki, 2025; Puspitha & Astari, 2024).
4. The offices of the CEO and board chair should remain separated. Regulators and shareholders should discourage CEO duality because the results indicate that leadership concentration increases manipulation warning signals. Separation of roles is also consistent with contemporary governance thinking that emphasizes clear oversight responsibilities and effective challenge of management (Alves, 2023; COSO & ACFE, 2023; Financial Reporting Council of Nigeria, 2018).
5. Highly leveraged oil and gas companies should be monitored more closely. Debt

pressure can increase incentives to report aggressively such that firms with high leverage should be subject to more intense internal review, audit committee scrutiny, lender covenant monitoring and external audit attention (ACFE, 2024; Ebaid, 2023; Kinanti & Rizki, 2025).

6. Regulators should move focus from box-ticking governance compliance to functionality-based assessment. Reviews of corporate governance need to explore whether boards are truly independent, both in substance and finance, diverse and capable of meaningful oversight. Recent evidence suggests that simply counting directors, meetings or committees may not be sufficient; the quality of deliberation, independence, expertise and audit processes may be more important. (Ali et al., 2025; Astrawan & Achmad, 2023; Kinanti & Rizki, 2025; Tanuwijaya & Dwijayanti, 2022).

Limitations and Suggestions for Further Research

The study is restricted to Nigerian listed oil and gas companies and may not fully generalize to other industries. The analysis relies on audited financial statements, meaning that the quality of the data depends on the quality of corporate disclosures. The Beneish M-Score detects warning signs of manipulation but does not prove the existence of actual fraud.

Future research could compare listed and unlisted companies, expand the analysis to other industries, employ different fraud-risk metrics like discretionary accruals, enforcement actions, or restatements, and incorporate ownership structure, audit committee independence, financial expertise, external audit quality, whistleblowing systems, and board meeting quality.

Also, future work could examine audit quality, commissioner expertise, financial

pressure, and moderating variables that may explain why formal governance attributes do not always translate into lower fraud likelihood.

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