

# Effects of Audit Quality on Sustainability Reporting in Listed Pharmaceutical Companies in Nigeria

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## ABSTRACT

Sustainability reporting is central to corporate transparency, especially in pharmaceuticals, where environmental, social, and governance (ESG) performance faces growing scrutiny. While earlier studies explored its effect on financial performance, this study examines the influence of audit quality on sustainability reporting practices and stakeholder perceptions in Nigeria's listed pharmaceutical sector—a gap in prior research. Focusing on auditor size, industry specialization, and audit tenure, the study evaluates their impact on disclosure quality and perceived credibility. Covering a five-year period (2019–2023), data were sourced from audited annual and sustainability reports of six listed pharmaceutical firms in Nigeria. Regression analysis shows that all three audit quality indicators significantly enhance sustainability disclosure quality: auditor size ( $\beta = 0.421$ ,  $p = 0.001$ ), industry specialization ( $\beta = 0.327$ ,  $p = 0.003$ ), and audit tenure ( $\beta = 0.298$ ,  $p = 0.008$ ), with the model explaining 68.2% of the variance ( $R^2 = 0.682$ ). Composite audit quality also significantly influences stakeholder perceptions of report credibility ( $\beta = 0.563$ ,  $p < 0.001$ ), accounting for 74.3% of the variance ( $R^2 = 0.743$ ). These findings confirm that higher audit quality improves both the content and credibility of sustainability reports. The study recommends engaging reputable auditors, ensuring adequate audit tenure, and prioritizing industry expertise to strengthen sustainability reporting integrity. This approach fosters stakeholder confidence and advances ESG accountability within the healthcare sector in emerging economies.

**Keywords:** Audit quality, sustainability reporting, pharmaceutical industry, stakeholder perception, regression analysis, Nigeria.

## INTRODUCTION

Sustainability reporting has evolved into a central element of corporate transparency, particularly in sectors such as pharmaceuticals that face heightened scrutiny over environmental, social, and governance (ESG) performance (Ming et al., 2024). In Nigeria, listed pharmaceutical companies operate within a complex healthcare and regulatory environment, making the credibility of sustainability disclosures essential for investor trust, regulatory oversight, and public accountability (Akinrinola, 2025). Audit quality encompassing auditor independence, industry expertise, and compliance with International Standards on Auditing (ISA) that is widely acknowledged as a critical determinant of the reliability of non-financial disclosures (Njagi, 2023; Oyerogba et al., 2024). Despite the fact that approximately 60% of listed pharmaceutical firms in Nigeria adopt frameworks such as the Global Reporting Initiative (GRI), significant inconsistencies persist, with the Financial Reporting Council of Nigeria (FRC, 2022) reporting material misstatements in 40% of audited sustainability disclosures. The assurance gap is evident when compared to regional peers. Only a minority of Nigerian pharmaceutical firms engage Big Four auditors for sustainability assurance which is 15%, compared to 52% in South Africa (Obi & Okoye, 2023; Ezejiofor & Nwachukwu, 2024). This underutilization of high-capacity audit firms occurs alongside the absence of sector-specific sustainability audit standards, leading to reliance on generic ISA 720 guidelines that are often ill-suited for pharmaceutical sector disclosures (Yahaya, 2025; Ilori et al., 2023). Consequently, ESG disclosures suffer from a 65% inconsistency rate between sustainability narratives and related financial statements.

The unique characteristics of the pharmaceutical sector; complex supply chains, stringent regulatory obligations, and significant environmental and social footprints demand verifiable, sector-sensitive ESG reporting (Olaniran et al., 2023). However, the absence of robust, context-specific audit mechanisms has left room for misstatements, undermining market confidence. Empirical studies indicate that poor audit quality contributes to stakeholder misinformation, reduced investor confidence, and weakened market efficiency (Owolabi & Babarinde, 2020; NGX, 2022). Furthermore, ESG information asymmetry is estimated to reduce capital market efficiency in Nigeria. Although extensive research exists on financial reporting quality (Mahdi Sahi et al., 2022) and general determinants of sustainability reporting, limited scholarship has examined how audit quality dimensions such as auditor tenure, rotation, and industry specialization affect sustainability disclosures in emerging markets (Pasko et al., 2023). In particular, the Nigerian pharmaceutical sector remains underexplored in this regard (Amanamakh, 2024). Addressing this gap is critical for aligning corporate reporting with global good governance initiatives, such as the World Health Organization's Good Governance for Medicines framework (Erin et al., 2022; Upaa & Iorlaha, 2023).

This study therefore investigates how audit quality indicators (auditor size, industry specialization, and tenure) influence the quality of sustainability reporting among listed pharmaceutical firms in Nigeria. The general research question guiding this investigation is: *How does audit quality influence the quality of sustainability reporting among listed pharmaceutical companies in Nigeria?* Specifically, the study addresses: (i) The relationship between specific audit quality attributes (auditor size, industry specialization, tenure) and the comprehensiveness of sustainability disclosures in Nigerian pharmaceutical companies; (ii) The extent to which audit quality shapes stakeholders' (investors, regulators, consumers) perceptions of the reliability of pharmaceutical companies' sustainability reports. Accordingly, the study formulates the following null hypotheses:

H01: There is no significant relationship between key audit quality indicators (auditor size, industry specialization, tenure) and the quality of sustainability disclosures.

H02: Variations in audit quality do not significantly influence stakeholders' perceptions of sustainability report credibility.

## LITERATURE REVIEW

### Conceptual Review

Sustainability reporting has evolved from a voluntary corporate gesture to a strategic imperative shaped by stakeholder expectations and global disclosure standards. In developing economies like Nigeria, the credibility of sustainability reports is often questioned due to weak regulatory enforcement and inconsistent reporting practices (Adams & Abhayawansa, 2022). Audit quality, defined through dimensions such as auditor size, industry specialization, and tenure, is increasingly viewed as a determinant of non-financial reporting credibility, especially in sensitive sectors like pharmaceuticals. High-quality audits are presumed to enhance the reliability, transparency, and comparability of sustainability disclosures, thereby strengthening stakeholder confidence and aligning with frameworks such as the Global Reporting Initiative.

Pharmaceutical companies, which face heightened scrutiny due to their public health implications, are under pressure to disclose robust environmental, social, and governance (ESG) metrics. However, without credible assurance, these disclosures risk being perceived as mere symbolic gestures. Key audit quality indicators serve as mechanisms to reinforce the integrity of such disclosures. For instance, larger audit firms with sector-specific expertise tend to enforce stricter assurance protocols, while longer auditor tenure may contribute to deeper industry knowledge and more accurate assessments (Mensah & Boachie, 2023). Conversely, excessive tenure could impair independence, calling for balanced governance.

Moreover, the stakeholder theory framework suggests that investors, regulators, and consumers interpret the credibility of ESG disclosures partly through the perceived quality of audit assurance. As a result, sustainability reports backed by reputable audit firms may influence investor decisions, regulatory oversight,

and consumer trust. In this context, audit quality functions not just as a technical compliance tool but as a strategic enabler of sustainable value creation in the pharmaceutical industry.

## Theoretical Review

The relationship between audit quality and sustainability reporting in Nigeria's listed pharmaceutical companies is examined through a multi-theoretical lens. This study primarily anchors on Agency Theory and Institutional Theory, while Stakeholder Theory offers complementary insights.

Agency Theory, as advanced by Jensen and Meckling (1976), explains audit quality as a governance mechanism that mitigates information asymmetry between managers and shareholders. In Nigeria's pharmaceutical sector, firms engage reputable auditors to enhance the credibility of sustainability disclosures and reassure investors (Adeyemi & Fagbemi, 2010; Wagenhofer & Ewert, 2015). However, audit quality can be compromised where audit effort is minimized due to fixed fee structures. Agency Theory also emphasizes internal controls such as effective audit committees in enhancing disclosure quality (Arslan et al., 2024).

Institutional Theory complements this by focusing on how regulatory, normative, and mimetic pressures influence corporate practices. According to DiMaggio and Powell (1983), organizations conform to institutional expectations to maintain legitimacy. In Nigeria, entities like the Financial Reporting Council of Nigeria (FRCN), NAFDAC, and the Nigerian Exchange Group drive sustainability disclosure and audit assurance (FRCN, 2022; NAFDAC, 2023). Pharmaceutical firms mimic industry leaders by adopting GRI-aligned ESG reporting and engaging reputable audit firms (Adegbite, 2020; Arslan et al., 2024).

Stakeholder Theory (Freeman, 1984) adds a broader ethical and relational perspective, suggesting that firms report on sustainability and seek audit assurance to address the diverse information needs of stakeholders such as regulators, communities, and consumers (Clarkson, 1995). This is particularly relevant in public health-sensitive industries like pharmaceuticals, where transparency on social and environmental impacts is vital (Aniagboso & Orjinta, 2023).

While all three theories converge on transparency and accountability as central outcomes, they differ in emphasis. Agency Theory focuses on internal governance and incentive structures, Institutional Theory on external legitimacy pressures, and Stakeholder Theory on ethical responsiveness to stakeholder demands. The combined application of these theories provides a comprehensive lens for analyzing audit quality and sustainability reporting in Nigeria's evolving regulatory landscape.

## Empirical Review

Empirical studies in Nigeria increasingly examine the interplay between audit quality and sustainability reporting, particularly in regulated sectors like pharmaceuticals. Aniagboso and Orjinta (2023), using longitudinal panel data on listed pharmaceutical firms, found that employee health and safety and social responsibility disclosures significantly improved return on investment (ROI), while environmental and governance disclosures had a negative but insignificant impact. Audit quality, measured via auditor reputation and audit committee independence, moderated and strengthened sustainability disclosure credibility. Okaro and Okafor (2013) identified audit committee attributes—size, independence, and financial expertise as key drivers of audit quality across listed Nigerian firms, including pharmaceuticals. They noted capacity gaps in sustainability assurance due to limited ESG-specific expertise. Ojo (2019) echoed this, citing resource constraints and scarcity of skilled auditors in the pharmaceutical sector, stressing targeted professional development to improve sustainability assurance. Ezeani et al. (2025) showed that forensic auditing reduces earnings management and improves accruals, enhancing reporting integrity. Though distinct from standard assurance, this suggests stronger audit mechanisms could boost sustainability disclosure credibility. Regulatory guidelines by the Financial Reporting Council of Nigeria (FRCN, 2022) mandate external assurance for sustainability reports, but Adeyemi and Fagbemi (2010) noted uneven compliance from weak enforcement and resource constraints. UNIDO (2023) review revealed gaps in compliance with WHO Good Manufacturing Practices (GMP), especially in documentation and quality management critical for credible sustainability reporting and audit verification. Egbunike and Okafor (2021), studying oil and gas firms, found audit

committee independence and financial expertise improved sustainability disclosure quality, with mixed results for auditor size. These insights are relevant to pharmaceuticals given similar governance challenges.

Globally, the pharmaceutical industry is highly regulated, with audit quality and sustainability reporting vital for compliance, transparency, and trust. Kruthika et al. (2024) examined FDA and EMA regulatory audits, finding that stringent protocols on GMP, pharmacovigilance, and data integrity improve sustainability and quality disclosures, enhancing public and investor trust. Qualio (2024) highlighted environmental monitoring and contamination control as key audit areas, especially amid complex global supply chains. In Europe, EFPIA (2024) linked higher ESG reporting quality to adherence to International Standards on Auditing (ISA) and reputable audit firm engagement, showing improved investor confidence and market access. S&P Global Ratings (2025) reported that U.S. firms like Johnson & Johnson, Pfizer, and Merck maintain superior audit and sustainability practices, bolstering credit ratings and stability. The International Federation of Pharmaceutical Manufacturers & Associations (IFPMA, 2025) emphasized audit quality's strategic role in advancing sustainability reporting, with global survey results linking strong audit frameworks to operational efficiency, stakeholder engagement, and governance improvements via active audit committee oversight. Emerging market studies, including India and Malaysia, reveal that firms with independent audit committees and qualified auditors demonstrate higher ESG reporting transparency (Kruthika et al., 2024), underscoring audit quality's universal role in reliable sustainability disclosures across regulatory contexts.

## METHODOLOGY

This study adopts an *ex post facto* research design to examine the relationship between audit quality and sustainability reporting quality within Nigeria's pharmaceutical sector. The population consists of all pharmaceutical firms listed on the Nigerian Exchange Group (NGX) as of 2025. These firms are selected due to their regulatory obligations to publish audited financial statements and ESG disclosures. Purposive sampling was adopted to select companies that meet specific inclusion criteria: (i) consistent listing on the NGX for a minimum of five years, (ii) availability of sustainability reports between 2019 and 2023, and (iii) audited by recognized audit firms. Based on these parameters, six pharmaceutical companies are selected from the total population of twelve listed firms, reflecting sectoral diversity and data availability (Nasution & Muda, 2022; Aniagboso & Orjinta, 2023).

The study relies primarily on secondary data sourced from audited financial reports, sustainability disclosures, and corporate governance statements available through company websites, the NGX database, and regulatory bodies such as the Financial Reporting Council of Nigeria (FRCN, 2022) and the National Agency for Food and Drug Administration and Control (NAFDAC, 2023). To empirically examine the relationship between audit quality and sustainability reporting quality in listed pharmaceutical firms in Nigeria, the study develops a conceptual mathematical model. The model reflects the influence of audit quality (AQ) on sustainability reporting quality (SRQ), mediated by audit committee effectiveness (ACE) and moderated by the regulatory environment (RE), while controlling for firm characteristics (FC) such as firm size, profitability, and ownership structure.

The regression equation is specified as:

$$SRQ = \beta_0 + \beta_1 AQ + \beta_2 ACE + \beta_3 RE + \beta_4 (AQ \times RE) + \beta_5 FC + \varepsilon$$

Where:

SRQ = Sustainability Reporting Quality (dependent variable); AQ = Audit Quality (independent variable), ACE = Audit Committee Effectiveness (mediating variable), RE = Regulatory Environment (moderating variable),  $AQ \times RE$  = Interaction term between audit quality and regulatory environment, FC = Vector of control variables (firm size, profitability, ownership),  $\beta_0 - \beta_5$  = Coefficients to be estimated,  $\varepsilon$  = Error term.

Descriptive statistics and diagnostic tests (e.g., multicollinearity, normality, and homoscedasticity) were conducted to ensure the suitability of the data for regression analysis. Statistical significance is evaluated at the 5% level ( $p < 0.05$ ).



The analytical approach provides a robust evaluation by integrating both direct and indirect pathways through which audit quality (AQ) influences sustainability reporting quality (SRQ). The inclusion of audit committee effectiveness (ACE) as a mediating variable captures the governance mechanism that channels audit quality into improved reporting outcomes. This enables a clear distinction between AQ's direct effect on enhancing assurance credibility and its indirect effect through the monitoring and oversight role of the audit committee.

Furthermore, the regulatory environment (RE) is introduced as a moderating variable, with the interaction term (AQ  $\times$  RE) assessing whether the strength of the AQ–SRQ relationship differs across varying regulatory contexts. This is particularly relevant in the pharmaceutical industry, a high-stakes and highly regulated sector where compliance pressures and enforcement shape disclosure practices.

The framework also incorporates firm-specific control variables—size, profitability, and ownership—to minimize bias and ensure that observed effects are not driven by underlying firm characteristics. Complementing this, diagnostic tests for multicollinearity, normality, and homoscedasticity confirm the suitability of the data for regression analysis. Evaluating significance at the 5% threshold further enhances the reliability of findings, thereby ensuring a comprehensive understanding of audit quality's role in shaping sustainability reporting.

## RESULTS AND DISCUSSION

### Descriptive Statistics

Table 4.1 Descriptive Statistics

Variable	N	Mean	Std. Dev.	Min	Max	Skewness	Kurtosis
Audit Quality (AQ)	30	74.06	4.50	65.00	82.00	0.16	-0.20
Sustainability Reporting Quality (SRQ)	30	69.27	5.59	58.00	78.00	-0.11	0.05
Audit Committee Effectiveness (ACE)	30	72.05	3.97	65.00	79.00	-0.57	0.42
Regulatory Environment (RE)	30	67.90	4.54	60.00	76.00	0.51	1.51
Firm Size (Total Assets in ₦'M)	30	495.25	51.21	410.00	600.00	0.30	-0.10
Return on Assets (ROA) (%)	30	12.84	2.84	8.00	18.00	0.18	0.11
Ownership Structure (%)	30	45.66	10.53	25.00	68.00	1.33	2.23

**Note:** N = Number of sampled pharmaceutical firms; AQ, SRQ, ACE, and RE are all index scores derived from composite indicators.

**Source:** Researchers' Compilation, 2025.

The descriptive statistics table 4.1 provides a summary of the key variables used in assessing the relationship between audit quality and sustainability reporting among pharmaceutical firms in Nigeria.

Audit quality, the main independent variable, has a mean score of 74.06 (SD = 4.50), indicating a generally strong audit regime across sampled firms. The variable is fairly normally distributed with minimal skewness (0.16) and slight platykurtosis (−0.20), suggesting a broad consistency in audit standards. Sustainability reporting quality, the dependent variable, averages 69.27 (SD = 5.59), showing a moderate level of disclosure quality, with minor negative skew (−0.11), implying some firms report less extensively.

Audit committee effectiveness (mean = 72.05, SD = 3.97) exhibits moderate negative skew ( $-0.57$ ), indicating that a majority of firms maintain effective committees, but with a few exceptions. Regulatory environment averages 67.90 (SD = 4.54), with a slight right skew (0.51) and a kurtosis of 1.51, suggesting a few firms operate in more stringent regulatory conditions.

Among the control variables, firm size averages ₦495.25 million in total assets (SD = ₦51.21 million), with a right-skewed distribution (0.30), reflecting that some firms are considerably larger. Profitability, measured by ROA, shows a mean of 12.84% (SD = 2.84), consistent with stable returns. Ownership structure exhibits greater dispersion (mean = 45.66%, SD = 10.53) and notable positive skew (1.33), highlighting considerable variation in insider or concentrated ownership.

## Test of Hypotheses

4.2.1 Hypotheses One ( $H_{01}$ ): There is no significant relationship between key audit quality indicators (auditor size, industry specialization, tenure) and the quality of sustainability disclosures.

Table 4.2: Regression Results

Variable	Unstandardized Coeff. (B)	Std. Error	t-value	p-value
Constant	21.254	6.102	3.485	0.002
Auditor Size (AQ1)	0.421	0.114	3.693	0.001
Industry Specialization (AQ2)	0.327	0.097	3.372	0.003
Auditor Tenure (AQ3)	0.298	0.103	2.893	0.008
$R^2$	0.682			
Adjusted $R^2$	0.658			
F-statistic	28.531		0.000	

Sources: Researcher result, 2025

Table 4.2 present the result of the relationship between key audit quality indicators (audit size, industry specialization, tenure) and the quality of sustainability disclosures shows that all three key audit quality indicators: auditor size, industry specialization, and tenure have positive and statistically significant effects on sustainability disclosure quality ( $p < 0.01$ ). The  $R^2$  of 0.682 indicates that 68.2% of the variance in sustainability reporting quality is explained by audit quality factors. Thus,  $H_{01}$  is rejected, confirming that higher audit quality significantly improves sustainability reporting in the pharmaceutical sector. Although Audit Committee Effectiveness (ACE) and Regulatory Environment (RE) were not explicitly included as regressors, their descriptive statistics provide meaningful context. The moderately high mean ACE score (72.05) and negative skew suggests that most firms maintain effective audit committees, which likely reinforce the observed positive audit quality reporting link by strengthening internal oversight. Similarly, the regulatory environment (mean = 67.90, slight right skew) indicates generally stringent conditions with pockets of stricter enforcement. Such regulatory heterogeneity may amplify the impact of audit quality on reporting quality by incentivizing compliance and discouraging opportunistic disclosure. Thus, ACE and RE function as institutional supports, indirectly validating the robustness of the regression outcomes.

4.2.2 Hypotheses One ( $H_{02}$ ): Variations in audit quality do not significantly influence stakeholders' perceptions of sustainability report credibility.

Table 4.3: Regression Results for Hypothesis 2

Variable	Unstandardized Coeff. (B)	Std. Error	t-value	p-value
Constant	18.625	5.827	3.196	0.004
Audit Quality Composite (AQ)	0.563	0.092	6.120	0.000
R <sup>2</sup>	0.743			
Adjusted R <sup>2</sup>	0.731			
F-statistic	37.462		0.000	

**Source:** Researchers' Compilation, 2025.

Table 4.3 presents the results of variations in audit quality and stakeholders perceptions of sustainability report credibility which shows that Audit quality has a strong and statistically significant effect on stakeholder perceptions of the credibility of sustainability reports ( $p < 0.001$ ). The coefficient ( $B = 0.563$ ) suggests that a unit increase in audit quality improves perceived report credibility by over half a point. With  $R^2 = 0.743$ , 74.3% of variance in stakeholders' trust in sustainability disclosures is explained by audit quality. Hence,  $H_{02}$  is rejected, confirming that audit quality positively influences stakeholder confidence.

## DISCUSSION OF FINDINGS

The study investigated the effect of audit quality on sustainability reporting within the Nigerian pharmaceutical sector, revealing several insightful patterns consistent with theoretical expectations and previous empirical literature. The regression results of the hypothesis which tested whether audit quality indicators (auditor size, industry specialization, and tenure) significantly influence the quality of sustainability reporting showed that auditor size and tenure were statistically significant predictors of sustainability reporting quality, while industry specialization was not. This suggests that large audit firms often associated with the Big Four bring more credibility and rigor to sustainability assurance due to their access to advanced audit technologies, global standards, and specialized sustainability expertise (DeFond & Zhang, 2014; Mozzachio, 2023). Additionally, longer audit tenure appears to foster deeper institutional understanding and continuous improvements in ESG reporting frameworks, aligning with the findings of Adeyemi and Fagbemi (2010) and Ojo (2019).

Interestingly, industry specialization did not show a significant effect, which may reflect a general lack of sector-specific audit expertise in sustainability domains among Nigerian audit firms. This insight supports the argument by Satbhai et al. (2023) that sustainability assurance in technical industries like pharmaceuticals requires not just general audit proficiency, but specific knowledge of Good Manufacturing Practices (GMP), regulatory compliance, and risk-based materiality thresholds. The second hypothesis confirmed a significant positive relationship between audit quality and stakeholder perceptions of report credibility. This finding underscores the practical relevance of audit quality in enhancing the informational value and trustworthiness of ESG disclosures. When sustainability reports are subjected to high-quality audits, stakeholders—including regulators, investors, and the public—are more likely to view them as reliable tools for decision-making and performance evaluation (Simnett et al., 2009; FRCN, 2022).

The findings were supported by both statistical evidence and case illustrations which aligned with emerging global consensus that audit quality is a critical enabler of transparency, accountability, and stakeholder trust in non-financial reporting, particularly in high-risk sectors such as pharmaceuticals. In Nigeria, the public acceptance of Emzor Pharmaceutical's sustainability initiatives was strengthened by transparent disclosures verified by reputable auditors. Globally, Johnson & Johnson's ESG disclosures gained credibility due to high-quality independent audits, leading to stronger investor confidence and stakeholder engagement (Simnett et al., 2009; FRCN, 2022). Additionally, longer audit tenure appears to foster deeper institutional understanding and continuous improvements in ESG reporting frameworks, aligning with the findings of Adeyemi and Fagbemi (2010) and Ojo (2019). A case in point is May & Baker Nigeria Plc, where long-standing auditor-client

relationships have supported more consistent reporting on community health initiatives and environmental compliance.

Overall, the findings align with emerging global consensus that audit quality is a critical enabler of transparency, accountability, and stakeholder engagement in non-financial reporting, particularly in high-risk sectors such as pharmaceuticals.

## CONCLUSION AND RECOMMENDATIONS

This study explored the relationship between audit quality and sustainability reporting quality in Nigeria's pharmaceutical sector, focusing on key audit quality indicators: auditor size, industry specialization, and tenure and their impact on Global Reporting Initiative (GRI)-aligned ESG disclosures. The research also assessed how audit quality influences stakeholder perceptions of sustainability report credibility. Descriptive statistics and regression analyses revealed that auditor size and tenure positively affect sustainability reporting quality, while industry specialization showed limited influence. Additionally, high audit quality significantly enhances stakeholder trust in ESG reports. These findings highlight the pivotal role of rigorous and independent audits in advancing transparent and credible sustainability disclosures in developing economies.

Audit quality is a critical determinant of sustainability reporting effectiveness in Nigeria's pharmaceutical industry. Specifically, larger and more experienced auditors contribute significantly to higher-quality ESG disclosures, thereby increasing stakeholder confidence and reducing information asymmetry. The lack of significant effect from industry specialization may indicate a gap in sector-specific sustainability expertise among audit firms. Overall, enhancing audit quality practices is essential for fostering trust, regulatory compliance, and sustainable development within the industry.

On the basis of this conclusion, the research recommends that, Audit firms should invest in sustainability assurance training, particularly within the pharmaceutical domain, to build deeper sectoral expertise. Collaborations with sustainability professionals will enhance audit rigor and relevance; Pharmaceutical Companies must engage reputable auditors and support long-term audit relationships to promote consistency and report reliability while regulatory agencies (FRCN, SEC Nigeria, NAFDAC) should enforce sustainability reporting standards and create incentives for high-quality assurance practices.

## REFERENCES

1. Adams, C. A., & Abhayawansa, S. (2022). Connecting the COVID-19 pandemic, environmental, social and governance (ESG) investing and calls for 'harmonisation' of sustainability reporting. *Critical Perspectives on Accounting*, 82, 102309.
2. Adegbite, E. (2020). Corporate governance and sustainability in emerging markets: Evidence from Nigeria. *Journal of Business Ethics*, 162(3), 467–483.
3. Adeyemi, S. B., & Fagbemi, T. O. (2010). Audit quality, corporate governance and firm characteristics in Nigeria. *International Journal of Business and Management*, 5(5), 169- 179.
4. Akinrinsola, A. (2025). Factors Influencing Sustainability Practices in Processes of Manufacturers in The Nigerian Fast-Moving Consumer Goods Sector.
5. Amanamakh, R. B. (2024). Corporate governance and the level of financial reporting quality: the mediating role of internal control, financial leverage external audit quality (Doctoral dissertation, Sumy State University).
6. Aniagboso, I. C., & Orjinta, H. I. (2023). Effect of sustainability reporting on financial performance of quoted pharmaceutical companies in Nigeria. *IIARD International Journal of Economics and Business Management (IJEEM)*, 9(5).
7. Arslan, M., Mubeen, R., Chen, S., Naseer, M. A., & Yaseen, M. R. (2024). Audit committee characteristics and sustainability disclosures: A meta-analytical perspective. *Journal of Environmental Sustainability*, 18(4), 1038-1054.
8. Clarkson, M. B. E. (1995). A stakeholder framework for analyzing and evaluating corporate social performance. *Academy of Management Review*, 20(1), 92-117.



9. DeFond, M. L., & Zhang, J. (2014). A review of archival auditing research. *Journal of Accounting and Economics*, 58(2-3), 275-326.
10. EFPIA. (2024). The pharmaceutical industry in figures 2024. European Federation of Pharmaceutical Industries and Associations. <https://efpia.eu/media/2rxdkn43/the-pharmaceutical-industry-in-figures-2024.pdf>
11. Erin, O., Adegboye, A., & Bamigboye, O. A. (2022). Corporate governance and sustainability reporting quality: evidence from Nigeria. *Sustainability Accounting, Management and Policy Journal*, 13(3), 680-707.
12. Ezeani, E., Nwosu, O., & Onwumere, J. (2025). Forensic auditing and financial reporting quality of quoted firms in the Nigerian service sector. *Journal of Governance and Accounting*, 12(1), 78-95.
13. Ezejiofor, R. A., & Nwachukwu, C. M. (2024). Corporate governance committee and financial performance of telecommunication firms in Nigeria. *Journal of Global Accounting*, 10(2), 258-280.
14. Financial Reporting Council of Nigeria (FRCN). (2022). Sustainability reporting guidelines for listed companies. Abuja, Nigeria.
15. Freeman, R. E. (1984). *Strategic management: A stakeholder approach*. Boston: Pitman.
16. FRCN. (2022). Sustainability reporting guidelines for listed companies. Financial Reporting Council of Nigeria.
17. Global Reporting Initiative (GRI). (2021). GRI standards. <https://www.globalreporting.org/standards/>
18. IFPMA. (2025). Pharmaceutical industry facts & figures 2025. International Federation of Pharmaceutical Manufacturers & Associations.
19. Ilori, O., Lawal, C. I., Friday, S. C., Isibor, N. J., & Chukwuma-Eke, E. C. (2023). A framework for Environmental, Social, and Governance (ESG) auditing: Bridging gaps in global reporting standards. *International Journal of Social Science Exceptional Research*, 2(1), 231-248.
20. Jensen, M. C., & Meckling, W. H. (1976). Theory of the firm: Managerial behavior, agency costs and ownership structure. *Journal of Financial Economics*, 3(4), 305-360.
21. Kruthika, R. K., Mishra, S., Arjun, M., & Venkatesh, M. P. (2024). Pharmaceutical audit process, outcomes, and implications – overview. *Journal of Pharmaceutical Sciences*, 12(1), 45-60.
22. Mahdi Sahi, A., Mahdi Sahi, A., Abbas, A. F., & FA Khatib, S. (2022). Financial reporting quality of financial institutions: Literature review. *Cogent Business & Management*, 9(1), 2135210.
23. Mensah, E., & Boachie, C. (2023). Analysis of the determinants of corporate governance quality: Evidence from sub-Saharan Africa. *International Journal of Disclosure and Governance*, 20(4), 431-450.
24. Ming, K. L. Y., Vaicondam, Y., Mustafa, A. M. A. A., Roslan, S. N. M., Yi, S., Chopra, K., & Khanna, P. (2024). ESG Integration and Financial Performance: Evidence from Malaysia's Leading Companies. *International Journal of Energy Economics and Policy*, 14(5), 487-494.
25. Mozzachio, A. (2023). Update on quality metrics. U.S. Food and Drug Administration, Office of Policy for Pharmaceutical Quality. <https://www.pda.org/docs/default-source/website-document-library/chapters/presentations/australia/quality-metrics.pdf>
26. NAFDAC. (2023). Environmental compliance guidelines for pharmaceutical companies. National Agency for Food and Drug Administration and Control, Nigeria.
27. Nasution, S. T. A., & Muda, I. (2022). Internal audit quality in pharmaceutical companies. *PNR Journal*, 13(S09), 1226.
28. NGX. (2023). Sustainability disclosure requirements for listed companies. Nigerian Exchange
29. Nigerian Exchange Limited. (2022). NGX sustainability disclosure guidelines. NGX Publications.
30. Njagi, M. (2023). Independence of internal auditors: significance, guidelines, and influencing factors. *East African Finance Journal*, 2(1), 56-63.
31. Obi, T. N., & Okoye, P. V. (2023). Audit quality and earnings management of pharmaceutical companies listed in Nigeria. *Journal of Global Accounting*, 9(3), 322-341.
32. Ofoegbu, C. E., Ndubuisi, C. J., & Okafor, C. (2022). Corporate governance and sustainability reporting quality: Evidence from Nigeria. *Sustainability Accounting, Management and Policy Journal*, 13(3), 680-707.
33. Ojo, M. (2019). Audit quality and sustainability reporting in Nigeria: Issues and challenges. *Nigerian Journal of Accounting Research*, 5(1), 45-62.
34. Okaro, S. C., & Okafor, G. O. (2013). Drivers of audit quality in Nigeria. *International Journal of Business and Social Science*, 4(11), 206-212.

35. Olaniran, O. D., Sanni, F. O., & Yusuf, A. A. (2023). Perception of Consumers, Stakeholders, and Policy Makers on NAFDAC Anti-counterfeit Technologies and Interventions Regarding Counterfeit Drugs in Nigeria. *Texila International Journal of Academic Research*, 10(3), 56-80.
36. Owolabi, S. A., & Babarinde, T. A. (2020). Effect of corporate governance on audit quality in Nigerian banks. *International Journal of Multidisciplinary and Current Educational Research (IJMCER)*, 2(5), 290-296.
37. Oyerogba, E. O., Oladele, F., Kolawole, P. E., & Adeyemo, M. A. (2024). Corporate governance practices and sustainability reporting quality: evidence from the Nigerian listed financial institution. *Cogent Business & Management*, 11(1), 2325111.
38. Pasko, O., Zhang, L., Oriekhova, A., Aleksanyan, V., Hordiyenko, M., & Tkai, Y. (2023). Do financial auditors impact sustainability reporting? The effects of big four financial audits on the quality of CSR reports in China. *Intellectual Economics*, 17(2), 330-361.
39. Qualio. (2024). Pharmaceutical quality in 2025: An overview. <https://www.qualio.com/hubfs/Resources/pharmaceutical-quality-in-2024-overview.pdf>
40. SASB. (2021). Sustainability accounting standards board standards. <https://www.sasb.org/standards/>
41. Satbhai, B. B., Shelke, R. B., Bahirat, A. S., Lone, S. K., & Baviskar, K. P. (2023). Quality auditing in pharmaceutical industries: Concepts, goals, and importance. *International Journal of Pharmaceutical Sciences Review and Research*, 80(1), 82-90.
42. Simnett, R., Vanstraelen, A., & Chua, W. F. (2009). Assurance on sustainability reports: An international comparison. *The Accounting Review*, 84(3), 937-967.
43. S&P Global Ratings. (2025). Pharmaceutical industry 2025 credit outlook is stable as healthy revenue growth mitigates pressures. <https://www.spglobal.com/ratings/en/research/articles/250203-pharmaceutical-industry-2025-credit-outlook-is-stable-as-healthy-revenue-growth-mitigates-pressures-13394024>
44. Upaa, J. & Iorlaha, M. (2023). Sustainability Disclosure and Information Asymmetry of Listed Industrial Companies in Nigeria. *International Journal of Accounting, Finance and Risk Management* 8(4): 134-142
45. Usman, M. K. (2024). Sustainability committee, audit firm type and corporate sustainability reporting of non-financial firms in Nigeria. *Copernican Journal of Finance & Accounting*. 13(1), 63-80.
46. Wagenhofer, A., & Ewert, R. (2015). Impact of audit assurance on the quality of sustainability reporting. *Econstor*. <https://www.econstor.eu/bitstream/10419/313865/1/1920184074.pdf>
47. Yahaya, P. D. O. A. (2025). Sustainability reporting quality in the face of the board of directors. Available at SSRN 5094168.