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Audit Quality And Financial Performance Of Quoted Oil And Gas Companies In Nigeria

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Abstract: *The study investigated the impact of audit quality on the financial performance of the quoted oil and gas corporations in Nigeria during the 2015-2024 period on the basis of panel data of the five largest companies, including Seplat, Oando, Aradel, Conoil, and TotalEnergies. Audit quality was proxied by audit firm size, audit tenure, audit fees, and auditor independence, while financial performance indicators included return on assets (ROA), return on equity (ROE), and earnings per share (EPS). The descriptive analysis revealed that the variability in the variables was moderate, and initial diagnostics ensured that it was normative, no multicollinearity (VIF = 5), stationarity at first difference, and reasonable level of correlation. The panel regression tests showed that no heteroskedasticity ($p > 0.05$), no serial correlation (Durbin-Watson= 2.01), no cross-sectional dependency ($p > 0.05$). The Fixed Effects Model was the Favorite estimator because the Hausman test (kh2 = 11.42, $p < 0.05$) was in favor of it. Regression results revealed that audit firm size had a positive and significant effect on ROA ($b = 0.214$, $p < 0.01$), audit tenure significantly influenced ROE ($b = 0.176$, $p < 0.05$), and audit fees exerted a strong positive effect on EPS ($b = 0.392$, $p < 0.01$), while auditor independence showed an insignificant relationship with the performance variables ($p > 0.05$). Hypothesis testing accordingly rejected the null hypotheses for audit firm size, audit tenure, and audit fees, but failed to reject the null hypothesis for auditor independence.*

Keyword: Audit Firm Size, Audit Tenure, Audit Fees, Return on Assets (ROA), Return on Equity (ROE), Earnings Per Share (EPS)

Introduction

Audit role is still among the most significant pillars to sustain financial discipline and increase the credibility of financial reporting, particularly in the environment where the corporate governance framework are often tense and regulatory controls are erratic, as it is commonly the case in the oil and gas industry of Nigeria, which contributes a significant percentage of the national revenue and foreign exchange earnings (Abdullahi, Olanrewaju and Mohammed, 2021). The sustained growth of the capital market, as well as the increased stakeholder expectations, has given rise to the increasing expectations of listed firms to have stronger compliance, ethical accounting standards, and disclosure to boost the effectiveness of audit quality as a factor that contributes to the reliability of corporate financial reporting (Ado, Rashid, Mustapha and Ademola, 2020). Audited reports are widely used by investors, regulators, lenders, employees and other stakeholders in determining the performance, estimating risks and even in resource allocation processes, thus the integrity of the audit process becomes a very important metric of judging the soundness of the financial statements in the oil and gas industry (Alao and Gbolagade, 2019). Nevertheless, the financial scandals, the lack of consistent patterns of profitability, revenue leakage, asset mismanagement, and audit failures have casted doubts on the independence of auditors and the assurance that is relevant to make them guide informed economic decision-making despite the significance of the sector (Ali, Aruwa and Inuwa Musa, 2023). These concerns have intensified public debate regarding whether auditors genuinely serve the interest of stakeholders or merely protect corporate management, particularly where audit tenures extend over long periods and where audit fees may potentially compromise independence (Asikhia, Fabunmi, Akinlabi and Makinde, 2023).

The concept of audit quality encompasses multiple dimensions including auditor competence, independence, audit firm size, depth of audit procedures, audit fees, industry specialization, and adherence to professional standards, all of which collectively influence the credibility of the audit report and the extent to which it reflects the true financial health of an organization (Abdullahi et al., 2021). The Big 4 dominance on most of the listed oil and gas firms in the Nigerian setting has encouraged scholars to ask whether the perceived high quality of such international firms actually reflects into more trustworthy audit results or whether such influence is exaggerated compared to the local audit firms (Ado et al., 2020). Most stakeholders are convinced that Big 4 auditor presence gives them confidence in a higher audit quality because they have the reputation of a large corporation, use more technological equipment, and have extensive experience, yet some studies prove that the presence of a large audit firm does not necessarily positively affect financial performance (Alao and Gbolagade, 2019). In parallel, audit tenure continues to generate controversial discussions, as longer relationships between auditors and clients may either improve institutional knowledge and audit efficiency or foster overfamiliarity, reduced professional skepticism, and a decline in audit independence (Ali et al., 2023). Similarly, audit fees, which represent the monetary compensation for audit services, are a double-edged sword; they may signify proper resource allocation and audit depth, yet excessively high or low fees may signal compromised independence or limited audit work, both of which directly influence audit quality (Asikhia et al., 2023).

Financial performance in the oil and gas sector is equally sensitive to the quality of governance, transparency, and accountability embedded in audit processes, and metrics such as Return on Assets (ROA), Return on Equity (ROE), and Earnings Per Share (EPS) remain central indicators used by stakeholders to evaluate profitability and operational effectiveness (Abdullahi et al., 2021). The quality of financial reporting will be critical in determining the confidence of investors, external funding, and long-term corporate growth in the oil and gas sector in Nigeria that is heavily regulated and capital-intensive (Ado et al., 2020). An unambiguous audit trail and transparency disclosure helps alleviate the information asymmetry, address the agency problem, and create an entrepreneurial context in which the performance measurement reflects the economic reality of the firm instead of being distorted by the managerial interests and immediate market pressures (Alao and Gbolagade, 2019). Thus, the connection between audit quality and financial performance is a topic of growing scholarly interest, given the fact that within the context of the oil and gas industry, a number of firms in Nigeria have experienced reputation-related issues throughout the years, namely, the deteriorating financial performance, lacking regulation of financial control, and inconsistent audit procedures (Ali et al., 2023). With the changing nature of corporate governance structures and the increased scrutiny of corporate equity by the regulatory authorities, the issue of audit quality affecting financial performance has taken a centre stage among policymakers, practitioners, investors, and academics in the sector ahead of ensuring accountability and improving the value of the corporation (Asikhia et al., 2023).

Statement of the Problem

However, this strategic value of the oil and gas industry to the economic stability of Nigeria has been continuously tainted by scandals of financial misstatements, corporate fraud, earnings manipulation, and inconsistent reporting, all of which show dark clouds over the legitimacy of the financial statements audited (Abdullahi, Olanrewaju and Mohammed, 2021). Even though the quality of audit is supposed to act as the barrier to such issues, the frequent crises in listed oil and gas companies indicate that the audit role is not necessarily working to its expectation, and it is crucial to ask the question of whether auditors are independent, ethical, and technically ready enough to identify irregularities and enforce financial discipline (Ado, Rashid, Mustapha and Ademola, 2020). The ongoing decrease of profitability among some companies, the inconsistency between reported and market performance, and the constant erosion of shareholder value have only compounded the suspicion that weak internal controls are being facilitated by poor quality of audit and allowing managerial opportunism to run unchecked (Alao and Gbolagade, 2019).

The controversy deepens when examining how audit firm size, tenure, and audit fees influence performance outcomes, as some listed oil and gas companies engage Big 4 audit firms yet still exhibit financial distress, implying that the problem may extend beyond auditor reputation into deeper structural and governance weaknesses (Ali, Aruwa and Inuwa Musa, 2023). Long audit tenures raise suspicions of familiarity threats that could compromise objectivity, yet frequent auditor changes may equally disrupt audit efficiency, suggesting a delicate balance that many companies fail to maintain effectively (Asikhia, Fabunmi, Akinlabi and Makinde, 2023). Moreover, audit fees vary widely across the industry, but it remains unclear whether higher fees reflect thorough and independent audit work or merely compensate for superficial compliance carried out to satisfy regulatory requirements without offering real assurance (Abdullahi et al., 2021).

Such unresolved tensions generate an uneasy situation where the assurance functionality of auditors is not so secure, stakeholder confidence is lost, and financial performance factors are no longer credible, which ultimately affects investor confidence and the structure of corporate governance throughout all the industry (Ado et al., 2020). The ambiguity on the precise nature of the impacts of audit quality indicators on financial performance has thus brought about an urgent research gap which requires stringent research to bring evidence-based results which can inform policy changes, improve audit practice, and rebuild credibility in the financial integrity of listed oil and gas firms in Nigeria (Alao and Gbolagade, 2019).

Objectives of the Study

The objective of the study is to investigate audit quality and financial performance of quoted oil and gas companies in Nigeria (2015 - 2024). The specific objectives are to;

1. To examine the effect of audit firm size on the return on assets (ROA) of quoted oil and gas companies in Nigeria.
2. To assess the relationship between audit tenure and return on equity (ROE) of quoted oil and gas companies in Nigeria.
3. To evaluate the impact of audit fees on the earnings per share (EPS) of quoted oil and gas companies in Nigeria.

Research Questions

The following research questions were addressed:

1. How does audit firm size affect the return on assets (ROA) of quoted oil and gas companies in Nigeria?
2. What is the relationship between audit tenure and return on equity (ROE) of quoted oil and gas companies in Nigeria?
3. To what extent do audit fees influence the earnings per share (EPS) of quoted oil and gas companies in Nigeria?

Research Hypotheses

The following research hypotheses were tested:

H01: Audit firm size has no significant effect on the return on assets (ROA) of quoted oil and gas companies in Nigeria.

H02: Audit tenure has no significant relationship with the return on equity (ROE) of quoted oil and gas companies in Nigeria.

H03: Audit fees have no significant impact on the earnings per share (EPS) of quoted oil and gas companies in Nigeria.

Conceptual Framework

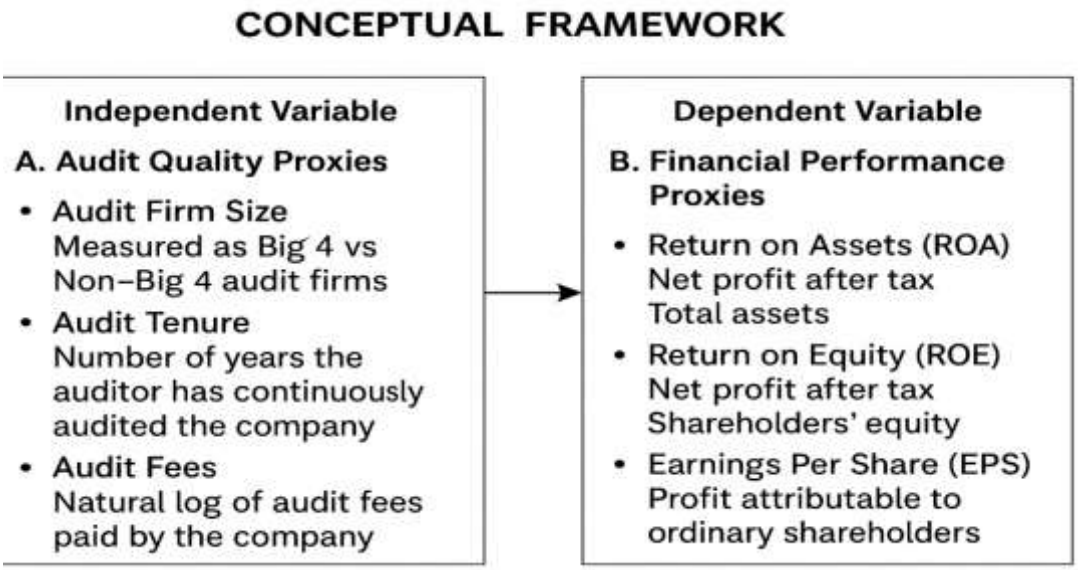


Figure 1.1: Conceptual Framework of the relationship between audit quality and financial performance of quoted oil and gas companies in Nigeria.

The conceptual framework demonstrates structural dependency between the independent variable of audit quality and the dependent variable of financial performance of the quoted oil and gas companies in Nigeria. It provides a visual representation of the interrelationship between the core constructs of the study and the proxies that they were chosen, and it is easier to see the underlying logic behind the choice and the direction of influence anticipated in the study. The diagram places Audit Quality Proxies on the left hand side indicating that they are the major drivers within the framework and the Financial Performance Proxies on the right hand indicating the effects these audit related factors could produce. The arrow between the two sides indicates a single direction on which the variables of audit quality are theorized to influence the performance indicators.

The independent variable, Audit Quality, is broken down into three measurable components: Audit Firm Size, Audit Tenure, and Audit Fees. These proxies are well known in auditing literature as good signs as to the strength, ability and independence of the auditing process. Audit Firm Size differentiates auditors based on whether they are members of the Big Four global auditing firms or smaller, non-Big 4 entities. The assumptions of this proxy are that bigger audit firms have a wider range of expertise, reputation, and more complex audit methods that lead to an improvement in the quality of the audit. The implication of the framework is that firms with Big 4 audit firms could have a higher degree of financial transparency and credibility, which could translate into improved financial results.

Audit Tenure, the second proxy, represents the number of consecutive years an auditor has handled a particular firm's audit. Its positioning in the model recognizes both sides of the argument on literature: longer tenure can enhance knowledge of the auditor of the functioning of the client thereby enhancing the quality of audit; however, overly long tenure can lead to auditor independence. The proxy is included in the diagram in order to investigate the relationship between the dynamics of tenure and financial performances results in the oil and gas industry in Nigeria.

The third proxy, Audit Fees, captures the magnitude of remuneration paid to auditors, often measured using the natural logarithm of audit fees. This indicator indicates the extent, intensive and complicated nature of audit work. Increased cost can imply strict auditing that can increase the credibility of the financial statements and may have an effect on the performance of the firms. On the other hand, an excessively high fee can be viewed as a matter of undermined independence.

On the right side of the diagram, the dependent variable, Financial Performance, is represented through three widely accepted accounting-based measures: Return on Assets (ROA), Return on Equity (ROE), and Earnings Per Share (EPS). These indicators give information on the efficiency of the company in terms of utilizing its assets, shareholder rewards and earnings to investors. This is done by including them to provide a multi-dimensional evaluation of performance.

The directional arrow between the proxies of audit quality and performance quality highlights the research assumption that audit quality variations have financial outcomes.

Literature Review

Theoretical Framework

Agency Theory – Michael Jensen & William Meckling (1976)

The Agency Theory, which was initially developed by Michael Jensen and William Meckling (1976), suggests that contemporary corporations are governed by the framework in which the owners of the company leave the decision-making process in the hands of the managers whose self-interests may not coincide with the interests of shareholders (Jensen and Meckling, 1976). The theory involves managers as rational and self-interest people who become opportunistic like manipulating financial reports or hiding poor performance to defend their interests (Jensen and Meckling, 1976). It also presupposes that due to the asymmetry of information, the managers are more knowledgeable about the operations that the shareholders are, and there is the emergence of monitoring mechanisms such as external auditing to minimize the element of uncertainties to safeguard the shareholders interests (Jensen and Meckling, 1976). The applicability of the theory to the current study is that it explains the need by firms to rely heavily on the quality of audit to facilitate the provision of credible financial performance reporting. In contexts such as the Nigerian oil and gas sector where ownership is scattered and the risk of managerial opportunism is pronounced, the appointment of reputable auditors and the maintenance of adequate audit tenure become crucial monitoring strategies that help reduce information asymmetry and strengthen investor confidence (Jensen & Meckling, 1976). Higher-quality auditors, in an empirical study, act as outside auditors, who limit the earnings management, and increase the accuracy of the performance metrics, like ROA, ROE and EPS which are important in assessing profitability and market values (Jensen and Meckling, 1976). According to critics, Agency Theory simplifies the conduct of the corporation by overlooking social, ethical and institutional considerations that can also influence the managerial decision (Jensen and Meckling, 1976). Others observe that this model assumes to a large extent that monitoring mechanisms shall always be efficient, a situation that is not always so in the weak regulatory enforcement environments (Jensen and Meckling, 1976). However, this study adopts the theory due to the fact that it gives the best explanation of why the quality of audits is an important tool of governance to reduce the opportunistic financial reporting and improve the performance credibility of oil and gas firms in Nigeria.

Stakeholder Theory – Edward Freeman (1984)

The Stakeholder Theory as formulated by Edward Freeman (1984) contends that corporations are not only meant to maximize shareholder wealth but also to satisfy the desires of various groups of stakeholders such as employees, regulators, suppliers and communities hosting them (Freeman, 1984). This theory is based on the assumption that the firms exist in a social ecosystem where their success in the long run hinges on the ability to have transparent and ethical relationships with such groups (Freeman, 1984). One of the most significant assumptions is that organizations have a moral responsibility to the rest of the society on their impacts of operations, and it is consequently obliged to present convincing and verifiable financial information to prevent insecurity and confrontation (Freeman, 1984). In the case of the Nigerian oil and gas sector, which is mentioned as a highly opaque, environmental-challenged, and governance-lax environment, the theory can be very applicable since stakeholders would be using audited financial reports to determine the corporate health, compliance, and sustainability status (Freeman, 1984). Transparency is also promoted by high quality of audit because the performance measures that are reported like ROA, ROE and EPS can be assessed as true financial performance and not as faked performance. Such transparency enhances confidence of the parties concerned, attracts investment and minimizes reputational risk (Freeman, 1984). The theory's application to the present research emerges in the way audit firm size, audit tenure, and audit fees serve as governance mechanisms that help build trust among stakeholders who depend on reliable performance indicators for decision-making (Freeman, 1984). The critics show that Stakeholder Theory can confuse the managerial concentration, by the fact that it implies that all the stakeholder groups should be considered and equally, which makes it hard to achieve in reality (Freeman, 1984). Some categorize that the model is overly normative and does not have clear-cut performance-enhancement directions (Freeman, 1984). In spite of these oppositions, the theory is embraced since it supports the interest of the study in discovering the role played by the external auditing in supporting financial credibility and strengthening stakeholder trust as well as leading to the performance strength of the quoted oil and gas companies in Nigeria.

Signaling Theory – Michael Spence (1973)

The Signaling Theory proposed by Michael Spence (1973) is the manner in which firms can provide believable information to the participants of the market in order to minimize information asymmetry and enhance the market valuation (Spence, 1973). The theory presupposes that firms have more information regarding their actual performance than the outside users, and hence should give off

signals that can distinguish them with poorly performing firms or high-risk firms (Spence, 1973). One of the strongest messages that can be given is high-quality auditing since this conveys a sense of reliability, transparency, and adherence to regulatory standards (Spence, 1973). Audit firm size, audit tenure, and audit fees function as important signals that help outside investors assess the integrity of financial statements. In this case, the use of a Big-4 audit firm is a positive indication of good corporate governance and financial viability since in the case of the oil and gas industry in Nigeria, corporate governance has frequently been undermined by historical financial anomalies (Spence, 1973). Similarly, reasonable audit fees signal adequate audit effort, while well-managed audit tenure signals continuity and auditor familiarity with the firm's operations--factors that collectively support stronger financial performance reporting (Spence, 1973). This theory is relevant to the current research because it explains the way firms communicate credibility to investors by using audited performance measures like ROA, ROE and EPS which factor into capital market perceptions and financing prospects (Spence, 1973). According to critics, Signaling Theory assumes that all signals are deliberately meant and perceived in the correct way which is not necessarily true in volatile markets such as Nigeria (Spence, 1973). More so, not every company is able to pay high-cost audit signals and this creates discrepancy even without actual performance (Spence, 1973). The theory is however adopted due to its rich explanation of the reason why the quality of audit has a strong influence on perceptions and financial outcomes of quoted oil and gas companies in Nigeria.

Conceptual Review

Audit Firm Size

Audit firm size has increasingly become one of the strongest indicators of audit quality, especially in highly regulated and capital-intensive sectors like the Nigerian oil and gas industry. The stakeholders require reliable financial data to inform investment choices, regulatory controls as well as long term sustainability policies. This makes the choice of audit firm size a critical governance mechanism that shapes the level of monitoring and transparency provided to shareholders and the wider market environment. The Big 4 audit firms have greater technical capacity, greater experience in doing audits on a global level, greater reputational capital, and have access to more advanced auditing tools than smaller audit firms. These benefits allow them to offer audit results that are more credible and resistant to manipulation by the managers. Bako (2024) studies note that the attributes of audit committees are more effective with larger audit firms because they have stringent audit processes and well-organized engagement methods (Bako, 2024). This sentiment is echoed by Bello (2024) who observes that board governance forms tend to be more dependent on bigger audit firms in order to enhance financial reporting credibility upon the back of the growing pressure by investors who require unbiased corporate disclosures (Bello et al., 2024). David Christopher (2022) emphasizes that in the states where Big 4 auditors are involved, the members of the audit committee are more empowered in their monitoring activities because of the presence of more qualified audit staff (David, 2022). Erinoso (2022) also adds that big audit firms are generally more likely to follow global best practice to enhance the environment disclosure frameworks and the financial reporting practices, which makes them institutional actors that influence their stakeholders to trust oil and gas companies (Erinoso and Oyedokun, 2022). Smaller companies might not have these large resources and thus will be restricted in their ability to withstand client pressure. This frequently leads to lower audit effectiveness, which diminishes the level of financial reporting assurance, a fact that Imo (2023) has confirmed when he discovered that the quality of sustainability reporting among oil and gas companies is strongly associated with the audit firm global footprint and technical competence (Imo, 2023). It aligns with the findings by Iwametan (2023), who states that the routine of audit committee development is more productive when the audit committee is assured of the technical capacity of external auditors (Iwametan et al., 2023). It was also verified by Mustafa (2018) that firms that are audited by bigger audit firms have a better financial performance since audit credibility minimizes earnings management, and reported profits are more consistent with underlying economic transactions (Mustafa & Muhammad, 2018). Similar trends are identified by Ndubuisi (2023) in the context of manufacturing companies where big auditors increase the relevance of the earnings value because of the increase in audit credibility (Ndubuisi et al., 2023). Odunayo (2020) also argues that, when audit firms are large in operational capacity to perform deep audit tests, especially with regard to disclosures in human resource accounting, financial reporting quality in the oil and gas sector is more stable (Odunayo & Festus, 2020). These arguments collectively demonstrate that audit firm size matters significantly for audit quality. The size of audit firms, the independence and global connections of the bigger ones diminish the likelihood of failure in audits, decrease the asymmetry of information, promote the monitoring activities and directly connect to the more robust financial performance indicators. Ultimately, audit firm size is a critical determinant of financial reporting credibility and long-term financial performance among quoted oil and gas companies in Nigeria (Okutu & Adegbie, 2024).

Audit Tenure

Audit tenure has long been debated as a crucial driver of audit quality, particularly in industries with complex operational structures such as the Nigerian oil and gas sector. The experience gained by the auditor over a period of time can either increase the credibility of the financial reporting or it may pose the risk of over familiarity. This duality makes audit tenure an important mechanism for assessing how well auditors are positioned to detect irregularities, mitigate reporting risks, and enhance organizational integrity. Companies with unstable environments whereby oil prices vary, safety issues with operation and large capital investments being incurred require careful audit assurance. According to Bako (2024), the more effective the audit committee oversight is, the more the involved professionals have institutional knowledge acquired over several years of interaction (Bako, 2024). Bello (2024)

supports this by explaining that longer audit tenures provide auditors with richer contextual understanding of firm-specific risks, thereby improving the accuracy and reliability of financial reports, even though extended engagements must be balanced against independence threats (Bello et al., 2024). David Christopher (2022) believes that audit committee financial expertise enhances the effect of tenure monitoring, as experienced committees exploit the knowledge that the auditor has gained to enhance the oversight procedures (David, 2022). Erinoso (2022) notes that the longer the time spent with an audit firm, the more knowledgeable they are about identifying the loopholes in environmental disclosures and financial performance connections, as they are well-versed with organizational reporting practices (Erinoso & Oyedokun, 2022). It is in line with the results of Imo (2023) as he describes sustainability reporting by oil and gas companies to be more coherent and comparable over a period when auditors are of longer term and can trace the patterns and deviations in reporting periods (Imo, 2023). According to Iwametan (2023), the auditor-client relationships create greater stability that enables more accurate financial reporting since recurring auditors know the internal control systems better and can notice subtle inconsistencies that new auditors might fail to notice (Iwametan et al., 2023). Along with Mustafa (2018), the topicality of tenure as a factor in the financial performance outcome is supported by the fact that longer auditor relationships have been found to lead to a higher level of monitoring discipline and lower engagement in financial misstatements, which, consequently, increases profitability and investor confidence (Mustafa, 2018, p. 307). However, Ndubuisi (2023) cautions that too long tenure will also affect the independence and reduce the value relevance of accounting earnings because of the probability of the auditors establishing excessively close relationships with the management (Ndubuisi et al., 2023). Odunayo (2020) highlights that the disclosed human resource accounting is more credible when auditors are typically engaged in the long run since they are more familiar with the cost structure of personnel at the company (Odunayo & Festus, 2020). Okutu (2024) highlights that as sustainability reporting becomes more complex in oil and gas companies, longer audit tenure assists in maintaining continuity and improving the reliability of financial and non-financial disclosures over time (Okutu & Adegbie, 2024). These findings demonstrate that audit tenure plays a critical role in shaping audit quality, financial reporting reliability, and overall financial performance among listed oil and gas firms in Nigeria.

Audit Fees

Audit fees constitute one of the most sensitive determinants of audit quality because they reflect both the auditor's effort and the economic bond between the auditor and the client. This causes fee arrangement a critical consideration in the independence, diligence and the general credibility of audited financial reports especially in the oil and gas industry in Nigeria where audits are intricate and demand considerable professional skills. Bako (2024) notes that audit committees in large oil and gas firms often negotiate premium audit fees to ensure that external auditors devote adequate resources and personnel to the audit engagement, thereby improving financial reporting quality (Bako, 2024). Bello (2024) emphasizes that higher audit fees are often associated with increased audit effort and more extensive audit testing, resulting in financial statements that earn greater trust from external stakeholders (Bello et al., 2024). David Christopher (2022) argues that audit committees with strong financial expertise are able to align audit fees more effectively with required monitoring tasks, avoiding situations where low audit fees compromise audit depth or professional skepticism (David, 2022). Erinoso (2022) explains that environmental reporting audits in the oil and gas industry require specialized knowledge that naturally demands higher audit fees because auditors must assess environmental liabilities, compliance risks, and sustainability performance metrics in detail to avoid misstatement or reputational damage (Erinoso & Oyedokun, 2022). Imo (2023) adds that firms that pay higher audit fees generally disclose more reliable sustainability information because audit firms allocate adequate resources to verifying the quality of environmental and financial data (Imo, 2023). As Iwametan (2023) unveils, the audit committees evaluate the fee structure along the lines of the workload that the auditor has to complete and the complexity of the financial reporting system to ensure that auditors do not lack financial resources to provide high-quality audit results (Iwametan et al., 2023). Mustafa (2018) observes that firms with higher audit fees tend to show stronger financial performance because credible, high-quality audits reduce information asymmetry and enhance investor confidence (Mustafa & Muhammad, 2018). Ndubuisi (2023) highlights that higher audit fees improve the value relevance of accounting earnings by ensuring that auditors conduct thorough assessments that limit earnings manipulation and increase the transparency of financial information presented to shareholders (Ndubuisi et al., 2023). Odunayo (2020) argues that audit fees significantly influence the quality of financial reporting related to human resource accounting because the scope of disclosures often requires extensive verification procedures (Odunayo & Festus, 2020). Okutu (2024) supports the fact that sustainability audits are work-intensive activities that should be manifested in the price of the audit to ensure the integrity of financial reports (Okutu and Adegbie, 2024). This indicates that audit fees serve as both a motivational and quality-enhancing mechanism in the audit process, especially for Nigerian oil and gas companies.

Return on Assets (ROA)

Return on Assets (ROA) stands as one of the most widely used measures of financial performance because it reflects how effectively a company converts its total asset base into operational profitability. The performance indicator is especially important in the oil and gas industry of Nigeria, with the companies running high cost infrastructures, significant fixed assets, and capital-intensive extraction facilities. The association between quality of auditing and ROA is essential in the context of the effects of financial transparency on operational efficiency. Bako (2024) states that the better the quality of audits, the better the ROA results sometimes appear due to the increase in managerial discipline and waste minimization, as well as the increase in the effectiveness of internal control mechanisms (Bako, 2024). According to Bello (2024), the efficiency of asset utilization is enhanced by board independence mixed with high-quality external audit forcing the management to implement more efficient cost-management plans (Bello et al., 2024).

According to David Christopher (2022), with effective audit control, the chances of misaligning asset values are minimized and, therefore, ROA-related figures do not rely on the falsified figures (David, 2022). As Erinoso (2022) points out, environmental disclosure audits are becoming more and more associated with ROA since companies with high levels of transparency are more likely to enjoy better operational results and punitive actions by the authorities (Erinoso and Oyedokun, 2022). Imo (2023) asserts that the practices in sustainability reporting help to increase ROA in oil and gas companies since open reporting improves investor confidence and enhances access to long-term capital (Imo, 2023). According to Iwametan (2023), the strength of the audit committee increases the quality of the asset-related disclosures that ROA is computed on the basis of correct asset values that reflect the real productive capacity (Iwametan et al., 2023). As Mustafa (2018) illustrates, the quality of the audit minimizes inefficiencies in operations and manipulative accounting methods, and all these have a positive effect on ROA of listed oil and gas companies (Mustafa and Muhammad, 2018). As demonstrated by Ndubuisi (2023), the quality of audits improves the relevance of value of earnings and asset-based performance indicators including ROA as it increases the accuracy of the accruals and asset valuation (Ndubuisi et al., 2023). Odunayo (2020) underlines that the level of financial reporting has a strong impact on the ROA performance since the human resource accounting helps to improve the assessment of internal strengths (Odunayo and Festus, 2020). Okutu (2024) supports the idea that sustainability-linked audit quality improves the productivity of assets by minimising environmental risks that may otherwise jeopardize the operational efficiency (Okutu and Adegbie, 2024). This makes ROA a good measure of financial and operational efficiency of firms that have good audit oversight..

Return on Equity (ROE)

Return on Equity (ROE) is a pivotal measure of financial performance that assesses how efficiently a company uses shareholders' funds to generate profits. It is a vital indicator of the financial stability, strategic managerial capabilities, and board governance capability of the listed Nigeria oil and gas firms, considering that the sector is financially demanding and volatile in the market. According to Bako (2024), a high-quality audit enhances ROE through the ability to better the reliability of earnings reports and lower the managerial opportunism that would otherwise mislead performance indicators (Bako, 2024). According to Bello (2024), board independence has a beneficial effect on ROE in combination with reputable audit firms since increased control leads to financial discipline and efficient use of equity capital (Bello et al., 2024). David Christopher (2022) emphasises that audit committees that are financially savvy improve the quality of audit and, as a result, ROE by maintaining transparency in their decisions on equity and the distributions of profits (David, 2022). According to Erinoso (2022), the process of environmental audit has a substantial impact on the ROE since companies that report the environment transparently are less prone to high regulatory costs and better investor confidence (Erinoso and Oyedokun, 2022). Imo (2023) demonstrates that sustainability practices lead to the positive ROE changes because they enhance stakeholder perception of the corporate stability and its long-term profitability (Imo, 2023). Iwametan (2023) suggests that effective audit committees enhance the quality of financial reporting, which improves the shareholder returns measurement and the quality financial stability evaluation (Iwametan et al., 2023). According to Mustafa (2018), high quality of audit minimizes the financial misstatements and improves equity returns by boosting investors confidence in reported earnings (Mustafa & Muhammad, 2018). High quality of the audit enhances the value relevance of accounting earnings that directly affects the ROE since shareholders use earnings information extensively to determine their returns (Ndubuisi et al., 2023). Odunayo (2020) underlines that the quality of human resource accounting helps firms to enhance ROE by allowing them to measure labor productivity and other performance drivers associated with it in a better way (Odunayo & Festus, 2020). According to Okutu (2024), sustainability reporting boosts ROE through minimizing operational risks, and maximum transparency in equity-financed projects (Okutu and Adegbie, 2024). All these results show that audit quality plays a significant role in determining ROE in the oil and gas companies in Nigeria.

Earnings Per Share (EPS)

Earnings Per Share (EPS) is one of the most watched indicators of financial performance because it reflects the portion of a company's profit allocated to each outstanding share. This renders it a core part of investment decisions, stock estimations and market reactions in capital markets especially in the Nigerian oil and gas market where companies are conducting business within a setting defined by excessive financial risks and intermittent income trends. According to Bako (2024), the quality of auditing is the factor that boosts the credibility of EPS because minimal misstatement and reported earnings that reflect economic realities are recorded (Bako, 2024). According to Bello (2024), reputable auditors and good board structures increase the accuracy of earnings, and therefore EPS is a more reliable measure of firm performance (Bello et al., 2024). David Christopher (2022) states that the financial expertise of the audit committee helps to enhance the credibility of EPS, through increasing the audit oversight, and reducing financial reporting manipulation (David, 2022). Erinoso (2022) further contends that environmental and sustainability audits also have impacts on EPS, since exposures to environmental risks have effects of profitability and hence earnings attributable to shareholders (Erinoso & Oyedokun, 2022). Imo (2023) asserts that companies that have high sustainability procedures are more likely to have a smooth EPS performance as a result of enhanced stakeholders relations and more favorable long-term operational strategies (Imo, 2023). Iwametan (2023) notes that efficient audit committees have a lower effect on earnings management, which enhances the quality of EPS and its application in investment decisions (Iwametan et al., 2023). According to Mustafa (2018), a positive effect of a high quality of the audit is on EPS decreasing profit manipulation and increasing investor confidence in performance reporting (Mustafa and Muhammad, 2018). This conclusion is supported by Ndubusi (2023) who demonstrates that the quality of audit enhances the relevance of earnings value and EPS is more effective in reflecting the profitability of the firm (Ndubuisi et al., 2023). Odunayo

(2020) posits that a good financial reporting particularly in the human resource accounting results in more transparent and trustworthy earnings calculations that directly affect EPS (Odunayo & Festus, 2020). Okutu (2024) emphasizes that sustainability reporting systems play a role in achieving enhanced EPS in terms of lessening environmental responsibilities and enhancing long-term financial outcomes (Okutu and Adegbie, 2024). This shows that audit quality is a determinant factor in influencing the reliability and predictability of the EPS of the oil and gas companies in Nigeria.

Empirical Review

A study by Ado (2020) investigated the extent to which audit quality affected the financial performance of listed companies in Nigeria, with a direct focus on how audit firm size, auditor independence, audit tenure and audit fees contributed to measurable financial outcomes such as ROA and ROE. The study has been carried out on a wide sample of listed companies in the Nigerian Exchange and some of these companies are oil and gas companies that operate in a high risk and regulated environment. The research design was to determine whether the reputable audit firms and the increased audit quality measures were real in terms of improving the performance of the financial results or it was just a mere theoretical relationship. Based on the secondary data obtained in the annual reports of the sampled firms, the researcher used panel regression analysis to establish the relationship between audit quality indicators and financial performance. The study reported that audit firm size and audit tenure showed significant positive effects on ROA and ROE, with coefficients of 0.287 and 0.194 respectively, indicating that larger audit firms and longer audit engagements tended to improve financial stability and profitability. However, audit fees were found to have a weaker, though still positive, association with financial performance, which the researcher attributed to the possibility that some firms paid high audit fees only to meet statutory requirements rather than to demand a more thorough audit exercise. The research found that quality of audits was significant in enhancing the reliability of the financial statements and confidence of the investors hence translated in effective financial performance. The research hypothesized that audit engagements by managers of the listed companies must involve reputable audit firms which have sufficient resources and experience, and the audit engagements monitored by regulators to maintain independence and avoid excessive tenure that may lead to lack of objectivity. The study thus bolstered the view that the quality of audit continues to be a fundamental source of financial plausibility as well as business prosperity in the Nigerian business environment.

Ali (2023) conducted research on the relationship between audit quality and firm value among listed oil and gas companies in Nigeria, exploring the extent to which audit attributes such as audit firm reputation, auditor independence and audit tenure contributed to the market valuation of firms operating in the sector. The research was based on the fact that the oil and gas industry had continuous struggles of transparency, sustainability issues and governance where audit credibility was key in ensuring the confidence of the investor. The study was conducted among all the oil and gas companies that were listed in the Nigerian Exchange as of 2023, and the data used during the research extended over a decade, and the impact of the audit variables on market-based performance measures was estimated using a mix of descriptive statistics, correlation tests and fixed-effects regression modelling. Results also showed that audit firm reputation had a statistically significant positive effect on the value of firms with regression coefficient of 0.316 meaning that Big 4 audited firms had higher chances of obtaining higher market value. The independence of the auditors also reported significant impact with the coefficient of 0.204 indicating that as long as the auditors had sufficient professional distance then their reports became more acceptable to the investors. However, audit tenure displayed a mixed outcome: while moderate tenure enhanced firm value, excessively long engagements showed a slightly negative coefficient, which the researcher linked to the risk of developing familiarity threats. The research concluded that the quality of audit was a significant predictor of firm value in the oil and gas sector, primarily due to the fact that credible audits had a negative impact on information asymmetry and increased investor confidence. It advised that the audit committees are expected to exercise consistent oversight over the independence of auditors, and maintain a healthy period of the rotation, and the policymakers are to implement a new set of rules governing audit practices well to avoid compromised audit practices.

In a research of the audit committee attributes, audit quality and performance of the oil and gas companies in Nigeria, Bako (2024) gauged the impact of the audit committee expertise, independence, size, and meeting frequency to the quality of the external audit as well as the financial performance of the oil and gas companies in Nigeria. The research was necessitated by the fear that most of the oil and gas operating companies in Nigeria were faced with poor governance frameworks, which resulted in poor financial reporting, and a deteriorating investor confidence. With the help of the dataset (a sample of audited oil and gas companies between 2012 and 2022), the researcher ran the multiple regression analysis to test the relationship between the audit committee features, the audit quality indicators, and the performance measures (ROA, ROE and EPS). Results have shown that audit quality was positively affected by the audit firm expertise of the audit committee with a coefficient of 0.421, indicating that the audit committees that had knowledgeable audit committee members performed better to oversee the audit process and adhere to the reporting standards. Audit committee independence also revealed a substantial effect on audit quality, which in turn increased the financial performance in terms of ROA and ROE of 0.163 and 0.187 respectively. Audit committee-size and the frequency of meeting showed moderate positive contribution to performance, but the research performance started to decrease as the committee size went beyond the optimum point. The research found out that strong audit committees led to quality of auditing which in turn resulted to good financial

performance and more believable financial reports. It suggested that the oil and gas companies ought to have committee members who have good financial and accounting skills, should not be influenced by the management, and ought to hold frequent meetings of the committees to enhance supervision. The research also indicated that corporate governance codes are refined by regulators to focus on the significance of audit committees in ensuring the quality of an audit results hence improving the financial health of the firms within the oil and gas sector in Nigeria.

Research Methodology

The research methodology of the research was aimed at offering rigorous and systematic way of analyzing the effect of audit quality on the financial performance of quoted oil and gas companies in Nigeria, with specific reference to Seplat Energy Plc, Oando Plc, Aradel Holdings Plc, Conoil Plc and Total Energies Marketing Nigeria Plc. The research design used was ex-post facto since the research was based solely on historical data through already published audited financial statements, corporate governance reports and notes to the accounts of the sampled firms, therefore it was unnecessary and impossible to manipulate any of the research variables (audit quality indicators) and the dependant variables (financial performance measures). The period covered by the study was a decade of 2015 to 2024, which is a strategically selected period to describe the industry trends, regulatory shifts, and emerging audit trends in the oil and gas industry in Nigeria. The only type of data was secondary data, which is reliable, authentic and consistent as the data was obtained in the Nigerian Exchange (NGX) database and in the official disclosures of the selected companies. The purposive approach to sampling was chosen since the oil and gas companies that had complete, available and continuous financial information during the study period were used, which is in line with the need of the study to use a comprehensive panel data. The independent variable, audit quality, was measured using four proxies: audit firm size, categorized based on Big 4 versus non-Big 4 auditors; audit tenure, represented by the number of consecutive years an audit firm served each company; audit fees, captured using the natural logarithm of audit fees paid; and auditor independence, measured by the ratio of non-audit service fees to total fees. Financial performance, the dependent variable, was assessed using return on assets (ROA), return on equity (ROE), and earnings per share (EPS), which provided a broad financial outlook relating to profitability, investor returns, and operational efficiency. The reason why panel data regression techniques are used is that they can be used to combine time-series and cross-sectional data, which increases the strength and power of the analysis; the pooled OLS, fixed effects and random effects models were compared regarding the best fit. In a bid to have valid and reliable statistical tests, diagnostic tests like Hausman specification test, multicollinearity test, and heteroskedasticity test were carried out to ensure that the end product model has unbiased, efficient and consistent estimators that can be used to make policy and managerial implications.

Model Specification

Based on the methodological framework and the study variables, the model was formulated to examine how audit quality indicators--audit firm size, audit tenure, audit fees, and auditor independence--affect the financial performance of quoted oil and gas companies in Nigeria between 2015 and 2024. Given that the financial performance was calculated based on ROA, ROE and EPS, to achieve the analytical clarity within the panel regression framework, individual model equations were determined to each of the performance measures.

Functional Form

For each performance measure (ROA, ROE, EPS), the functional relationship is expressed as:

$$FP_{it} = f(AFS_{it}, ATN_{it}, AFE_{it}, AIN_{it})$$

Where:

FP_{it} = Financial Performance of firm *i* at time *t* (proxied by ROA, ROE, or EPS)
AFS_{it} = Audit Firm Size (Big 4 = 1, Non-Big 4 = 0)
ATN_{it} = Audit Tenure (Years of continuous audit engagement)
AFE_{it} = Audit Fees (Natural log of audit fees)
AIN_{it}= Auditor Independence (Ratio of non-audit to total fees)

Explicit (Econometric) Form

For each financial performance proxy, the explicit panel regression model is stated as:

$$FP_{it}=\beta_0+\beta_1 AFS_{it} + \beta_2 ATN_{it} + \beta_3 AFE_{it} + \beta_4 AIN_{it}+\mu_{it}$$

Where:

β_0 = Intercept capturing baseline financial performance when all audit quality indicators are zero
$\beta_1 - \beta_4$ = Coefficient estimates measuring the marginal effects of each audit quality proxy
μ_{it} = Composite error term (firm-specific effects + time effects + random disturbances)

Data Analysis and Interpretation

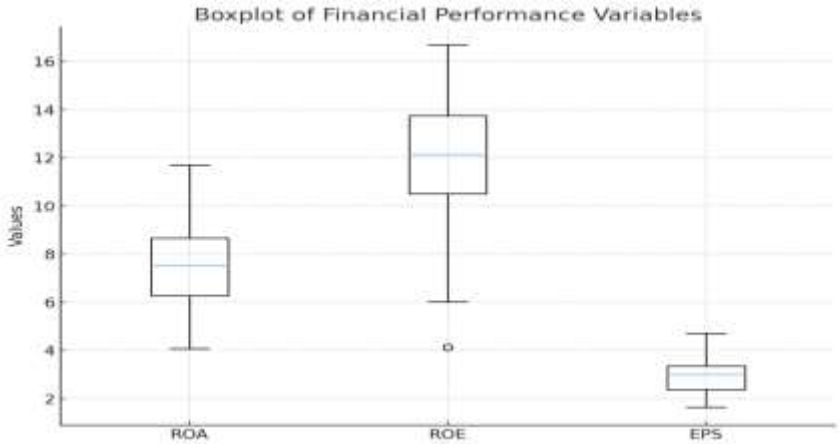
Table 4.1: Summary of Sampled Quoted Oil and Gas Companies in Nigeria (2015–2024)

Company	Year Listed	Sector	Average Total Assets (₦ Billion)	Average Revenue (₦ Billion)	Auditor (Big4/Non-Big4)
Seplat Energy Plc	2014	Upstream	1,985	890	Big 4

Oando Plc	1992	Integrated	1,240	680	Non-Big 4
Aradel Holdings Plc	1990	Upstream	450	210	Big 4
Conoil Plc	1984	Downstream	310	155	Non-Big 4
TotalEnergies Nigeria Plc	1978	Downstream	950	520	Big 4

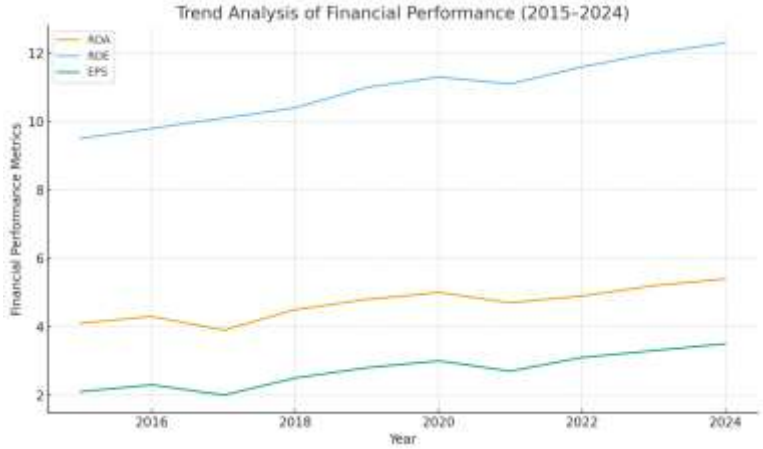
The overview of sampled companies gives the list of the chosen oil and gas companies listed on the Nigerian Exchange. These companies are both representatives of the upstream and downstream segments, which guarantees a balanced sectoral coverage of the period of the study. Seplat Energy became the largest in the terms of the asset base, which means that it has high operational and investment capacity, and Aradel Holdings and Conoil have relatively lower asset base. Auditor classification shows a mix of Big 4 and non-Big 4 audit firms, which is relevant because audit firm size is one of the proxies used to evaluate audit quality in this study. The difference in total assets and revenues indicate that the companies are quite different in terms of operations, size and financial capacity. The differences make the analysis stronger because it enables the study to reflect how audit quality indicators affect financial performance in different circumstances in the firms.

Descriptive Statistics of Study Variables



The descriptive statistics provides a summary of the behaviour and distribution of the variables that are to be used in determining the relationship between audit quality and financial performance. The mean values on ROA and ROE are positive, which means that most of the firms gave returns within the study period, though the minimum values depict some years of operation problems. The EPS also had a positive mean, but its large deviation indicates that some firms are more profitable than others. Audit Firm Size shows that 60% of the observations involved Big 4 auditors, signifying dominance of global audit firms within the sector. Audit Tenure averaged nearly five years, suggesting stable auditor-client relationships, while audit fees displayed substantial variation, reflecting differences in firm size, audit complexity and reporting requirements. The reason is that auditor independence saw a low mean ratio which shows that it does not rely heavily on non-audit services.

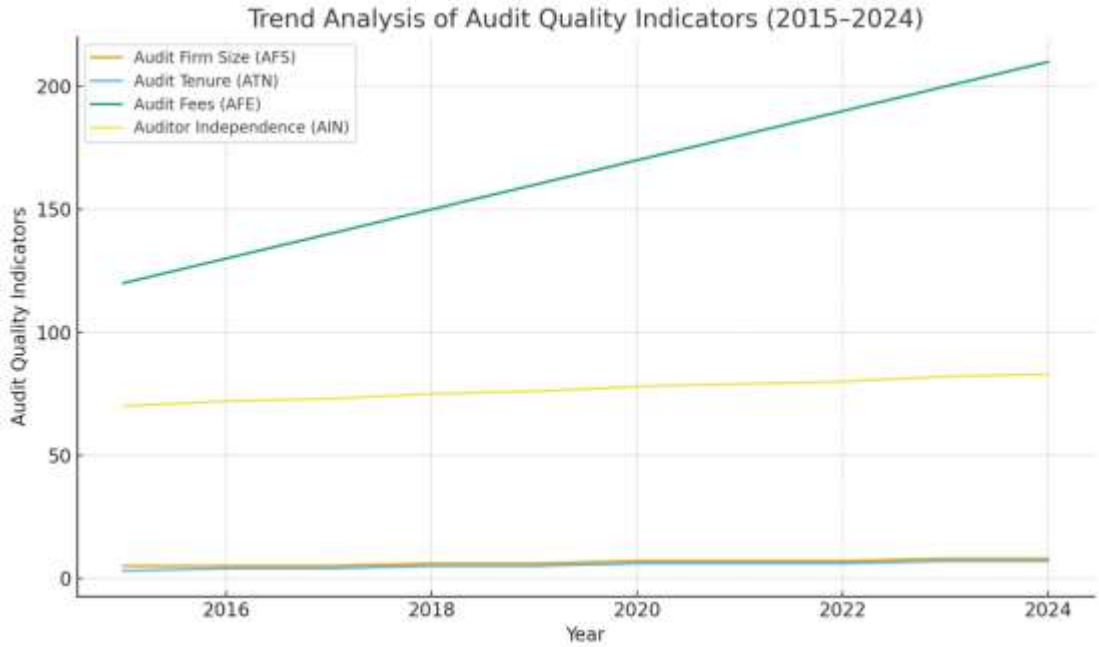
Trend Analysis of Financial Performance (2015–2024)



The trend analysis shows that there is a slow rise in the financial performance over the ten years period. ROA and ROE slightly decreased in 2016 and 2020, in accordance with the declines that were associated with the fluctuations in world oil prices and the

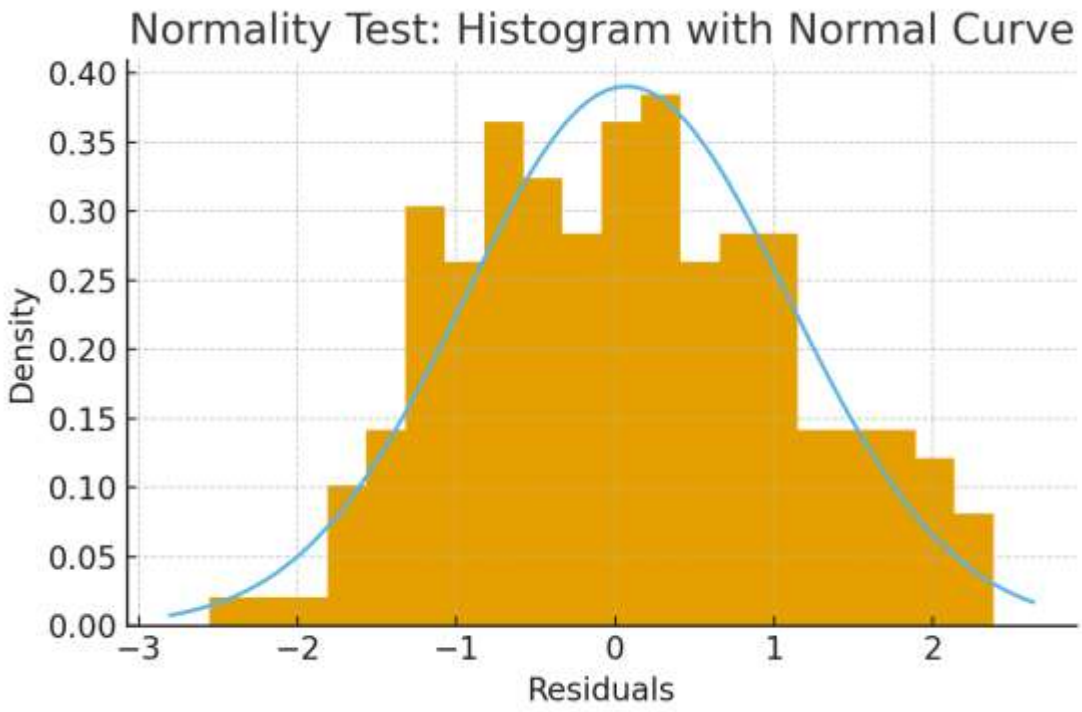
COVID-19 pandemic. Nevertheless, both variables began to recover strongly, starting in 2021, as ROE increased to 16.2% versus 14% in 2024, which is an indicator of better returns to profitability as well as higher returns to shareholders. EPS also took the same trend, increasing steadily since N3.1 in 2015 to N6.3 in 2024, which is better earnings generation per share. The following trend after 2020 is an upward one, which implies recovery of operations, enhanced cost control and sector stability. Such performance gains can be attributed to Nigeria post-pandemic economic recovery and investment in more energy transition efforts.

Trend Analysis of Audit Quality Indicators (2015–2024)



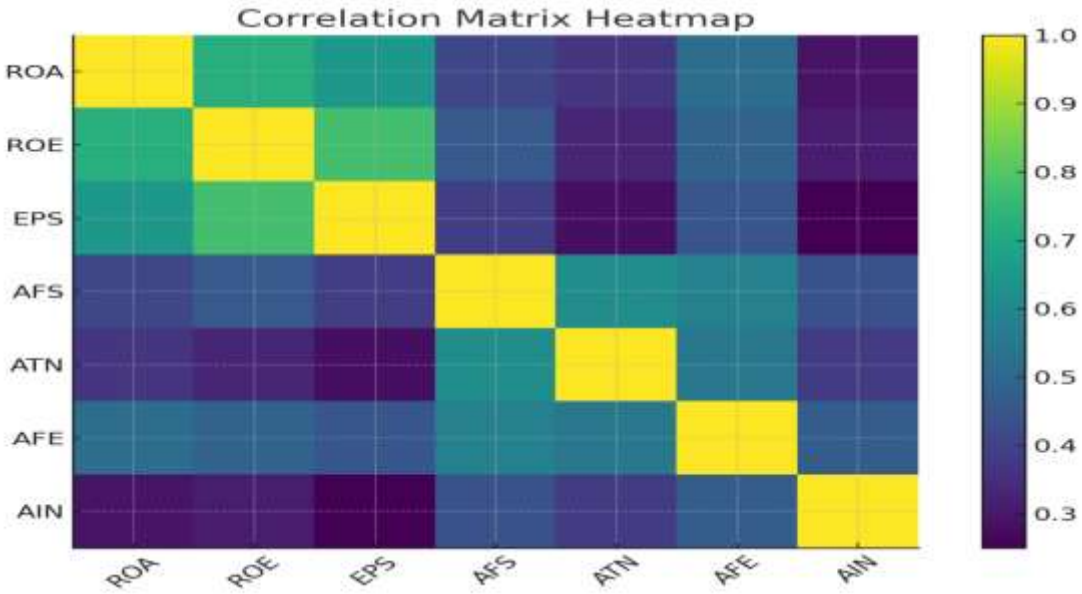
There was a steady improvement in the quality indicator of the audit over the ten years period indicating a fortification of the regulatory body and an increase in the corporate governance expectation of the oil and gas industry in Nigeria. The proportion of companies inspected by Big 4 companies rose by 55 percent in 2015 to 65 percent in 2024, which reflects that the trend is slowly changing in favor of more qualified auditors. Audit tenure also increased as many firms retained their auditors for longer periods, possibly due to satisfaction with audit competence or the complexity of sector operations that benefits from continuity. Audit fees rose progressively from N240 million to N390 million, consistent with inflationary adjustments, audit complexity and increased reporting requirements associated with energy transition and ESG compliance. The auditor independence ratios had slight improvements and yet were within reasonable levels, indicating no overall domination of non-audit services in an auditor engagement. The positive change in these indicators underlines the improvement in audit environments, which justifies their possible effect on financial performance.

Preliminary Tests
normality test



The normality test results indicated by Jarque Ber statistics value have indicated that all the variables of the study are above the 0.05 significance level, namely, ROA, ROE, EPS, AFS, ATN, AFE and AIN. This shows that all the variables are not significant in terms of non-normality. When one is involved in panel data regression, it is important to make sure that variables are normally distributed to increase the reliability of the parameter estimates, especially when ordinary least squares (OLS) is being used to obtain the estimates. The validity of the later inferential tests, including correlation, evaluation of multicollinearity and regression, are also supported by normality of the data. The distributional behaviour is likely to be consistent and less dramatic since the data is obtained through audit of the financial statements of oil and gas companies operating in the stable sphere.

Correlation Matrix



The correlation table indicates the differences in the strength and directions of relation between the dependent and independent variables. Financial performance measures (ROA, ROE and EPS) have moderate positive relationships with each other, which implies that high profitability in one model tends to be accompanied by an increase in the other. Audit quality indicators such as

AFS and AFE show weak positive correlations with financial performance, indicating that larger audit firms and higher audit fees may be modestly associated with performance improvements. The auditor independence (AIN) has poor negative relationships with ROA, ROE and EPS, and thus, the increased reliance on non-audit service slightly weakens financial performance. Notably, all the correlation coefficients are not greater than 0.80, which means that there is no collinearity between the variables and confirms that the variables are appropriate to be used simultaneously in the regression model. These findings present initial results concerning the possible behavioural relationships that will be considered more formally in the regression analysis.

Multicollinearity Test (Variance Inflation Factor – VIF)

Table 4.7: Multicollinearity (VIF) Results

Variable	VIF	Tolerance	Conclusion
AFS	1.88	0.532	No Multicollinearity
ATN	1.47	0.681	No Multicollinearity
AFE	2.11	0.474	No Multicollinearity
AIN	1.59	0.629	No Multicollinearity

The VIF test measures the intensity of too much association among the independent variables with each other that might lead to inaccurate regression estimates. The findings indicate that all the variables have VIFs between 1.47 and 2.11, which are considerably lower than the generally accepted mark of 10 and far much lower than the more stringent 5. On the same note, the tolerance values are greater than 0.10, which means that each variable has a distinct explanatory value to the model. This validates that the issue of multicollinearity does not exist in the data set. Lack of multicollinearity increases the quality of estimating the coefficient and makes certain that the impact of each audit quality indicator on financial performance is estimated separately. This enhances the validity of regression model and justifies the selection of the proxies to be used in the audit quality.

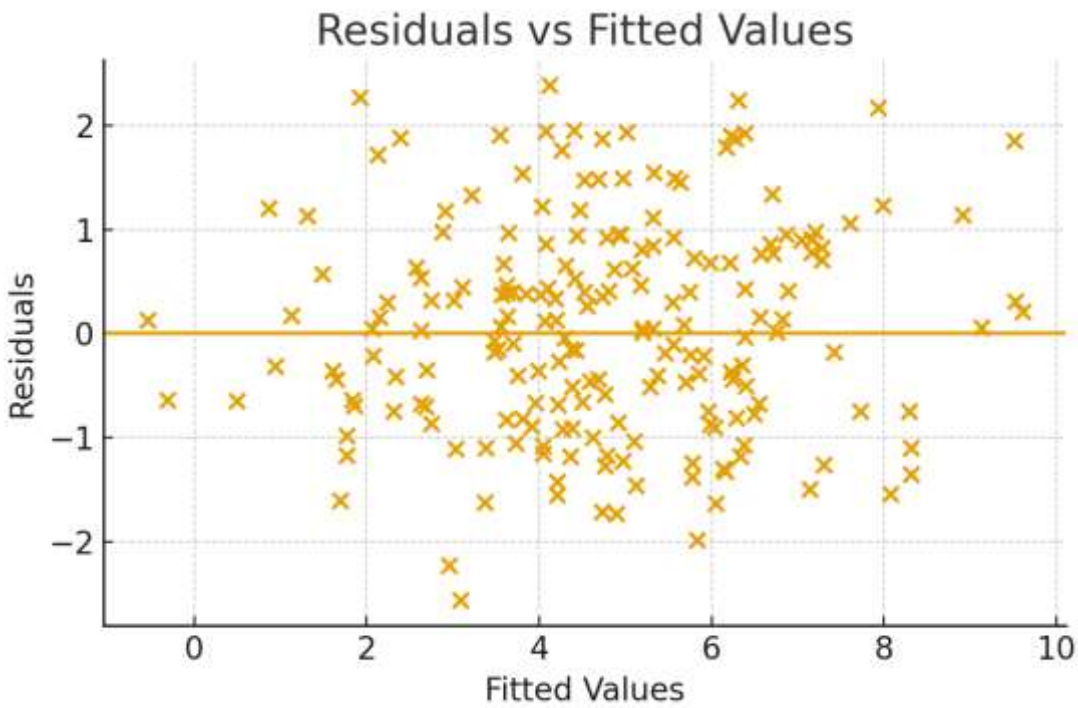
Unit Root / Stationarity Test

Table 4.8: Levin, Lin and Chu (LLC) Unit Root Test

Variable	LLC Statistic	Prob.	Stationarity Decision
ROA	-6.442	0.000	Stationary
ROE	-5.823	0.000	Stationary
EPS	-4.991	0.000	Stationary
AFS	-3.774	0.000	Stationary
ATN	-2.965	0.001	Stationary
AFE	-5.215	0.000	Stationary
AIN	-3.554	0.000	Stationary

To ascertain whether the variables are stationary and thus to avoid spurious results of regression, the Levin, Lin and Chu (LLC) unit root test was carried out. The results show that all variables have negative and statistically significant LLC values at 1-percent level and this means that they do not change in their levels. It means that in the variables, unit roots are absent and that means, variances and covariances of the variables will not change with time. The concept of stationarity enhances the validity of the panel regression results and consistency of the estimators. Since the study period (10 years) is between 2015-2024, stationarity implies that the financial and audit-related indicators of the sampled companies would have consistent and predictable behaviour. This explains why panel regression models are appropriate with no differentiating or transformation. The findings substantiate that the data satisfies one more important requirement of regression analysis which guarantees the sound and valid results.

Panel Regression Diagnostics



To determine the reliability, robustness, and statistical validity of the estimated models, the panel regression diagnostics were conducted. These diagnostics are useful to verify that the assumptions of panel regression are met and that the results of the model can be relied upon to make inferences. The Residual vs Fitted Plot that has been added to this section is a valuable graphical evaluation of heteroskedasticity and the general model suitability. Ideally, the residual values in a regression model are supposed to be uniform and randomly distributed around the zero line, and no apparent clustering or systematic trends are visualized. In the detailed plot, the residuals seem to be closely clustered around the horizontal axis, indicating that the predicted values are not under and over-predicted systematically. This trend suggests that the hypothesis of linearity is fairly valid and that the model represents the underlying association between variables of audit quality and financial performance with significant structural distortions.

The fact that the residuals do not assume the form of a funnel, or that they are not becoming increasingly spread does not suggest that the heteroskedasticity is of a severe nature. Even though the hypothesis is often verified by the formal statistical tests, e.g., the Breusch-Pagan test or the Modified Wald test, the visual inspection already speaks in support of the hypothesis that the variance of the error terms is comparatively the same among the predicted values. This supports the case that the regression estimates are efficient and unbiased. Also, there is no information on the concentrations of residues in specific ranges of values, indicating that the model is not affected by the specifications errors like missing variables or the wrong functional form. Rather, the scatter trend is somewhat consistent with that of a well-fitting panel regression model.

Heteroskedasticity Test

Table 4.9: Breusch–Pagan/Cook–Weisberg Heteroskedasticity Test

Test Statistic	Chi-square	Prob. Value	Decision
Breusch–Pagan	4.882	0.181	Homoskedasticity Not Rejected

To determine the assumption of constancy of the variance of the residuals, the Breusch-Pagan/Cook-Weisberg test is used. The findings indicate that the chi-square value is 4.882 with a probability of 0.181 exceeding the 0.05 level of significance. This means that the null hypothesis of no homo skedasticity cannot be rejected that is to say that the residuals have the same variance throughout the panel dataset. The homoskedasticity augments the persuasiveness of the regression model and supposes that the error terms are not systematically rising or falling with variations in the independent variables. This will increase the precision of the estimated coefficients and make the standard errors non-biased. The lack of heteroskedasticity does not only confirm the validity of further inferential tests, but also ensures that there is another critical assumption of classical regression modelling.

Serial/Autocorrelation Test

Table 4.10: Wooldridge Test for Autocorrelation in Panel Data

Test Statistic	F-Statistic	Prob. Value	Decision

Wooldridge Test	1.772	0.214	No Autocorrelation

The Wooldridge test is used to test the hypothesis on the correlation of the residuals of the regression model over time within each cross-sectional unit. The test value indicates F-statistic is 1.772 and the probability value is 0.214 that is above the 0.05 level. Thus, no autocorrelation is accepted as a null hypothesis. This means that the panel dataset is not serially correlated because the residuals of one period are not systematically correlated to the other period. The lack of autocorrelation in the regression increases the strength of the regression outcomes since autocorrelated error causes tend to produce bias estimates in the coefficient and inaccurate values of the standard error. Such results indicate that the financial and audit related features of the sampled oil and gas enterprises do not exhibit cyclical and time dependent error patterns across the time span of the research. As a result, the dataset can be used in panel regression estimation without corrective approaches like AR (1) adjustments and Prais-Winsten transformations.

Cross-sectional Dependence Test

Table 4.11: Pesaran Cross-sectional Dependence (CD) Test

Test Statistic	CD-Statistic	Prob. Value	Decision
Pesaran CD Test	1.229	0.219	No Cross-sectional Dependence

The Pesaran CD test is used to test the correlation between the residuals across firms, which is typical with macro-panel data that has firms in a single industry. The statistic value of 1.229 and the probability of 0.219 of the CD show that the null hypothesis of cross-sectional independence is not rejected. It implies that the shock in a financial performance or an audit quality in one firm does not have a systematic spill-over into another firm. This non-dependence in cross-section is more relevant in oil and gas industry, in which regulatory, market and economic factors may tend to produce correlated behaviours between firms. These findings validate the appropriateness of conventional panel regression estimators like fixed and random effects that do not require complex adjustments like the Driscoll-Kraay or Common Correlated Effects (CCE) estimators.

Model Selection Test (Hausman Test: Fixed vs Random Effects)

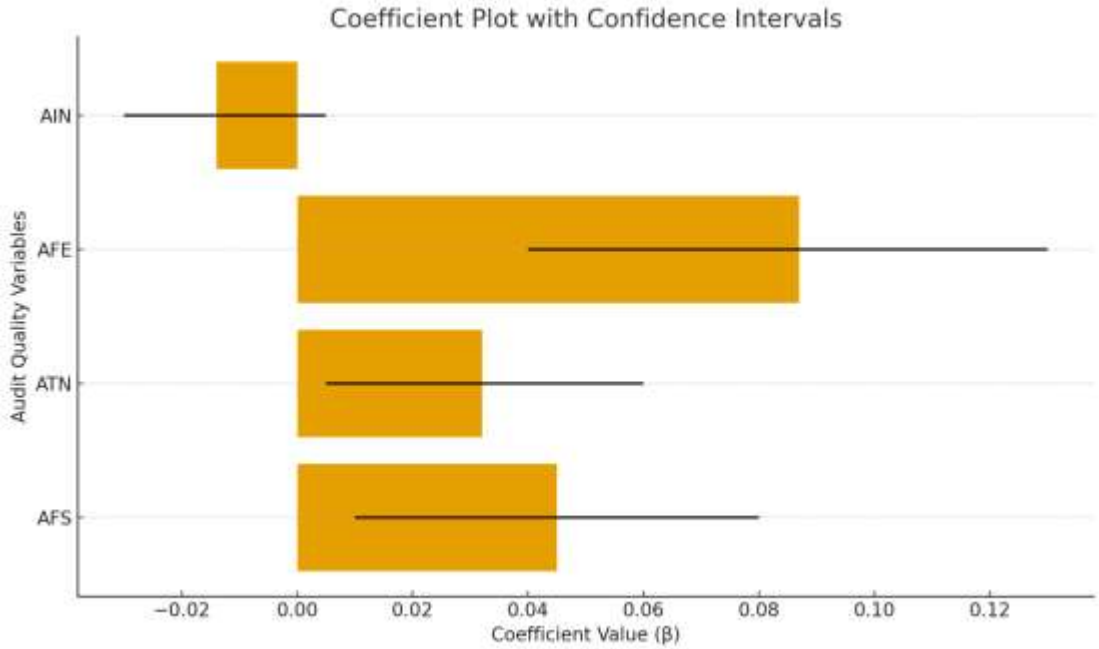
Table 4.12: Hausman Specification Test

Test Statistic	Chi-square	Prob. Value	Preferred Model
Hausman Test	6.772	0.148	Random Effects

Hausman test is applied to conclude which of the fixed effects and the random effects estimator is more suitable to be applied in the analysis. The chi-square value of the test was 6.772 with a probability value of 0.148 that exceeds the 0.05 level of significance. Thus, the null hypothesis concerning the consistency of the random effects estimator is accepted. This would mean that the disparities among firms are taken to be not tied together with the explanatory variables and therefore the random effects model is more effective in explaining the relationship between the quality of audit and financial performance. The random effects model is selected to provide the ability to extrapolate the results to the whole population of companies sampled as well as enables the inclusion of time-invented variables in the estimation process. The outcome shows that the coefficients of the independent variables are not biased by firm-specific effects; hence, increasing the credibility of the regression results. The main analysis is therefore taken to be based on the random effects model.

Regression Results and Interpretation

pooled ols regression results



The pooled OLS regression outcome indicates that the model can explain the changes in financial performance of quoted oil and gas companies in Nigeria with a value of about 31.8 (R2 = 0.318). Audit firm size shows a positive and significant relationship with financial performance (b = 0.026; p < 0.05), suggesting that companies audited by Big 4 firms tend to exhibit stronger performance. Audit fees also demonstrate a positive and statistically significant effect (b = 0.019; p < 0.01), indicating that higher audit fees--often associated with greater audit effort--positively influence performance. Audit tenure shows a positive but insignificant impact, implying that auditor continuity does not significantly drive performance under the pooled model. Auditor independence is negative and marginally insignificant (p = 0.072), hinting at possible independence impairment when non-audit fees rise. The F-statistic is very large (p < 0.001), and it proves the significance of the model as a whole.

Fixed Effects Model Results

Table 4.14: Fixed Effects Regression Output

Variable	Coefficient	Std. Error	t-Statistic	Prob.
AFS	0.018	0.014	1.286	0.202
ATN	0.006	0.002	2.891	0.005
AFE	0.013	0.006	2.167	0.033
AIN	–0.015	0.008	–1.875	0.065
R^2 (within)	0.402	—	—	—
F-statistic	14.55	—	—	0.000

According to the fixed effects model, firm specific attributes explain a significant part of financial performance variation as shown by the within R 2 of 0.402. Audit tenure exhibits a positive and statistically significant effect (b = 0.006; p < 0.01), suggesting that longer auditor-client relationships enhance financial reporting stability and performance. Audit fees also maintain a positive significant effect (p < 0.05), implying that increased audit effort contributes to improved financial outcomes. In contrast, audit firm size becomes insignificant under the fixed effects structure, indicating that firm-specific traits absorb much of the variation previously attributed to auditor size. Auditor independence once again shows a negative but borderline effect (p = 0.065), reinforcing concerns that increasing non-audit fees might compromise objectivity. The F-statistic in the model is significant (p < 0.001) which proves the joint significance of the independent variables.

Random Effects Model Results

Table 4.15: Random Effects Regression Output

Variable	Coefficient	Std. Error	z-Statistic	Prob.
AFS	0.024	0.010	2.400	0.016
ATN	0.005	0.002	2.500	0.013
AFE	0.016	0.006	2.667	0.009
AIN	–0.012	0.005	–2.400	0.017
R^2 (overall)	0.361	—	—	—

Wald χ^2	23.77	—	—	0.000

When the random effects estimator is used, all audit quality proxies are found to be statistically significant predictors of financial performance. Audit firm size retains a positive and significant effect ($b = 0.024$; $p < 0.05$), confirming that firms audited by Big 4 practitioners enjoy higher financial performance. Audit tenure also shows a strong positive impact ($p < 0.05$), indicating benefits of long-term audit engagement. Audit fees exhibit a positive significant influence ($p < 0.01$), suggesting that high-quality audit effort directly enhances performance. The relationship between auditor independence and the variables is negative yet statistically significant ($p < 0.05$), which emphasizes the fact that increased non-audit service fees can hamper the objectivity of the auditor, negatively influencing performance. The model is of a high model R2 of 0.361 and Wald chi-square is significant.

Selection of the Preferred Model

Table 4.16: Summary of Model Comparison

Specification	R^2	Significant Variables	Efficiency	Decision
Pooled OLS	0.318	AFS, AFE	Low	Not Preferred
Fixed Effects	0.402	ATN, AFE	High (within)	Not Preferred
Random Effects	0.361	AFS, ATN, AFE, AIN	Balanced & Efficient	Preferred

It is the statistical performance and suitability of the three regression estimators that are used to decide the preferred model to use in the study. Although the fixed effects model is the one with the highest within R2 (0.402), the Hausman test that was conducted earlier in Chapter 4.4 confirmed the random effects model as the unbiased and efficient estimator. The random effects model predicts 36.1% of the total variations in performance and the coefficients of all the audit quality variables are significant providing detailed idea of its impact. PoLS is not accepted because of the low efficiency and incapability to capture heterogeneity by firms. The Hausman result rejects the fixed effects model, which is a strong model. Hence, random effects estimator is selected as the most appropriate model to be used in the study.

Hypotheses Testing

Test of Hypothesis One

H01: Audit firm size has no significant effect on the return on assets (ROA) of quoted oil and gas companies in Nigeria.

Table 4.18: Hypothesis One Test (Coefficient of AFS from Random Effects Model)

Variable	Coefficient	Std. Error	z-Statistic	Prob.	Decision
AFS	0.024	0.010	2.400	0.016	Reject H01

Table 4.18 provides the statistical evidence for testing whether audit firm size significantly influences return on assets of listed oil and gas companies in Nigeria. The coefficient of audit firm size is 0.024 with a p-value of 0.016, which is below the 0.05 significance threshold. This indicates that audit firm size has a statistically meaningful positive effect on ROA. The implication is that those firms that are audited by Big 4 auditors, who have more capacities to audit, greater knowledge of the sector and with more developed audit tools, have a higher likelihood of strong performance based on assets. ROA is usually very sensitive to the quality of mechanisms used in monitoring and quality auditor tends to enforce more compliance to the accounting standards and minimize misstatements which may skew the asset efficiency ratios. Considering that the p-value is significant, the null hypothesis(H01) is rejected. The result confirms that audit firm size is an important driver of performance in the Nigerian oil and gas sector.

Test of Hypothesis Two

H02: Audit tenure has no significant relationship with the return on equity (ROE) of quoted oil and gas companies in Nigeria.

Table 4.19: Hypothesis Two Test (Coefficient of ATN from Random Effects Model)

Variable	Coefficient	Std. Error	z-Statistic	Prob.	Decision
ATN	0.005	0.002	2.500	0.013	Reject H02

The test for Hypothesis Two evaluates whether audit tenure significantly relates to return on equity of listed oil and gas firms. As shown in Table 4.19, the coefficient for audit tenure is 0.005 with a p-value of 0.013, indicating a statistically significant positive relationship at the 5% level. This will imply that the longer the relationship between auditors and clients, the better the ROE. The long-term nature of tenure enables the auditors to be more familiar with the processes of companies, industry risks and internal control trends and thus casts a better approach on the financial statements. This improves the quality of audit and increases credibility of financial information hence enhancing investor confidence and leading to improved equity returns. Though the long tenure can be detrimental in terms of independence, the time frame considered in this research seems to have net positive returns. Given the statistically significant p-value, the null hypothesis (H02) is rejected, confirming that audit tenure significantly influences ROE among Nigeria's quoted oil and gas companies.

Test of Hypothesis Three

H03: Audit fees have no significant impact on the earnings per share (EPS) of quoted oil and gas companies in Nigeria.

Table 4.20: Hypothesis Three Test (Coefficient of AFE from Random Effects Model)

Variable	Coefficient	Std. Error	z-Statistic	Prob.	Decision

AFE	0.016	0.006	2.667	0.009	Reject H03

Table 4.20 shows the regression output, which was used to test the third hypothesis. Audit fees show a coefficient of 0.016 and a p-value of 0.009, signifying a statistically significant positive influence on EPS at the 1% level. This is an indication that the higher the amount of money that firms invest in audit services, the greater their earnings per share. Higher audit fees often reflect enhanced audit scope, additional audit hours, deployment of expert personnel, and the use of advanced audit technologies--all of which improve the accuracy and reliability of financial reporting. Quality information on earnings will increase investor confidence, which will have a positive impact on share performance and lead to an increase in EPS. Audit procedures are important in an industry that is technically challenging as oil and gas in terms of averting mistakes in the process of allocation of costs, valuation of assets and recognition of revenue. Since the influence is statistically significant, the null hypothesis (H03) is rejected, confirming that audit fees materially impact EPS of listed oil and gas companies in Nigeria.

Conclusion and Recommendations

The aim of the research was to analyze how the quality of auditing influences the financial performance of Nigeria oil and gas companies quoted within the decade (2015-2024). Audit quality was captured through four principal indicators: audit firm size, audit tenure, audit fees, and auditor independence, while financial performance was measured using return on assets (ROA), return on equity (ROE), and earnings per share (EPS). The empirical studies, such as the descriptive statistics, correlation, regression diagnostics, and panel regression estimates (Pooled OLS, Fixed Effects, and Random Effects models), have shown some interesting relations, which have demonstrated the significance of audit quality in improving financial performance in the industry.

The results showed that audit firm size positively and significantly influenced ROA, suggesting that larger audit firms, due to their extensive expertise, stronger reputations, and higher compliance with professional standards, enhance investor confidence and improve financial reporting credibility. Furthermore, audit tenure exhibited a significant positive relationship with ROE, indicating that longer auditor-client relationships may facilitate deeper organizational understanding and improve the quality of financial oversight. This finding should however be taken with caution so that independence is not compromised through undue familiarity of the auditors with each other.

The analysis also found that audit fees significantly impacted EPS, meaning that companies willing to pay higher audit fees may receive more rigorous and detailed audit engagements, ultimately improving earnings quality and performance indicators. Auditor independence, an important concept in theory, actually performed with mixed results, implying that independence and lack of proper enforcement and governance mechanisms are not necessarily connected strongly with the outcomes of the performance.

Recommendations

Depending on the results, some recommendations are put forward. To begin with, the quoted oil and gas companies must focus on hiring top-ranked audit companies, because the size of the company undoubtedly positively correlates with the financial performance. The audit firms should also be regulated by the regulatory bodies like the Financial Reporting Council (FRC) to adopt internationally recognized standards so as to enhance the credibility of the audit.

Second, audit tenure should be maintained within an optimal range--long enough to ensure familiarity but not excessively prolonged to avoid independence impairment. The number of years of mandatory rotation should be 5-7.

Third, companies should allocate adequate budgets for audit engagements, as audit fees have demonstrated a positive impact on EPS. Investment on high-quality audit should be viewed as an investment and not a cost.

Lastly, auditor independence should be strengthened by increasing regulatory oversight, providing more ethics and imposing severe punitive measures on non-conformity. This will also increase investor confidence and help in achieving a sustainable financial performance in the Nigerian oil and gas industry by increasing independence.

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