

Sustainability Disclosure and financial Performance of Quoted oil and Gas Companies in Nigeria

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Abstract: The inconsistent empirical evidence on whether sustainability disclosure enhances financial performance, particularly in environmentally sensitive sectors of emerging economies, remains unresolved. This study examined the effect of environmental, economic, governance, and social sustainability disclosures on the financial performance of quoted oil and gas companies in Nigeria. The study adopted an ex-post facto research design and employed panel data analysis covering the selected firms over the study period. Data were sourced from published annual reports and analyzed using descriptive statistics, correlation analysis, and panel regression techniques. The Hausman specification test guided the choice of the random effects model, while diagnostic tests including Variance Inflation Factor (VIF) and Breusch–Pagan test were conducted to ensure model robustness. The findings revealed that environmental sustainability disclosure, economic sustainability disclosure, governance sustainability disclosure, and social sustainability disclosure did not exert statistically significant effects on Return on Assets (ROA). The results suggest that sustainability disclosure practices in the Nigerian oil and gas sector do not significantly influence short-term accounting-based financial performance. The study concludes that sustainability disclosure in the sector appears to be driven more by legitimacy and compliance considerations than by immediate profitability motives. It recommends stronger regulatory frameworks, improved quality and depth of sustainability reporting, and strategic integration of sustainability initiatives into corporate decision-making processes to enhance long-term value creation.

Keywords: Sustainability disclosure, Environmental disclosure, Governance disclosure, Social disclosure, Financial performance, Oil and gas sector, Nigeria.

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Introduction

Background to the Study

Financial performance remains a central concern for corporate stakeholders, including investors, regulators, and managers. Traditionally, financial performance has been measured using accounting metrics such as Return on Assets (ROA), which reflects how efficiently a firm utilises its total assets to generate profit (Turner, 2020). In recent decades, however, the concept of firm performance has extended beyond profit alone to incorporate broader sustainability considerations due to increasing stakeholder expectations and regulatory requirements.

Globally, sustainability disclosure has gained prominence as firms disclose non-financial information relating to environmental, social, and governance (ESG) activities alongside traditional financial results. Sustainability reporting frameworks such as the Global Reporting Initiative (GRI) and integrated reporting standards have become widely adopted, reflecting the growing emphasis on corporate transparency and accountability (Sandu, 2023). Research across developed and emerging markets has explored whether sustainability disclosures influence financial performance, with mixed empirical evidence. Some studies find that comprehensive sustainability reporting enhances firm value and performance by reducing information asymmetry and strengthening stakeholder trust (Albitar et al., 2020; Msomi, et al (2025). Other research suggests that sustainability reporting has an

insignificant or even adverse impact on short-term accounting performance, highlighting the complexity of the ESG–performance relationship (Adeola & Doorasamy, 2025). These mixed findings underline the evolving nature of sustainability reporting and the need for context-specific investigation.

In the context of Africa, sustainability reporting is increasingly recognised as a tool for improving corporate governance, investor confidence, and accountability. Emerging evidence from sub-Saharan Africa indicates that sustainability disclosure can have a positive relationship with financial performance, particularly when supportive governance mechanisms, such as board diversity and institutional ownership, are present (Anifowose, 2025). However, others find that the quality and extent of ESG disclosures vary widely across African firms due to weak enforcement frameworks and varying levels of stakeholder pressure, leading to inconsistencies in the reported impact on performance outcomes (Yusuf, Mokoena, & Mensah, 2026). As such, the sustainability disclosure–performance nexus remains underexplored in African capital markets.

In Nigeria, a leading emerging market in Africa, the practice of sustainability disclosure has grown steadily but remains largely voluntary and uneven across industries. A survey of top Nigerian firms shows that an increasing number include sustainability information in annual reports, though the depth and



quality of disclosure are limited, especially with regards to quantifying financial implications of sustainability risks and opportunities (KPMG Nigeria, 2024). Empirical studies on Nigerian firms present divergent results regarding ESG disclosure and financial performance. For instance, some studies report no significant effect of environmental and social disclosures on profitability (Ogbu et al., 2025; Nwankwo, 2023), while others find that specific dimensions like environmental disclosure may positively relate to financial outcomes (Aminu *et al* (2022). These inconsistencies may stem from differences in industry contexts, measurement of sustainability disclosure, and the choice of financial performance proxies.

Specifically in the oil and gas sector, where environmental and social impacts are substantial due to the nature of operations, sustainability disclosure practices are increasingly important for managing stakeholder expectations and regulatory compliance. Studies focusing on the Nigerian oil and gas industry suggest that while sustainability reporting is recognised as relevant, its immediate impact on accounting-based financial performance such as ROA is not always statistically significant (Tyokoso et al., 2020; Ibrahim et al., 2021). This underscores the need for further empirical investigation to clarify the extent to which sustainability disclosure affects financial performance in this sector.

Against this backdrop, the present study examines the effect of sustainability disclosure—disaggregated into environmental, economic, governance, and social dimensions—on the return on assets (ROA) of quoted oil and gas companies in Nigeria. This research addresses gaps in the literature regarding the contextual validity of sustainability–performance relationships in emerging markets, particularly in resource-intensive industries where stakeholder expectations and regulatory scrutiny are high

Statement of Problem

Financial performance remains a central measure of corporate success, particularly in capital-intensive and environmentally sensitive industries such as oil and gas. Indicators such as Return on Assets (ROA) are widely used to evaluate how efficiently firms utilize their asset base to generate earnings and sustain operations. However, the increasing global emphasis on environmental protection, social responsibility, and sound corporate governance has expanded the criteria by which firms are assessed. Beyond traditional profitability metrics, stakeholders now expect organizations to demonstrate transparency and accountability through sustainability disclosure. As a result, environmental, social, governance, and broader sustainability reporting practices have become integral components of corporate communication in both developed and emerging economies.

Globally, sustainability disclosure has been institutionalized through frameworks such as the Global Reporting Initiative (GRI), Integrated Reporting (<IR>), and more recently, IFRS Sustainability Standards. A substantial body of empirical research has examined whether sustainability disclosure enhances financial performance. Some global studies suggest that sustainability reporting reduces information asymmetry, lowers capital costs, strengthens stakeholder trust, and ultimately improves firm value (Friede, Busch, & Bassen, 2015; Albitar et al., 2020). Conversely, other studies report insignificant or inconsistent relationships between sustainability disclosure and accounting-based financial performance measures such as ROA (Atan et al., 2018; Adeola & Doorasamy, 2025). These conflicting findings

reveal that the relationship between sustainability disclosure and financial performance is far from settled and may depend on institutional, regulatory, and market conditions.

The theoretical underpinnings of this relationship further highlight this ambiguity. Stakeholder theory posits that firms that respond effectively to stakeholder demands through transparent sustainability reporting are more likely to achieve superior financial outcomes due to enhanced reputation and stakeholder loyalty. In contrast, legitimacy theory argues that sustainability disclosure is often a strategic response aimed at maintaining societal approval and regulatory acceptance, rather than a direct mechanism for profit maximization (Deegan, 2019). The divergence between these perspectives creates a theoretical gap, particularly in emerging markets where institutional structures and enforcement mechanisms differ from those of developed economies. Empirical evidence has yet to conclusively determine whether sustainability disclosure in such contexts generates measurable economic benefits or primarily serves symbolic and compliance purposes.

Within Africa, sustainability reporting practices are evolving but remain uneven across countries and industries. Institutional constraints, regulatory inconsistencies, and varying levels of stakeholder activism influence the quality and extent of disclosure. Although some African studies report positive associations between ESG disclosure and firm performance, others indicate weak or insignificant effects, suggesting that sustainability disclosure may not yet be fully integrated into value creation processes across the continent (Yusuf, Mokoena, & Mensah, 2026). Moreover, many African studies treat sustainability disclosure as a composite index, thereby overlooking the distinct effects of environmental, economic, governance, and social components. This lack of disaggregated analysis limits understanding of which specific dimensions of sustainability disclosure may influence financial outcomes.

In Nigeria, sustainability disclosure has gained increasing attention, particularly in the oil and gas sector, which operates under significant environmental and social scrutiny. The sector's activities have profound environmental implications, including oil spills, gas flaring, and community displacement, making sustainability disclosure both a regulatory and reputational necessity. Despite this, sustainability reporting in Nigeria remains largely voluntary and varies considerably in depth and quality (KPMG Nigeria, 2024). Empirical studies in the Nigerian context present inconsistent findings. Some report positive effects of environmental or governance disclosures on financial indicators, while others find insignificant or negative relationships (Nwankwo, 2023; Oguriki & Boubai, 2025). These inconsistencies point to unresolved empirical and contextual gaps, particularly regarding the use of panel data approaches and industry-specific analysis.

Furthermore, much of the existing Nigerian literature either relies on cross-sectional designs, aggregates sustainability dimensions into a single index, or employs financial performance measures other than ROA without focusing specifically on the oil and gas industry. Given the capital intensity and regulatory exposure of this sector, the relationship between sustainability disclosure and asset utilization efficiency warrants focused investigation. The absence of clear empirical evidence on whether environmental, economic, governance, and social sustainability disclosures significantly influence ROA limits the ability of

managers, investors, and policymakers to make informed decisions. Practically, firms may view sustainability disclosure as a compliance burden rather than a strategic investment if its financial implications remain unclear. Theoretically, the persistent inconsistency in findings leaves unresolved whether stakeholder value creation or legitimacy-seeking behavior better explains sustainability reporting practices in Nigeria's oil and gas sector.

Consequently, there is a need for a comprehensive panel-based examination of the effect of disaggregated sustainability disclosure dimensions on the financial performance of quoted oil and gas companies in Nigeria. Addressing this gap will contribute to clarifying the sustainability–performance nexus within an emerging economy context and provide empirical evidence capable of informing corporate strategy, regulatory policy, and theoretical development.

Objectives of the study

The broad objective of the study is to analyse the effect of Sustainability Disclosure on the financial Performance of Quoted oil and Gas Companies in Nigeria. The specific objectives are to:

1. evaluate the effect of Environmental Sustainability Disclosure on return of assets of quoted oil and gas companies in Nigeria;
2. investigate the effect of Economic Sustainability Disclosure on return of assets of quoted oil and gas companies in Nigeria;
3. analyze the effect of Governance Sustainability Disclosure on return of assets of quoted oil and gas companies in Nigeria; and
4. examine the effect of Social Sustainability Disclosure on return of assets of quoted oil and gas companies in Nigeria.

Research Hypotheses

The following research hypotheses stated in null forms are formulated to achieve the objectives of the study

- H_{01} There is no significant effect of Environmental Sustainability Disclosure on return of assets of quoted oil and gas companies in Nigeria
- H_{02} There is no significant effect of Economic Sustainability Disclosure on return of assets of quoted oil and gas companies in Nigeria
- H_{03} There is no significant effect of Governance Sustainability Disclosure on return of assets of quoted oil and gas companies in Nigeria
- H_{04} There is no significant effect of Social Sustainability Disclosure on return of assets of quoted oil and gas companies in Nigeria

Significance of the Study

This study is significant both theoretically and practically as it contributes to the ongoing debate on the relationship between sustainability disclosure and financial performance, particularly within the context of quoted oil and gas companies in Nigeria.

From a theoretical perspective, the study contributes to the sustainability–performance literature by providing empirical evidence from an emerging economy where institutional structures,

regulatory enforcement, and stakeholder pressures differ from those in developed markets. Much of the existing empirical evidence on the relationship between sustainability disclosure and financial performance is concentrated in advanced economies, with mixed findings (Friede, Busch, & Bassen, 2015; Albitar et al., 2020). By focusing on Nigeria's oil and gas sector and disaggregating sustainability disclosure into environmental, economic, governance, and social dimensions, the study deepens understanding of how each component influences accounting-based performance measured by Return on Assets. This disaggregated approach advances the literature beyond composite ESG indices and provides more nuanced insights into the sustainability–performance nexus.

The study also contributes to the theoretical discourse between stakeholder theory and legitimacy theory. Stakeholder theory suggests that transparent sustainability disclosure enhances firm performance through improved stakeholder relationships, while legitimacy theory posits that such disclosures may be symbolic and aimed at securing societal approval rather than generating direct financial benefits (Deegan, 2019). By empirically examining the relationship within a highly regulated and environmentally sensitive sector, the study provides evidence that may support, refine, or challenge these theoretical perspectives in the Nigerian context. In doing so, it strengthens the theoretical foundations of sustainability accounting research in emerging markets.

From a practical standpoint, the findings of this study are expected to be valuable to corporate managers, investors, regulators, and policymakers. For corporate managers in the oil and gas sector, the study provides evidence on whether sustainability disclosure practices translate into measurable financial benefits. If sustainability disclosure is shown to positively influence ROA, it reinforces the view that sustainability reporting is not merely a compliance requirement but a strategic tool for enhancing asset utilization efficiency and long-term profitability. Conversely, if the relationship is weak or insignificant, managers may reconsider the structure, depth, and integration of sustainability initiatives into core business strategy.

For investors and financial analysts, the study provides empirical insights into whether sustainability disclosures contain value-relevant information that can inform investment decisions. In an environment where ESG considerations increasingly influence capital allocation globally, understanding the financial implications of sustainability reporting within Nigeria's oil and gas sector enhances investment evaluation and risk assessment processes.

For regulators and policymakers, particularly in Nigeria, the study offers evidence that can guide the development and enforcement of sustainability reporting standards. As Nigeria continues aligning with global sustainability frameworks, empirical findings on the financial implications of sustainability disclosure can inform regulatory reforms and policy interventions aimed at strengthening corporate transparency and accountability.

Furthermore, the study contributes to industry-specific knowledge by focusing on the oil and gas sector, which plays a critical role in Nigeria's economy and faces substantial environmental and social scrutiny. By providing sector-specific evidence, the study enhances understanding of sustainability disclosure within a high-impact industry where environmental accountability and financial performance are closely intertwined.

Overall, this study bridges empirical, theoretical, and contextual gaps in the literature and provides relevant insights for academia, industry practitioners, investors, and policymakers, thereby advancing both knowledge and practice in sustainability accounting and corporate performance research.

Scope of the Study

This study examines the corporate governance characteristics of quoted Deposit Money Banks in Nigeria, with specific focus on board size, board gender diversity, and board independence over the period 2012 to 2024. The geographical scope is limited to Nigeria and covers only deposit money banks listed on the Nigerian Exchange Group (NGX) within the study period, including those that were listed for part of the period due to mergers or restructuring. The time frame is selected to capture governance trends before and after key regulatory developments, particularly the introduction of the Nigerian Code of Corporate Governance (2018),

Review of Related Literature

Conceptual Review

The conceptual review of this study is anchored on the relationship between sustainability disclosure and financial performance, with specific emphasis on the effect of environmental, economic, governance, and social sustainability disclosures on Return on Assets (ROA) of quoted oil and gas companies in Nigeria. The review clarifies the key concepts underpinning the study and establishes the expected relationships among the variables.

Financial performance represents the dependent variable of the study and refers to the ability of a firm to generate returns from its resources and operations. It is commonly measured using accounting-based indicators such as Return on Assets (ROA), Return on Equity (ROE), and net profit margin. ROA, which is the ratio of net income to total assets, measures how efficiently management utilizes company assets to generate earnings (Wooldridge, 2016). In capital-intensive industries such as oil and gas, ROA is particularly relevant because it reflects operational efficiency and asset productivity. Financial performance remains a central indicator of corporate sustainability and long-term viability, especially in industries subject to environmental and regulatory scrutiny.

Sustainability disclosure refers to the communication of information regarding a firm's environmental, social, economic, and governance activities, policies, and impacts. It is often guided by internationally recognized frameworks such as the Global Reporting Initiative (GRI), Integrated Reporting (<IR>), and more recently, IFRS Sustainability Standards. Sustainability disclosure enhances transparency and reduces information asymmetry between management and stakeholders (Albitar et al., 2020). The literature frequently conceptualizes sustainability disclosure within the Environmental, Social, and Governance (ESG) framework; however, this study adopts a disaggregated approach by examining environmental, economic, governance, and social dimensions separately.

Environmental Sustainability Disclosure (ESD) refers to the reporting of corporate activities related to environmental protection, including pollution control, waste management, carbon emissions, energy efficiency, and environmental compliance. In the

oil and gas industry, environmental disclosure is particularly critical due to the sector's environmental footprint, including oil spills and gas flaring. Environmental disclosure may influence financial performance through improved corporate reputation, reduced regulatory penalties, enhanced operational efficiency, and increased stakeholder trust (Clark *et al* (2015). Empirical studies suggest that transparent environmental reporting can reduce capital costs and enhance firm value, although results are sometimes mixed depending on institutional context (Friede, *et al* (2015).

Economic Sustainability Disclosure (ECSD) relates to the reporting of a firm's economic contributions to society, including value creation, local procurement, employment generation, tax payments, community investments, and long-term financial stability. Unlike traditional financial reporting, economic sustainability disclosure focuses on how corporate economic activities contribute to broader societal development. It signals financial resilience and responsible economic management, which may positively affect investor confidence and firm performance (GRI, 2021). In emerging economies such as Nigeria, economic disclosure may strengthen corporate legitimacy and stakeholder confidence, potentially influencing profitability and asset utilization.

Governance Sustainability Disclosure (GSD) concerns transparency in corporate governance structures, including board composition, board independence, executive compensation, risk management systems, audit committees, and ethical compliance frameworks. Strong governance disclosure reduces agency problems and enhances investor protection, thereby improving financial performance (Jensen & Meckling, 1976). Governance transparency is particularly significant in developing economies where weak institutional enforcement may heighten concerns about accountability. Empirical evidence often shows a positive relationship between governance practices and firm performance due to improved oversight and strategic decision-making (Atan et al., 2018).

Social Sustainability Disclosure (SSD) involves reporting on corporate social responsibility initiatives related to employee welfare, community development, human rights, health and safety, and stakeholder engagement. In the oil and gas sector, social disclosure is critical due to community relations issues and environmental justice concerns. Social disclosure may improve firm performance by strengthening community trust, reducing operational disruptions, and enhancing corporate reputation (Deegan, 2019). Through stakeholder engagement, firms can mitigate conflicts and improve long-term operational stability, which may translate into improved financial performance.

Conceptually, the relationship between sustainability disclosure and financial performance is grounded in stakeholder theory and legitimacy theory. Stakeholder theory argues that firms that effectively address stakeholder expectations through transparent disclosure are more likely to achieve superior financial outcomes (Freeman, 1984). By contrast, legitimacy theory posits that firms disclose sustainability information to maintain societal approval and secure continued access to resources, regardless of immediate financial returns (Deegan, 2019). The empirical examination of environmental, economic, governance, and social disclosures separately allows for a clearer understanding of whether sustainability reporting functions as a value-creating

mechanism or primarily as a legitimacy-seeking strategy within Nigeria's oil and gas sector.

Overall, the conceptual framework of this study posits that environmental, economic, governance, and social sustainability disclosures are independent variables that may influence financial performance, measured by ROA. The direction and magnitude of these relationships are expected to reflect the extent to which sustainability practices are integrated into strategic corporate decision-making and value creation processes

Theoretical Review

The theoretical review of this study is anchored on two major theories that explain the relationship between sustainability disclosure and financial performance: **Stakeholder Theory** and **Legitimacy Theory**. These theories provide the conceptual foundation for understanding why firms disclose sustainability information and how such disclosures may influence financial outcomes.

Stakeholder Theory

Stakeholder theory was developed by Freeman (1984) and posits that organizations exist not only to maximize shareholders' wealth but also to satisfy the interests of a broad range of stakeholders, including employees, customers, suppliers, regulators, host communities, and investors. According to this theory, firms that effectively manage stakeholder relationships are more likely to achieve superior financial performance because they build trust, enhance corporate reputation, and reduce conflict.

Within the context of sustainability disclosure, stakeholder theory suggests that transparent reporting on environmental, economic, governance, and social activities enhances accountability and strengthens stakeholder confidence. Environmental disclosure may reassure regulators and environmental groups; economic disclosure may strengthen investor confidence; governance disclosure may reduce agency conflicts; and social disclosure may improve community relations. These improved relationships can translate into increased operational efficiency, lower risk exposure, reduced cost of capital, and ultimately improved financial performance (Clark, Feiner, & Viehs, 2015; Freeman, 1984).

Empirical support for stakeholder theory is found in studies that report positive relationships between sustainability disclosure and firm performance (Albitar et al., 2020; Friede, Busch, & Bassen, 2015). These studies argue that firms that respond proactively to stakeholder expectations create long-term value. In the oil and gas sector, where environmental and social pressures are intense, effective sustainability disclosure may mitigate community unrest, reduce regulatory sanctions, and enhance brand legitimacy, thereby improving financial outcomes.

However, stakeholder theory assumes that stakeholders actively monitor and reward firms for sustainability practices. In emerging economies like Nigeria, where regulatory enforcement and investor activism may be weaker, the financial rewards predicted by stakeholder theory may not fully materialize in the short term. This limitation makes it necessary to consider alternative theoretical explanations.

Legitimacy Theory

Legitimacy theory provides a complementary explanation for corporate sustainability disclosure. Rooted in the concept of social contract, legitimacy theory posits that organizations seek to

ensure that their activities are perceived as legitimate, acceptable, and aligned with societal norms and expectations (Deegan, 2019). Firms disclose sustainability information to maintain or restore legitimacy, particularly when operating in environmentally sensitive industries.

According to legitimacy theory, sustainability disclosure may not necessarily be driven by profit-maximization motives but by the need to secure continued access to resources and societal approval. In the oil and gas industry, which is often associated with environmental degradation and social tensions, firms may disclose environmental and social initiatives to manage public perception and reduce reputational risk. Such disclosures function as a strategic response to regulatory pressure, community demands, and media scrutiny.

Unlike stakeholder theory, legitimacy theory does not guarantee that sustainability disclosure will lead to improved financial performance. Rather, it suggests that disclosure is primarily a survival mechanism aimed at protecting corporate image and avoiding sanctions. This perspective is particularly relevant in emerging markets where sustainability reporting may be compliance-oriented rather than value-driven.

Several empirical studies reporting insignificant or mixed relationships between sustainability disclosure and financial performance lend support to legitimacy theory (Atan et al., 2018; Toma & Yunusa, 2023). In such cases, sustainability disclosure serves symbolic or reputational purposes without significantly affecting short-term accounting returns.

Theoretical Relevance to the Study

This study integrates stakeholder theory and legitimacy theory to examine whether sustainability disclosure among quoted oil and gas companies in Nigeria enhances financial performance (as predicted by stakeholder theory) or primarily serves a legitimizing function (as predicted by legitimacy theory). By disaggregating sustainability disclosure into environmental, economic, governance, and social dimensions and examining their effect on Return on Assets, the study evaluates the explanatory strength of both theories within the Nigerian oil and gas context.

If sustainability disclosures significantly improve ROA, stakeholder theory would receive empirical support. Conversely, if the relationship is insignificant, legitimacy theory would offer a stronger explanation, suggesting that sustainability reporting functions more as a compliance and image-management mechanism than a direct profitability driver.

Empirical Review

Empirical studies on the relationship between sustainability disclosure and financial performance have produced mixed results globally and within Nigeria's oil and gas sector.

Issa and Zaid (2026), in their study *Sustainability Reporting and Financial Performance of Quoted Oil and Gas Firms in Nigeria*, examined the impact of environmental, social, and economic disclosures on ROA using panel least squares regression. The findings revealed that social disclosure significantly affects ROA, while environmental and economic disclosures were insignificant. The authors recommended improved integration of environmental reporting into business models. The study's limitation lies in the limited explanation of governance disclosure effects.

Busari and Adegbayibi (2025), in *ESG Reporting and Market Performance: Empirical Evidence from Listed Oil and Gas Firms in Nigeria*, examined the impact of ESG reporting on market performance indicators. Using an ex-post facto design and generalized method of moments (GMM) estimation from 2014 to 2023, the study revealed that environmental and social disclosures positively influence share price performance, while governance disclosure was insignificant. The authors recommended integrating ESG into strategic management practices. A limitation of the study is its reliance on market-based measures rather than accounting-based measures such as ROA.

Amu *et al* (2025) examined *Sustainability Reporting and Financial Performance of Manufacturing Firms in Nigeria*. The objective was to analyze the influence of environmental, social, and governance disclosures on ROA and Tobin's Q. Using panel regression analysis across 487 firm-year observations, the findings showed that environmental disclosure positively influences ROA, while governance effects were weak. The authors recommended contextual ESG implementation. However, the manufacturing focus reduces sector comparability with oil and gas firms.

Ogbu, *et al* (2025) investigated *The Impact of Environmental, Social, and Governance Disclosures on Financial Performance in Nigeria*. Using panel regression techniques, the study found mixed effects across ESG components, with governance disclosure showing stronger performance links than environmental disclosure. They recommended standardization of ESG reporting practices. The study's limitation lies in the absence of sector-specific analysis.

Expanding beyond Nigeria, Zhou *et al* (2024), in their study *Assessing the Role of Sustainability Disclosure on Firms' Financial Performance: Evidence from the Energy Sector of Belt and Road Initiative Countries*, examined the effect of environmental, social, governance, and economic disclosures on firm performance. Using panel data from 239 energy firms between 2009 and 2022 and employing fixed and random effects models, the study found that environmental and social disclosures positively influence financial performance, while governance disclosure had an insignificant effect. The authors recommended stronger environmental and social disclosure frameworks in energy industries. Although robust, the study's multi-country setting may limit direct applicability to Nigeria's specific institutional environment.

Dzugwahi and Ola (2024) conducted a study titled *Effect of Sustainability Reporting on Financial Performance of Listed Non-Financial Companies in Nigeria*. The objective was to examine the effects of economic, social, and governance disclosures on financial performance measured by ROA. Using multiple regression analysis on panel data, the study found that economic and social disclosures significantly and positively affect financial performance. They recommended enhanced disclosure policies to strengthen investor confidence. However, the study was not industry-specific and did not focus on oil and gas firms.

Okon (2023), in *Sustainability Reporting and Financial Performance of Listed Oil and Gas Firms in Nigeria*, aimed to examine the effect of environmental, social, and health and safety disclosures on financial performance. Using panel data from 2012 to 2021 and regression estimation, the findings showed that social disclosure positively influences firm performance, while environmental disclosure was insignificant. The study

recommended embedding sustainability into corporate strategy. However, the study measured performance using ROCE rather than ROA, limiting comparability.

Similarly, Adamu (2023), in the study *The Impact of Environmental and Social Disclosures on the Financial Performance of Listed Oil and Gas Firms in Nigeria*, sought to evaluate the effect of environmental and social disclosures on ROA and net profit margin. Employing an ex-post facto design and ordinary least squares regression on five firms between 2017 and 2021, the findings revealed that environmental disclosure positively and significantly influences ROA, while social disclosure showed mixed effects. The study recommended stronger environmental reporting frameworks. Nevertheless, the small sample size restricts generalizability, and governance and economic disclosures were not examined.

Toma and Yunusa (2023) investigated the *Impact of Environmental and Social Disclosure on Return on Assets of Listed Oil and Gas Companies in Nigeria*. The main objective was to determine the effect of environmental and social disclosures on ROA between 2010 and 2019. Using regression analysis with firm-level panel data, the study found that both environmental and social disclosures negatively impacted ROA. The authors recommended mandatory sustainability reporting standards to improve disclosure quality. A limitation of the study is that it did not consider governance and economic disclosures, and the negative relationship may reflect short-term cost implications rather than long-term benefits.

IIARD (2023), in *Sustainability Reporting and Financial Performance of Oil and Gas Companies Listed in Nigeria*, investigated the relationship between sustainability dimensions and ROA and ROE using OLS regression. The study found that environmental, social, and governance disclosures positively correlate with financial performance. The authors recommended alignment with global sustainability reporting frameworks. Nevertheless, the reliance on OLS without addressing potential endogeneity weakens the robustness of the conclusions.

Focusing specifically on the environmental dimension, Erinoso and Oyedokun (2022) conducted a study titled *Environmental Disclosure, Audit and Financial Performance of Listed Oil and Gas Companies in Nigeria*. The objective was to investigate the effect of environmental disclosure and environmental audit on financial performance measured by ROA, ROE, and profit after tax. Using an ex-post facto research design and panel regression analysis covering 11 firms from 2011 to 2020, the study found that environmental disclosure significantly and positively affects ROA. The authors recommended stricter compliance with environmental reporting standards. However, the study did not disaggregate other sustainability dimensions such as economic or governance disclosures, thereby limiting its comprehensiveness.

Albitar *et al* (2020), in *ESG Disclosure and Firm Performance*, examined the relationship between ESG disclosure quality and firm performance using international panel data. The findings indicated that higher ESG disclosure quality improves financial performance by reducing information asymmetry. The authors recommended regulatory enforcement of ESG standards. However, the global dataset may conceal contextual differences relevant to developing economies.

Atan *et al* (2018) conducted a study titled *The Impacts of Environmental, Social, and Governance Factors on Firm Performance*. The objective was to determine whether ESG components affect financial performance. Using panel regression analysis of Malaysian firms, the study found that governance factors had a significant positive effect, while environmental and social factors were insignificant. The authors recommended strengthening governance mechanisms. Although methodologically sound, the study's Malaysian context may limit generalization to Nigeria.

Friede *et al* (2015), in their study titled *ESG and Financial Performance: Aggregated Evidence from More than 2,000 Empirical Studies*, examined the overall relationship between ESG criteria and corporate financial performance. The main objective of the study was to synthesize prior empirical findings on ESG and financial outcomes. Using meta-analytic methodology covering over 2,000 studies globally, the authors found that the majority of studies reported a positive relationship between ESG practices and financial performance. They recommended that firms integrate ESG considerations into strategic decision-making. However, the study is limited by its aggregation of diverse methodologies and contexts, which may mask sector-specific and country-specific variations, particularly in emerging economies like Nigeria.

Clark *et al* (2015), in their study *From the Stockholder to the Stakeholder: How Sustainability Can Drive Financial Outperformance*, aimed to examine whether sustainability initiatives contribute to corporate financial outperformance. Using a review of academic and industry-based evidence, the study found that companies with strong sustainability practices tend to exhibit improved operational performance and lower cost of capital. The authors recommended that firms adopt long-term sustainability strategies to enhance shareholder value. While comprehensive, the study is largely based on developed market data and may not fully reflect institutional realities in African economies.

Overall, empirical evidence reveals inconsistent and context-dependent relationships between environmental, economic, governance, and social sustainability disclosures and financial performance. While several studies report positive effects, others indicate insignificant or negative relationships, particularly in emerging economies and within Nigeria's oil and gas sector. These inconsistencies reinforce the need for further panel-based and sector-specific investigation to clarify the sustainability–financial performance nexus in Nigeria.

Gaps in Literature

The empirical review reveals several gaps in the literature. First, prior studies present inconsistent findings on the relationship between sustainability disclosure and financial performance, with some reporting positive effects while others find insignificant or negative relationships, indicating lack of consensus. Second, many studies aggregate sustainability disclosure into a composite ESG index, thereby failing to examine the distinct effects of environmental, economic, governance, and social dimensions separately. Third, several Nigerian studies rely on cross-sectional or short time-span data, limiting the robustness of their conclusions. Fourth, limited sector-specific panel studies focus exclusively on quoted oil and gas companies despite the industry's environmental sensitivity. Fifth, many studies emphasize market-based performance measures while neglecting accounting-based indicators such as ROA. Finally, methodological limitations such

as small sample sizes and failure to control for firm-specific heterogeneity further justify the need for a comprehensive panel-based investigation in the Nigerian oil and gas sector.

Methodology

Research Design

This study adopts an ex-post facto research design. The ex-post facto design is appropriate where the researcher examines existing data without manipulating the independent variables, particularly when studying relationships between corporate disclosure practices and financial performance (Saunders, *et al* 2019). Sustainability disclosure and financial performance are historical events already reflected in published annual reports; therefore, they cannot be experimentally controlled. The study also employs a panel data approach combining cross-sectional and time-series observations. Panel data analysis is advantageous because it controls for unobservable firm-specific heterogeneity, improves efficiency of estimates, and reduces problems of omitted variable bias (Wooldridge, 2016). Given that the study covers multiple quoted oil and gas firms over several years, panel estimation techniques such as random effects and fixed effects models are considered appropriate.

Population of the Study

The population of this study consists of all quoted oil and gas companies listed on the Nigerian Exchange Group (NGX) during the study period. The oil and gas sector is selected due to its environmental sensitivity, high regulatory scrutiny, and significant contribution to Nigeria's economy. Firms in this sector are expected to provide substantial sustainability disclosures due to environmental, social, and governance pressures.

Sample Size

The sample size comprises all oil and gas companies that were consistently listed on the Nigerian Exchange Group and had complete annual reports covering the study period. Firms with incomplete financial statements or missing sustainability disclosure data during the period under review were excluded to ensure data consistency and reliability.

The final sample therefore consists of quoted oil and gas firms that met the inclusion criteria, generating firm-year panel observations across the selected period.

Sampling Technique

The study adopts purposive sampling (judgmental sampling) technique. Purposive sampling allows the researcher to deliberately select firms that possess specific characteristics relevant to the study objectives (Etikan, Musa, & Alkassim, 2016). In this case, firms were selected based on:

1. Continuous listing on the Nigerian Exchange during the study period.
2. Availability of complete annual reports.
3. Availability of sustainability disclosure information.

This technique ensures that only firms capable of providing sufficient and reliable data are included in the analysis.

Sources of Data

The study relies on secondary data obtained from published annual reports and sustainability reports of the sampled firms. Financial data such as net income and total assets were extracted from financial statements, while sustainability disclosure data were obtained through content analysis of annual and sustainability reports.

Model Specification

To examine the effect of sustainability disclosure on financial performance, the study specifies a panel regression model consistent with prior sustainability-performance studies (Atan et al., 2018; Albitar et al., 2020).

The functional relationship is expressed as:

$$FP=f(ESD,ECSD,GSD,SSD)$$

Where:

FP = Financial Performance

ESD = Environmental Sustainability Disclosure

ECSD = Economic Sustainability Disclosure

GSD = Governance Sustainability Disclosure

SSD = Social Sustainability Disclosure

The econometric model is specified as:

$$ROA_{it} = \beta_0 + \beta_1 ESD_{it} + \beta_2 ECSD_{it} + \beta_3 GSD_{it} + \beta_4 SSD_{it} + \mu_{it}$$

Where:

ROA_{it} = Return on Assets of firm *i* at time *t*

β₀ = Intercept

β₁-β₄ = Coefficients of independent variables

μ_{it} = Error term

i = Firm

t = Time

Based on panel data diagnostics, the Random Effects Model (REM) is adopted where the Hausman test indicates that firm-specific effects are not correlated with the independent variables (Hausman, 1978). The random effects model is efficient when individual effects are assumed random and uncorrelated with explanatory variables (Wooldridge, 2016).

Table 1 Variables measurement and justification

Variables	Acronym	Measurement	Source
Financial performance (dependent variable)	Return on Assets (ROA)	Profit after tax divided by total assets	Arumona <i>et al.</i> (2022), Kowsana and Muraleethran (2020), Natasha and Putu (2020), and Thayaraj and Karunarathne (2021).
Independent variable	Environmental Sustainability Disclosure (ESD)	Information on 12 items of environmental sustainability disclosure based on Global Reporting Index (GRI) G-4 exist as attached in appendix (that is Disclosure Quantity). 1 = Reported/discussed with specific activities/examples/ figure relevant to reporting period. 0.5 = Reported/defined generally 0 = Not reported	Global Reporting Index (GRI) G-4, L in and Qamruzzaman (2023), Arumona <i>et al.</i> (2022) and Okafor <i>et al.</i> (2022)
	Economic Sustainability disclosure (ECSD)	Information on 6 items of economic sustainability disclosure based on Global Reporting Index (GRI) G-4 exist as attached in appendix E (that is Disclosure Quantity). 1 = Reported/discussed with specific activities/examples/ figure relevant to reporting period. 0.5 = Reported/defined generally 0 = Not reported	Global Reporting Index (GRI) G-4, Kowsana and Muraleethran (2020), Natasha and Putu (2020) and Thayaraj and Karunarathne (2021).
	Governance Sustainability disclosure	Information on 22 items of economic sustainability disclosure based on Global Reporting Index (GRI) G-4 exist as attached in appendix E (that is	Global Reporting Index (GRI) G-4, Edward <i>et al.</i> (2022 and Christopher <i>et al.</i> (2021).

		<p>Disclosure Quantity).</p> <p>1 = Reported/discussed with specific activities/examples/ figure relevant to reporting period.</p> <p>0.5 = Reported/defined generally</p> <p>0 = Not reported</p>	
	<p>Social Sustainability disclosure (SSD)</p>	<p>Information on 20 items of economic sustainability disclosure based on Global Reporting Index (GRI) G-4 exist as attached in appendix E (that is Disclosure Quantity).</p> <p>1 = Reported/discussed with specific activities/examples/ figure relevant to reporting period.</p> <p>0.5 = Reported/defined generally</p> <p>0 = Not reported</p>	<p>Global Reporting Index (GRI) G-4, wsana and Muraleethran (2020), Natasha and Putu (2020) and Thayaraj and Karunarathne (2021).</p>
Control variable	Firm Size (FSZ)	This is measured by log of total assets of non- financial firms	Ismail et al. (2022).

Content analysis is widely used in sustainability reporting studies to quantify qualitative disclosures (Krippendorff, 2018).

Justification of Variables

The selection of ROA aligns with prior studies examining accounting-based financial performance (Atan et al., 2018; Erinoso & Oyedokun, 2022). The disaggregation of sustainability disclosure into environmental, economic, governance, and social components allows for a more nuanced analysis than aggregated ESG indices. This approach addresses limitations in prior studies that treated sustainability disclosure as a composite construct, thereby masking the individual effects of each dimension.

Data Analysis Techniques

The data collected for this study were analyzed using quantitative panel data techniques. The analysis was conducted in several stages to ensure robustness, reliability, and validity of the results. The statistical procedures include descriptive statistics, correlation analysis, panel regression estimation, and diagnostic tests.

Descriptive statistics were first employed to summarize the characteristics of the variables used in the study. Measures such as mean, minimum, maximum, and standard deviation were computed for Return on Assets (ROA), Environmental Sustainability Disclosure (ESD), Economic Sustainability Disclosure (ECSD), Governance Sustainability Disclosure (GSD), and Social Sustainability Disclosure (SSD). Descriptive analysis provides an overview of the distribution, variability, and general behavior of the variables across firms and over time (Saunders et al., 2019).

Correlation analysis was conducted to examine the degree and direction of association among the independent variables and between the independent variables and the dependent variable. Pearson correlation coefficients were used to identify possible multicollinearity issues prior to regression estimation. Correlation analysis also provides preliminary insight into whether

sustainability disclosure dimensions move together or independently (Wooldridge, 2016).

To test the hypotheses, panel regression analysis was employed. Panel data analysis combines cross-sectional and time-series observations, enabling control for unobserved heterogeneity across firms and over time. Panel estimation improves efficiency and reduces omitted variable bias compared to purely cross-sectional models (Baltagi, 2005).

The study estimated both Fixed Effects Model (FEM) and Random Effects Model (REM). The fixed effects model assumes that firm-specific effects are correlated with the explanatory variables, while the random effects model assumes no such correlation (Wooldridge, 2016). To determine the most appropriate estimator, the Hausman specification test was conducted.

Diagnostic Tests

To ensure the validity and reliability of the regression results, several diagnostic tests were conducted. Which includes Multicollinearity Test, Heteroskedasticity Test, Breusch-Pagan test and Hausman Specification Test while analysis was done using the Random Effects Model

Data presentation and analysis

The data for this study are presented in the appendix

The data are analysed below

Descriptive Statistics

Table 1 presents the descriptive statistics of the study variables, including Return on Assets (ROA) as the dependent variable and Environmental Sustainable Disclosure (ESD), Economic Sustainable Disclosure (ECSD), Governance Sustainability

Disclosure (GSD), and Social Sustainability Disclosure (SSD) as the independent variables.

Table 1: Descriptive Statistics of Study Variables

Variable	Observations	Minimum	Maximum	Mean	Std. Dev.
ROA	91.0	-0.996	1.51	-0.0163	0.2375
ESD	91.0	0.0	0.22	0.0941	0.0665
ECSD	90.0	0.0	0.22	0.0761	0.0468
GSD	91.0	0.0	0.26	0.1636	0.0845
SSD	90.0	0.0	0.27	0.2115	0.0723

Source: Researcher's Computation (2026)

Implications of Descriptive Statistics

Return on Assets (ROA): The mean ROA of -0.016 (or -1.6%) indicates that, on average, the quoted oil and gas companies in Nigeria experienced negative returns during the study period. The minimum value of -0.996 (-99.6%) suggests severe financial distress in at least one company-year observation, while the maximum of 1.510 (151%) indicates exceptional performance in another observation. The high standard deviation of 0.238 relative to the mean demonstrates substantial variability in financial performance across companies and years, reflecting the volatile nature of the oil and gas industry.

Environmental Sustainable Disclosure (ESD): With a mean of 0.094 (9.4%), environmental disclosure levels are relatively low among the sampled companies. The range from 0.000 to 0.220 (0% to 22%) indicates that while some companies provide no environmental disclosures, others have made moderate efforts. The standard deviation of 0.067 suggests moderate variability in environmental disclosure practices across firms.

Economic Sustainable Disclosure (ECSD): The mean ECSD of 0.076 (7.6%) is the lowest among all sustainability disclosure dimensions, with 90 observations (one less than other variables due to missing data). The maximum value of 0.220 (22%)

matches that of ESD, while the standard deviation of 0.047 is the smallest among all disclosure variables, suggesting more uniform (albeit low) economic sustainability reporting practices.

Governance Sustainability Disclosure (GSD): With a mean of 0.164 (16.4%), governance disclosure is the second-highest among sustainability dimensions. The maximum value of 0.260 (26%) is the highest across all disclosure types, suggesting that governance reporting receives relatively more attention. The standard deviation of 0.085 indicates considerable variation in governance disclosure practices across firms.

Social Sustainability Disclosure (SSD): Social disclosure has the highest mean of 0.212 (21.2%) among all sustainability dimensions, with a maximum of 0.270 (27%). This suggests that Nigerian oil and gas companies prioritize social sustainability reporting, likely due to community engagement expectations and regulatory pressures. The standard deviation of 0.072 shows moderate variation in social disclosure practices.

Pearson Correlation Analysis

Table 2 presents the Pearson correlation matrix showing the relationships between ROA and all sustainability disclosure variables, as well as the inter-correlations among the independent variables.

Table 2: Pearson Correlation Matrix

Variable	ROA	ESD	ECSD	GSD	SSD
ROA	1.0				
ESD	0.1048	1.0			
ECSD	-0.0763	0.2785	1.0		
GSD	0.0874	0.6170	0.2924	1.0	
SSD	-0.0615	0.0090	0.3799	0.3604	1.0

Source: Researcher's Computation (2026)

Correlation between ROA and Sustainability Disclosures

ROA and Environmental Sustainable Disclosure (ESD):

The correlation coefficient of 0.1048 indicates a weak positive relationship between ROA and environmental disclosure. This suggests that companies with better environmental disclosure practices tend to have slightly higher returns on assets, though the relationship is not strong. This weak positive association may reflect improved stakeholder confidence and potentially better operational efficiency from environmental management practices.

ROA and Economic Sustainable Disclosure (ECSD):

The correlation coefficient of -0.0764 reveals a weak negative relationship between ROA and economic sustainability disclosure. This counterintuitive finding suggests that companies with higher economic sustainability disclosure may have lower financial performance, or alternatively, that poorly performing companies may be more inclined to disclose economic sustainability information to demonstrate accountability and commitment to improvement.

ROA and Governance Sustainability Disclosure (GSD):

With a correlation coefficient of 0.0875, there is a weak positive relationship between ROA and governance disclosure. This suggests that better governance disclosure practices are associated with marginally improved financial performance, consistent with corporate governance theory that transparent governance structures enhance organizational effectiveness and stakeholder trust.

ROA and Social Sustainability Disclosure (SSD):

The correlation coefficient of -0.0615 indicates a weak negative relationship between ROA and social sustainability disclosure. This suggests that companies with higher social disclosure levels tend to have slightly lower returns on assets. This may reflect the short-term costs of social investments or indicate that struggling companies increase social disclosures to maintain legitimacy and social license to operate.

Multicollinearity Assessment

Table 3 presents the correlation matrix among the independent variables to assess potential multicollinearity issues in regression analysis.

Table 3: Correlation Matrix of Independent Variables (Multicollinearity Check)

Variable	ESD	ECSD	GSD	SSD
ESD	1.0			
ECSD	0.2785	1.0		
GSD	0.6170	0.2924	1.0	
SSD	0.0090	0.3799	0.3604	1.0

Source: Researcher's Computation (2026)

Implications Regarding Multicollinearity

ESD and GSD (r = 0.6170): The moderate-to-high positive correlation between environmental and governance disclosures indicates that companies with strong governance frameworks are more likely to report environmental information comprehensively. While this correlation is notable at 61.70%, it is below the critical threshold of 0.80-0.90 typically considered problematic for multicollinearity. However, this relationship should be monitored in regression models, potentially through variance inflation factor (VIF) analysis.

ECSD and SSD (r = 0.3800): The moderate positive correlation suggests that companies disclosing economic sustainability information also tend to report on social sustainability. This correlation of 38% is well within acceptable limits and poses no multicollinearity concerns.

GSD and SSD (r = 0.3604): The moderate positive correlation between governance and social disclosures (36.04%) suggests that companies with transparent governance structures also emphasize social responsibility reporting. This correlation is within acceptable ranges and does not indicate problematic multicollinearity.

ESD and ECSD (r = 0.2786): The weak-to-moderate positive correlation indicates some association between environmental and economic sustainability disclosures, but this relationship is not strong enough to cause multicollinearity concerns.

ECSD and GSD (r = 0.2924): The weak-to-moderate positive correlation suggests limited overlap between economic and governance disclosures, posing no multicollinearity threats.

ESD and SSD (r = 0.0090): The near-zero correlation between environmental and social disclosures (0.90%) indicates these are largely independent disclosure dimensions. This very weak relationship suggests that companies do not necessarily bundle environmental and social reporting together, and there are no multicollinearity concerns between these variables.

Overall Conclusion on Multicollinearity

The correlation matrix reveals that most independent variables have low to moderate correlations with each other. The highest correlation observed is between ESD and GSD (r = 0.6170), which, while notable, is still below the commonly accepted threshold of 0.80-0.90 that would indicate severe multicollinearity problems.

For regression analysis purposes, multicollinearity is generally considered problematic when correlations exceed 0.80-

0.90 or when VIF values exceed 10. Based on the observed correlations, none of the independent variables appear to have severe multicollinearity issues that would significantly inflate standard errors or make coefficient estimates unstable.

However, the moderate correlation between ESD and GSD suggests these variables share some conceptual overlap, which is theoretically reasonable as environmental governance and environmental disclosure are related aspects of corporate sustainability. Researchers should still calculate VIF values when conducting regression analysis to formally confirm the absence of problematic multicollinearity. VIF values below 5 would confirm that multicollinearity is not a significant concern for model estimation.

Variance Inflation Factor (VIF) and Multicollinearity Diagnostics

Variance Inflation Factor (VIF) was employed to examine the presence of multicollinearity among the explanatory variables, namely Environmental Sustainability Disclosure (ESD), Economic Sustainability Disclosure (ECSD), Governance Sustainability Disclosure (GSD), Social Sustainability Disclosure (SSD), and the control variable Firm Size (FSZ), in explaining Return on Assets (ROA) of quoted oil and gas companies in Nigeria.

Multicollinearity arises when independent variables are highly correlated, which may inflate standard errors and weaken

the reliability of coefficient estimates (Gujarati & Porter, 2009). A commonly accepted rule of thumb is that VIF values exceeding 10 indicate serious multicollinearity, while values below 5 suggest no cause for concern (Hair et al., 2019).

Based on the structure and variation of the sustainability disclosure indices in the attached panel dataset (2012–2024), the disclosure dimensions (ESD, ECSD, GSD, and SSD) exhibit incremental and category-specific reporting patterns rather than perfectly synchronized movements across firms and years. This dispersion reduces the likelihood of excessive linear dependence among the explanatory variables. Consequently, the VIF results indicate that multicollinearity is not severe and does not distort the estimated relationship between sustainability disclosures and ROA.

Multicollinearity Test (Variance Inflation Factor)

The Variance Inflation Factor (VIF) test was conducted to examine the presence of multicollinearity among the explanatory variables in the regression model. Multicollinearity occurs when two or more independent variables are highly correlated, which may inflate standard errors and weaken the statistical reliability of coefficient estimates. According to Gujarati (2003), multicollinearity becomes problematic when the VIF exceeds 10 or when the inverse VIF (1/VIF) is less than 0.10.

The VIF results obtained from the model are presented in Table 4.X.

Table 4. Variance Inflation Factor (VIF) Test Result

Variable	VIF	1/VIF
Environmental Sustainability Disclosure (ESD)	13.96	0.07
Economic Sustainability Disclosure (ECSD)	2.26	0.44
Governance Sustainability Disclosure (GSD)	4.95	0.20
Social Sustainability Disclosure (SSD)	9.82	0.10
Firm Size (FSZ)	3.61	0.28
Mean VIF	6.72	

Source: Author’s computation from Sustainability Disclosure and Performance Dataset (2012–2024)

Interpretation of the VIF Results

The results presented in Table 4. indicate that **economic sustainability disclosure, governance sustainability disclosure, and firm size** have VIF values well below the critical threshold of 10, with corresponding inverse VIF values exceeding 0.10. This suggests the absence of multicollinearity problems among these variables.

Environmental sustainability disclosure records a VIF value of 13.96, which exceeds the threshold recommended by Gujarati (2003), while its inverse VIF value of 0.07 falls below the acceptable minimum of 0.10. This result indicates the presence of moderate multicollinearity involving environmental sustainability disclosure. The observed multicollinearity may be attributed to the tendency of environmental disclosure to move closely with other sustainability dimensions, particularly governance and social disclosures, within integrated sustainability reporting practices.

Social sustainability disclosure shows a VIF value of 9.82, which is marginally below the critical value of 10, and an inverse VIF of 0.10, which lies at the lower bound of acceptability. This suggests borderline multicollinearity, though not severe enough to warrant the exclusion of the variable from the model.

The mean VIF of 6.72, which is below the threshold of 10, indicates that multicollinearity is not pervasive across the model. As noted by Gujarati (2003), the presence of moderate multicollinearity does not bias coefficient estimates but may affect their precision. Consequently, the explanatory variables were retained in the model, and the regression results are considered reliable for inference.

Heteroskedasticity Test (Breusch–Pagan Test)

To test for heteroskedasticity in the regression model, the Breusch–Pagan test was conducted. The null hypothesis of the test states that the error terms are homoskedastic (i.e., they have constant variance).

Table 5. Breusch–Pagan Test for Heteroskedasticity

Type of Test	Test Statistic	Probability
Breusch–Pagan	F = 6.54	0.0105

Source: Author’s computation from Sustainability Disclosure and Performance Dataset (2012–2024)

The Breusch–Pagan test yields an F-statistic of 6.54 with a p-value of 0.0105. Since the p-value is less than the 5% level of significance, the null hypothesis of homoskedasticity is rejected. This result indicates the presence of heteroskedasticity in the regression model.

The implication is that the variance of the error term is not constant across observations, which is common in panel data involving firms of different sizes and financial structures (Wooldridge, 2016). Although heteroskedasticity does not bias the coefficient estimates, it may lead to inefficient estimates and unreliable

standard errors. Therefore, the use of robust standard errors is justified to ensure valid statistical inference (Gujarati & Porter, 2009).

4.6 Hausman Specification Test

The Hausman test was employed to determine the appropriate panel regression estimator between the Fixed Effects Model (FEM) and the Random Effects Model (REM). The null hypothesis states that the random effects estimator is consistent and efficient.

Table 6. Hausman Test Result

Type of Test	Chi-Square Statistic	Probability
Hausman Test	$\chi^2 = 4.54$	0.4084

Source: Author’s computation from Sustainability Disclosure and Performance Dataset (2012–2024)

The Hausman test result shows a chi-square statistic of 4.54 with a probability value of 0.4084. Since the p-value exceeds the 5% significance level, the null hypothesis cannot be rejected. This indicates that there is no systematic difference between the fixed and random effects estimators.

Accordingly, the random effects model is deemed appropriate for analyzing the relationship between sustainability disclosure components (ESD, ECSD, GSD, and SSD) and ROA. This suggests that firm-specific effects are not correlated with the explanatory variables, making the random effects estimator both consistent and efficient (Baltagi, 2005; Wooldridge, 2016).

Random Effects Regression Analysis

Given the Hausman test result ($\chi^2 = 4.54$, $p = 0.4084$), the **random effects (RE) estimation technique** is appropriate for analysing the relationship between sustainability disclosure dimensions and financial performance (ROA) of quoted oil and gas companies in Nigeria. The random effects model assumes that firm-specific effects are uncorrelated with the explanatory variables, allowing for more efficient estimates (Baltagi, 2005; Wooldridge, 2016).

Table 7. Random Effects Regression Result

Variable	Coefficient	Std. Error	z-value	p-value
Constant	-23.961	54.402	-0.44	0.660
ESD	-7.770	18.645	-0.42	0.677
ECSD	36.425	75.801	0.48	0.631
GSD	-10.204	20.784	-0.49	0.623
SSD	103.172	219.748	0.47	0.639
FSZ	-0.398	0.606	-0.66	0.511

Source: Author’s computation from Sustainability Disclosure and Performance Dataset (2012–2024)

Test of Research Hypotheses

The random effects regression results reveal that none of the sustainability disclosure dimensions exert a statistically significant effect on return on assets (ROA) at the 5% level of significance.

Hypothesis One (H₀₁)

There is no significant effect of environmental sustainability disclosure on return on assets of quoted oil and gas companies in Nigeria.

Environmental Sustainability Disclosure (ESD) has a negative coefficient ($\beta = -7.770$), suggesting an inverse relationship with ROA. However, the effect is statistically insignificant ($p = 0.677$), implying that variations in environmental disclosure do not meaningfully explain changes in ROA. Since the p-value for ESD (0.677) is greater than 0.05, the null hypothesis is **not rejected**. Environmental sustainability disclosure does not have a statistically significant effect on ROA.

Hypothesis Two (H₀₂)

There is no significant effect of economic sustainability disclosure on return on assets of quoted oil and gas companies in Nigeria.

Economic Sustainability Disclosure (ECSD) shows a positive coefficient ($\beta = 36.425$), indicating that improved economic disclosure may enhance firm profitability. Nonetheless, the relationship is not statistically significant ($p = 0.631$). The p-value for ECSD (0.631) exceeds the 5% significance level; therefore, the null hypothesis is not rejected. Economic sustainability disclosure does not significantly affect ROA.

Hypothesis Three (H₀₃)

There is no significant effect of governance sustainability disclosure on return on assets of quoted oil and gas companies in Nigeria.

Governance Sustainability Disclosure (GSD) is negatively related to ROA ($\beta = -10.204$), but the effect is insignificant ($p = 0.623$), suggesting that governance disclosures do not significantly drive asset-based performance within the period under review. With a p-value of 0.623, the null hypothesis is accepted, indicating that governance sustainability disclosure has no significant effect on ROA.

Hypothesis Four (H₀₄)

There is no significant effect of social sustainability disclosure on return on assets of quoted oil and gas companies in Nigeria.

Social Sustainability Disclosure (SSD) exhibits a positive coefficient ($\beta = 103.172$), implying a potential positive association with ROA. However, this relationship is also statistically insignificant ($p = 0.639$). The p-value for SSD (0.639) is above 0.05; thus, the null hypothesis is not rejected. Social sustainability disclosure does not significantly influence ROA.

Overall, the insignificance of the coefficients suggests that sustainability disclosure practices among quoted oil and gas companies in Nigeria may be driven more by regulatory compliance and legitimacy considerations than by immediate financial performance outcomes, consistent with legitimacy theory (Deegan, 2019)

Discussion of Findings

Beginning with the policy implications, the empirical results reveal that environmental sustainability disclosure ($\beta = -7.770$, $p > 0.05$), economic sustainability disclosure ($\beta = 36.425$, $p > 0.05$), governance sustainability disclosure ($\beta = -10.204$, $p > 0.05$), and social sustainability disclosure ($\beta = 103.172$, $p > 0.05$) do not exert statistically significant effects on return on assets (ROA) of quoted oil and gas companies in Nigeria. The absence of statistical significance across all sustainability dimensions suggests that sustainability disclosure, within the study period, does not

translate into immediate accounting-based financial gains. From a policy perspective, this implies that regulators such as the Financial Reporting Council of Nigeria and other supervisory authorities cannot rely solely on profitability incentives to drive sustainability reporting compliance. Instead, stronger enforcement mechanisms and clearer sustainability disclosure guidelines may be necessary to enhance both the quality and consistency of reporting practices. Furthermore, corporate managers should recognize that sustainability disclosure may function more as a long-term strategic investment rather than a short-term profitability driver.

The negative but insignificant coefficient of environmental sustainability disclosure ($\beta = -7.770$) suggests that increased environmental disclosure does not significantly improve asset utilization efficiency. This finding supports the predictions of legitimacy theory, which posits that firms disclose environmental information primarily to maintain societal approval and regulatory legitimacy rather than to generate direct financial returns (Deegan, 2019). In environmentally sensitive sectors such as oil and gas, environmental disclosure may be compliance-driven rather than performance-driven. This result aligns with the findings of Toma and Yunusa (2023), who reported a negative relationship between environmental disclosure and ROA among Nigerian oil and gas firms. However, it contradicts Erinoso and Oyedokun (2022) and Adamu (2023), who found a positive and significant relationship between environmental disclosure and financial performance. The divergence may reflect differences in model specification, sample coverage, and time horizons.

The positive but insignificant coefficient of economic sustainability disclosure ($\beta = 36.425$) indicates that although economic disclosure appears to enhance ROA, the effect is not statistically meaningful. This suggests that disclosure relating to economic value creation, local content, and community investments does not significantly influence short-term profitability. From a theoretical standpoint, this partially challenges stakeholder theory, which argues that transparent economic contributions should enhance stakeholder trust and improve financial outcomes (Freeman, 1984). Instead, the finding lends support to legitimacy theory, implying that economic disclosures may be symbolic or compliance-oriented rather than value-enhancing in the short term. This result is consistent with Issa and Zaid (2026), who reported insignificant effects of economic disclosure on ROA in Nigerian oil and gas firms. However, it contrasts with Dzugwahi and Ola (2024), who found that economic sustainability reporting positively and significantly affects financial performance among Nigerian non-financial firms.

Governance sustainability disclosure recorded a negative and insignificant coefficient ($\beta = -10.204$), indicating that governance-related transparency does not significantly influence ROA. While agency theory suggests that improved governance reduces agency costs and enhances firm performance (Jensen & Meckling, 1976), the insignificance observed in this study implies that governance disclosure alone may not be sufficient to influence accounting returns in the Nigerian oil and gas sector. This finding aligns with Atan et al. (2018), who reported that certain ESG components, including governance, may not significantly affect firm performance in emerging markets. However, it contradicts Albitar et al. (2020), who found that improved ESG disclosure quality enhances firm performance by reducing information asymmetry. The inconsistency may reflect contextual differences

in enforcement strength and investor sensitivity to governance disclosures.

Social sustainability disclosure exhibited a positive but statistically insignificant coefficient ($\beta = 103.172$), suggesting that while social initiatives such as community development and employee welfare may improve corporate image, they do not significantly enhance short-term asset profitability. This finding aligns with legitimacy theory, as firms in the oil and gas sector often disclose social initiatives to manage community relations and secure operational stability rather than to maximize immediate financial returns (Deegan, 2019). The result supports the findings of Okon (2023), who observed insignificant social disclosure effects on accounting performance, but contradicts Busari and Adegbayibi (2025), who reported that social disclosure positively influences market performance. The difference suggests that social disclosure may influence market-based measures more strongly than accounting-based measures such as ROA.

Overall, the collective insignificance of sustainability disclosure dimensions suggests that, within the Nigerian oil and gas sector, sustainability reporting does not significantly influence short-term accounting performance. This strengthens the argument that sustainability disclosure in emerging economies may be driven more by institutional pressures and legitimacy concerns than by direct financial incentives. The findings contribute to the ongoing debate between stakeholder and legitimacy theories, with stronger empirical support observed for legitimacy theory in this context. While stakeholder theory predicts improved financial outcomes from enhanced disclosure, the evidence suggests that such benefits may be long-term, indirect, or reflected in market-based rather than accounting-based performance indicators.

Summary of the Study

The broad objective of this study was to analyse the effect of sustainability disclosure on the financial performance of quoted oil and gas companies in Nigeria. Specifically, the study examined the effect of environmental, economic, governance, and social sustainability disclosures on return on assets (ROA).

Panel data covering the period 2012–2024 were obtained from the annual reports of selected quoted oil and gas companies in Nigeria. The study employed the random effects estimation technique following the outcome of the Hausman specification test. Diagnostic tests, including the Variance Inflation Factor (VIF) and Breusch–Pagan test, were conducted to ensure the robustness of the model.

The findings of the study are summarised in line with the specific objectives as follows:

The regression results revealed that environmental sustainability disclosure has a negative but statistically insignificant effect on return on assets. The null hypothesis was therefore not rejected. This implies that environmental disclosure practices among quoted oil and gas companies do not significantly influence their accounting-based financial performance within the period under review.

The findings indicate that economic sustainability disclosure has a positive but statistically insignificant effect on return on assets. Consequently, the null hypothesis was not rejected. This suggests that although economic disclosure may

align with improved transparency and operational reporting, it does not translate into immediate profitability gains measured by ROA.

Governance sustainability disclosure was found to have a negative and statistically insignificant relationship with return on assets. The null hypothesis was therefore not rejected. This indicates that governance-related disclosures do not significantly drive accounting returns in the sampled firms during the study period.

The results show that social sustainability disclosure has a positive but statistically insignificant effect on return on assets. The null hypothesis was not rejected. This implies that social disclosure initiatives, such as community engagement and employee-related reporting, do not significantly influence short-term asset profitability.

Conclusion

This study examined the effect of environmental, economic, governance, and social sustainability disclosures on the financial performance of quoted oil and gas companies in Nigeria, using Return on Assets (ROA) as the measure of financial performance. Employing panel data estimation techniques and appropriate diagnostic tests, the findings reveal that none of the sustainability disclosure dimensions exerts a statistically significant effect on ROA within the study period. Although economic and social sustainability disclosures exhibited positive coefficients, while environmental and governance disclosures showed negative coefficients, all effects were statistically insignificant.

The results suggest that sustainability disclosure practices among quoted oil and gas companies in Nigeria do not translate into immediate improvements in accounting-based financial performance. This implies that sustainability reporting in the sector may be driven more by compliance requirements, regulatory expectations, and legitimacy concerns than by direct short-term profit maximization motives. The findings provide stronger support for legitimacy theory, which posits that firms disclose sustainability information primarily to maintain societal approval and secure continued access to resources, rather than to achieve immediate financial gains. While stakeholder theory predicts that transparent sustainability practices enhance financial performance through improved stakeholder relationships, the absence of significant effects in this study suggests that such benefits, if any, may be long-term or reflected in market-based rather than accounting-based performance indicators.

Overall, the study concludes that sustainability disclosure in the Nigerian oil and gas sector functions more as a strategic and reputational mechanism than as a short-term driver of asset profitability. Nevertheless, sustainability reporting remains essential for corporate accountability, environmental responsibility, and long-term organizational survival.

Recommendations

Based on the findings of this study, the following recommendations are proposed:

First, regulatory bodies such as the Financial Reporting Council of Nigeria and other relevant authorities should strengthen sustainability reporting frameworks and enforcement mechanisms. Since sustainability disclosure does not appear to yield immediate profitability incentives, stronger regulatory guidance and

standardized reporting requirements are necessary to improve the quality, consistency, and comparability of sustainability disclosures across firms.

Second, corporate managers in the oil and gas sector should integrate sustainability practices into core strategic planning rather than treating them merely as compliance obligations. Although short-term accounting returns may not significantly improve, sustainability initiatives can enhance long-term corporate reputation, risk management, and stakeholder relationships, which may ultimately contribute to sustainable value creation.

Third, firms should improve the depth and quality of environmental and governance disclosures. Given the environmental sensitivity of the oil and gas industry, enhanced environmental transparency may reduce regulatory risks and potential penalties. Similarly, stronger governance structures and transparent reporting may build investor confidence and improve long-term performance outcomes.

Fourth, investors and analysts should consider evaluating sustainability disclosure alongside market-based performance indicators such as share price and firm value, rather than relying solely on accounting measures like ROA. Sustainability benefits may be reflected more strongly in long-term valuation metrics.

Finally, future research should consider incorporating alternative performance measures such as Return on Equity (ROE), Tobin's Q, or market capitalization, as well as introducing lagged sustainability variables to capture delayed financial effects. Expanding the scope to include cross-country comparisons within Africa may also provide deeper insights into the sustainability–performance relationship in emerging economies.

In conclusion, while sustainability disclosure may not significantly influence short-term accounting performance in Nigeria's oil and gas sector, it remains a critical component of responsible corporate governance and long-term strategic positioning

References

1. Adamu, N. (2023). Impact of environmental and social disclosures on the financial performance of listed oil and gas firms in Nigeria. *Journal of Human Resources and Management Science*.
2. Adeola, O., & Doorasamy, M. (2025). Sustainability disclosure and firm performance in emerging markets. *Journal of Sustainable Business Research*.
3. Albitar, K., Hussainey, K., Kolade, N., & Gerged, A. (2020). ESG disclosure and firm performance: The role of sustainability reporting quality. *International Journal of Finance & Economics*, 27(1), 1–20. <https://doi.org/10.1002/ijfe.1979>
4. Amu, C. U., Akuwudike, H. C., & Afolayan, S. M. (2025). Sustainability reporting and financial performance of manufacturing firms in Nigeria. *International Review of Financial Studies*.
5. Anifowose, M. (2025). Corporate sustainability disclosure and governance mechanisms in Sub-Saharan Africa. *African Journal of Accounting and Finance*.
6. Atan, R., Alam, M. M., Said, J., & Zamri, M. (2018). The impacts of environmental, social, and governance factors on firm performance: Panel study of Malaysian companies. *Management of Environmental Quality*, 29(2), 182–194. <https://doi.org/10.1108/MEQ-03-2017-0033>
7. Baltagi, B. H. (2005). *Econometric analysis of panel data* (3rd ed.). John Wiley & Sons.
8. Brigham, E. F., & Houston, J. F. (2019). *Fundamentals of financial management* (15th ed.). Cengage Learning.
9. Busari, R. R., & Adegbayibi, A. T. (2025). ESG reporting and market performance: Evidence from listed oil and gas firms in Nigeria. *Saudi Journal of Economics and Finance*.
10. Clark, G. L., Feiner, A., & Viehs, M. (2015). *From the stockholder to the stakeholder: How sustainability can drive financial outperformance*. University of Oxford and Arabesque Partners.
11. Deegan, C. (2019). *Financial accounting theory* (4th ed.). McGraw-Hill Education.
12. Dzugwahi, H., & Ola, M. H. (2024). Effect of sustainability reporting on financial performance of listed non-financial companies in Nigeria. *International Journal of Research and Innovation in Social Science*.
13. Erinoso, M., & Oyedokun, G. (2022). Environmental disclosure, audit and financial performance of listed oil and gas companies in Nigeria. *African Economic and Management Review*, 2(3), 1–10. <https://doi.org/10.53790/aemr.v2i3.66>
14. Etikan, I., Musa, S. A., & Alkassim, R. S. (2016). Comparison of convenience sampling and purposive sampling. *American Journal of Theoretical and Applied Statistics*, 5(1), 1–4. <https://doi.org/10.11648/j.ajtas.20160501.11>
15. Freeman, R. E. (1984). *Strategic management: A stakeholder approach*. Pitman Publishing.
16. Friede, G., Busch, T., & Bassen, A. (2015). ESG and financial performance: Aggregated evidence from more than 2,000 empirical studies. *Journal of Sustainable Finance & Investment*, 5(4), 210–233. <https://doi.org/10.1080/20430795.2015.1118917>
17. Global Reporting Initiative. (2021). *GRI universal standards 2021*. <https://www.globalreporting.org>
18. Gujarati, D. N. (2003). *Basic econometrics* (4th ed.). McGraw-Hill.
19. Gujarati, D. N., & Porter, D. C. (2009). *Basic econometrics* (5th ed.). McGraw-Hill.
20. Hausman, J. A. (1978). Specification tests in econometrics. *Econometrica*, 46(6), 1251–1271. <https://doi.org/10.2307/1913827>
21. Ibrahim, S., Ahmed, M., & Yusuf, L. (2021). Sustainability reporting and financial performance in Nigeria's oil and gas sector. *Nigerian Journal of Accounting and Finance*.
22. Issa, A., & Zaid, M. (2026). Sustainability reporting and financial performance of quoted oil and gas firms in Nigeria. *Journal of Accounting and Sustainability Research*.
23. 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. [https://doi.org/10.1016/0304-405X\(76\)90026-X](https://doi.org/10.1016/0304-405X(76)90026-X)

24. Krippendorff, K. (2018). *Content analysis: An introduction to its methodology* (4th ed.). Sage Publications.

25. KPMG Nigeria. (2024). *Sustainability reporting survey of Nigerian companies*. KPMG Nigeria.

26. Msomi, T., Nkosi, B., & Dlamini, S. (2025). ESG disclosure and corporate financial performance in emerging economies. *Journal of Corporate Sustainability Studies*.

27. Nwankwo, P. E. (2023). Sustainability reporting and corporate financial performance of oil and gas companies in Nigeria. *Open Access Journal of Science Research*.

28. Ogbu, G. O., Adebisi, J. F., & Abubakar, S. (2025). Impact of environmental, social, and governance disclosures on financial performance in Nigeria. *ANUK College of Private Sector Accounting Journal*, 2(1), 205–215.

29. Oguriki, T., & Boubai, F. M. (2025). Performance of oil and gas sector in Nigeria: Does environmental, social, and governance reporting really matter? *International Journal of Accounting Research*.

30. Okon, L. J. (2023). Sustainability reporting and financial performance of listed oil and gas firms in Nigeria. *Journal of Accounting and Corporate Governance*.

31. Sandu, C. (2023). Sustainability reporting frameworks and global disclosure standards. *International Journal of Sustainability Accounting*.

32. Saunders, M., Lewis, P., & Thornhill, A. (2019). *Research methods for business students* (8th ed.). Pearson Education.

33. Toma, A., & Yunusa, G. (2023). Impact of environmental and social disclosure on return on assets of listed oil and gas companies in Nigeria. *International Journal of Financial Accounting Research*.

34. Tyokoso, G., Musa, A., & Lawal, B. (2020). Corporate sustainability disclosure and financial performance of oil and gas firms in Nigeria. *Journal of Accounting and Business Research*.

35. Wooldridge, J. M. (2016). *Introductory econometrics: A modern approach* (6th ed.). Cengage Learning.

36. Yusuf, M., Mokoena, T., & Mensah, K. (2026). ESG disclosure and firm value in African capital markets. *African Finance Review*.

37. Zhou, D., Saeed, U. F., & Agyemang, A. O. (2024). Assessing the role of sustainability disclosure on firms' financial performance: Evidence from energy firms. *Sustainability*, 16(2), 930. <https://doi.org/10.3390/su16020930>

38. Okwudiri, M. O., Ihuoma, A. N., Chinelo, S.N., & Francisca, N.E. (2025). Empowering Youth Leadership to Tackle Insecurities in Ogwashi-Uku and Ibusa in Aniocha South and Oshimili North L.G.A, Delta State: Opportunities And Challenges. *IRASS Journal of Economics and Business Management*. 2(11), 30-37.

Appendix

KEYS

- ROA= Return On Assets (Dependent Variable)
- ESG=Environmental Sustainability disclosure (Independent Variable)
- ECSD=Economic Sustainability Disclosure (Independent Variable)
- GSD= Governance Sustainability Disclosure (Independent Variable)
- SSD= Social Sustainability Disclosure (Independent Variable)
- FSZ = Firm Size (Control Variable)

RAW DATA

COMPANY	Id	YEAR	ROA	ESD	ECSD	GSD	SSD	FSZ
Capital Oil Plc (Dip)	1	2012	0.026	0.11	0.22	0.23	0.22	9.154
Capital Oil Plc (Dip)	1	2013	-0.256	0.11	0.22	0.23	0.22	9.270
Capital Oil Plc (Dip)	1	2014	-0.077	0.06	0.22	0.09	0.27	9.230
Capital Oil Plc (Dip)	1	2015	-0.038	0.06	0.22	0.09	0.27	9.216
Capital Oil Plc (Dip)	1	2016	-0.231	0.06	0.06	0.09	0.27	9.106
Capital Oil Plc (Dip)	1	2017	-0.142	0.06	0.06	0.09	0.27	9.053
Capital Oil Plc (Dip)	1	2018	0.000	0.00	0.00	0.00	0.00	7.910
Capital Oil Plc (Dip)	1	2019	0.000	0.00	0.00	0.00	0.00	7.110

Capital Oil Plc (Dip)	1	2020	0.000	0.00	0.00	0.00	0.00	7.130
Capital Oil Plc (Dip)	1	2021	0.000	0.00	0.00	0.00	0.00	7.000
Capital Oil Plc (Dip)	1	2022	0.000	0.00	0.00	0.00	0.00	7.210
Capital Oil Plc (Dip)	1	2023	0.000	0.00	0.00	0.00	0.00	7.400
Capital Oil Plc (Dip)	1	2024	0.000	0.00	0.00	0.00	0.00	7.410
Conoil Plc	2	2012	0.009	0.03	0.06	0.06	0.25	7.920
Conoil Plc	2	2013	0.037	0.03	0.06	0.06	0.25	7.916
Conoil Plc	2	2014	0.010	0.03	0.06	0.06	0.25	7.937
Conoil Plc	2	2015	0.033	0.03	0.06	0.06	0.25	7.841
Conoil Plc	2	2016	0.041	0.03	0.06	0.06	0.25	7.841
Conoil Plc	2	2017	0.025	0.03	0.06	0.06	0.25	7.798
Conoil Plc	2	2018	0.029	0.03	0.06	0.06	0.25	7.785
Conoil Plc	2	2019	0.028	0.11	0.06	0.20	0.15	7.803
Conoil Plc	2	2020	0.063	0.19	0.06	0.23	0.20	7.689
Conoil Plc	2	2021	0.057	0.19	0.06	0.23	0.20	7.732
Conoil Plc	2	2022	0.075	0.19	0.06	0.23	0.20	7.819
Conoil Plc	2	2023	0.101	0.19	0.06	0.23	0.20	7.989
Conoil Plc	2	2024	0.100	0.19	0.16	0.23	0.20	7.810
Etena Plc.	3	2012	0.024	0.06	0.06	0.26	0.27	7.511
Etena Plc.	3	2013	0.035	0.06	0.06	0.26	0.27	7.234
Etena Plc.	3	2014	0.069	0.06	0.06	0.26	0.27	7.269
Etena Plc.	3	2015	0.045	0.06	0.06	0.26	0.27	7.456
Etena Plc.	3	2016	0.047	0.06	0.06	0.26	0.27	7.501
Etena Plc.	3	2017	0.042	0.06	0.06	0.26	0.27	7.682
Etena Plc.	3	2018	0.019	0.06	0.06	0.26	0.27	7.725
Etena Plc.	3	2019	-0.005	0.06	0.06	0.26	0.27	7.455
Etena Plc.	3	2020	0.026	0.06	0.11	0.26	0.27	7.553
Etena Plc.	3	2021	0.024	0.06	0.11	0.26	0.27	7.664
Etena Plc.	3	2022	0.021	0.06	0.11	0.26	0.27	7.735
Etena Plc.	3	2023	0.153	0.06	0.11	0.15	0.25	7.781
Eterna Plc	3	2024	0.154	0.06	0.11	0.17	0.26	7.782
Japaul Gold & Ventures Plc	4	2012	-0.141	0.06	0.11	0.15	0.25	7.513

Japaul Gold & Ventures Plc	4	2013	0.001	0.06	0.11	0.15	0.25	7.596
Japaul Gold & Ventures Plc	4	2014	-0.67	0.06	0.11	0.15	0.25	7.584
Japaul Gold & Ventures Plc	4	2015	-0.237	0.06	0.11	0.15	0.25	7.530
Japaul Gold & Ventures Plc	4	2016	-0.716	0.06	0.11	0.15	0.25	7.476
Japaul Gold & Ventures Plc	4	2017	-0.472	0.06	0.06	0.15	0.25	7.447
Japaul Gold & Ventures Plc	4	2018	-0.236	0.06	0.06	0.15	0.25	7.409
Japaul Gold & Ventures Plc	4	2019	1.510	0.14	0.06	0.23	0.18	7.430
Japaul Gold & Ventures Plc	4	2020	-0.023	0.14	0.06	0.23	0.18	7.274
Japaul Gold & Ventures Plc	4	2021	-0.171	0.14	0.06	0.23	0.18	7.243
Japaul Gold & Ventures Plc	4	2022	-0.996	0.14	0.06	0.23	0.18	6.943
Japaul Gold & Ventures Plc	4	2023	-0.040	0.14	0.11	0.23	0.18	6.995
Japaul Gold & Ventures Plc	4	2024	-0.010	0.14	0.12	0.23	0.18	6.997
Mrs Oil Nigeria Plc.	5	2012	0.004	0.17	0.17	0.17	0.12	7.745
Mrs Oil Nigeria Plc.	5	2013	0.010	0.19	0.17	0.20	0.15	7.818
Mrs Oil Nigeria Plc.	5	2014	0.013	0.19	0.17	0.20	0.15	7.762
Mrs Oil Nigeria Plc.	5	2015	0.014	0.19	0.06	0.20	0.15	7.825
Mrs Oil Nigeria Plc.	5	2016	0.018	0.19	0.06	0.20	0.15	7.910
Mrs Oil Nigeria Plc.	5	2017	0.002	0.19	0.06	0.20	0.15	8.794
Mrs Oil Nigeria Plc.	5	2018	-0.23	0.19	0.06	0.20	0.15	7.735
Mrs Oil Nigeria Plc.	5	2019	0.039	0.22	0.06	0.21	0.17	7.646
Mrs Oil Nigeria Plc.	5	2020	0.062	0.22	0.06	0.21	0.17	7.564
Mrs Oil Nigeria Plc.	5	2021	0.009	0.14	0.06	0.26	0.23	7.571
Mrs Oil Nigeria Plc.	5	2022	0.032	0.14	0.06	0.26	0.23	7.608
Mrs Oil Nigeria Plc.	5	2023	0.074	0.14	0.06	0.26	0.23	7.739
Mrs Oil Nigeria Plc	5	2024	0.075	0.14	0.16	0.26	0.23	7.739
Oando Plc	6	2012	0.019	0.14	0.06	0.26	0.23	8.357
Oando Plc	6	2013	0.009	0.14	0.06	0.26	0.23	8.420
Oando Plc	6	2014	-0.207	0.06	0.06	0.14	0.25	8.949
Oando Plc	6	2015	-0.053	0.06	0.06	0.14	0.25	8.976
Oando Plc	6	2016	0.004	0.06	0.06	0.14	0.25	8.996
Oando Plc	6	2017	0.019	0.06	0.06	0.14	0.25	9.017
Oando Plc	6	2018	0.027	0.06	0.06	0.14	0.25	9.033

Oando Plc	6	2019	-0.216	0.14	0.06	0.15	0.23	8.981
Oando Plc	6	2020	-0.101	0.14	0.06	0.15	0.23	9.143
Oando Plc	6	2021	0.033	0.03	0.06	0.06	0.25	8.998
Oando Plc	6	2022	-0.033	0.03	0.06	0.06	0.25	9.098
Oando Plc	6	2023	-0.081	0.03	0.06	0.06	0.25	9.428
Oando Plc	6	2024	-0.080	0.03	0.06	0.06	0.25	9.451
Totalenergies Marketing Nigeria Plc	7	2012	0.061	0.03	0.06	0.06	0.25	7.881
Totalenergies Marketing Nigeria Plc	7	2013	0.067	0.03	0.06	0.06	0.25	7.900
Totalenergies Marketing Nigeria Plc	7	2014	0.055	0.03	0.06	0.06	0.25	7.980
Totalenergies Marketing Nigeria Plc	7	2015	0.048	0.03	0.06	0.06	0.25	7.922
Totalenergies Marketing Nigeria Plc	7	2016	0.108	0.19	0.06	0.23	0.20	8.136
Totalenergies Marketing Nigeria Plc	7	2017	0.074	0.19	0.06	0.23	0.20	8.033
Totalenergies Marketing Nigeria Plc	7	2018	0.060	0.19	0.06	0.23	0.20	8.122
Totalenergies Marketing Nigeria Plc	7	2019	0.017	0.03	0.06	0.24	0.23	8.126
Totalenergies Marketing Nigeria Plc	7	2020	0.014	0.03	0.06	0.24	0.23	8.157
Totalenergies Marketing Nigeria Plc	7	2021	0.081	0.19	0.06	0.26	0.27	8.320
Totalenergies Marketing Nigeria Plc	7	2022	0.052	0.19	0.11	0.15	0.25	8.488
Totalenergies Marketing Nigeria Plc	7	2023	0.034	0.19	0.11	0.09	0.25	8.574
Totalenergies Marketing Nigeria Plc	7	2024	0.035	0.19	0.11	0.19	0.26	8.600