

Sustainability Reporting and Financial Performance of Upstream Oil and Gas Companies in South - South of Nigeria

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Abstract

The Nigerian economy heavily relies on oil and gas revenue, which significantly contributes to its development. However, competition for financial performance among oil and gas companies has raised concerns among residents in the South-South region. This study examines the impact of sustainability reporting on the financial performance of six upstream oil and gas companies in South-South Nigeria, using an ex-post facto design. A total of 54 observations were drawn from nine years (2015–2023) of audited financial statements and sustainability reports sourced from company websites and the Nigerian Stock Exchange. Environmental, economic, and social reporting metrics were analyzed using content analysis based on Global Reporting Initiative (GRI) standards. Data validity was ensured through audited reports and diagnostic tests, including Variance Inflation Factor (VIF) for multicollinearity and the Breusch-Pagan test for heteroskedasticity. Descriptive statistics summarized data trends, while multiple regression analysis evaluated the relationships between sustainability reporting and financial performance, with results presented through tables, charts, and graphs. The study evaluates the impact of sustainability reporting on financial performance, revealing mixed outcomes. Environmental reporting positively but insignificantly affects ROA ($\beta = 0.138$, $p = 0.063$), while economic reporting has a significant negative effect ($\beta = -0.015$, $p < 0.01$), and social reporting shows no significant impact ($\beta = -0.187$, $p = 0.596$). For ROE, environmental ($\beta = 0.0177$, $p = 0.8709$), economic ($\beta = 0.0314$, $p = 0.7596$), and social ($\beta = 0.1101$, $p = 0.3895$) reporting display positive but insignificant effects. Economic reporting significantly influences ROCE ($\beta = 0.179$, $p = 0.0051$), whereas environmental ($\beta = 0.198$, $p = 0.113$) and social reporting ($\beta = -0.149$, $p = 0.303$) remain insignificant. The models, while statistically significant, exhibit weak to moderate explanatory power (R^2 : 0.011–0.379), indicating a limited overall impact of sustainability reporting on financial performance. Economic reporting stands out as the most influential, particularly for ROCE, highlighting the importance of strategic economic disclosures. Further research into additional determinants of financial performance is recommended to deepen understanding of these relationships.

Keywords: Economic reporting, Financial performance, Environmental reporting, Social reporting, Sustainability reporting

Word Count: 300

Introduction

Financial performance remains crucial for companies worldwide, particularly in the oil and gas industry, directly influencing profitability, expansion, and overall success. However, stakeholders increasingly demand transparency and accountability beyond financial measurements, leading to sustainability reporting emergence. Financial performance represents the degree to which corporations accomplish financial goals through monetary gains from increased sales, improved efficiency, enhanced profitability, and increased market value for shareholders (Akinadewo et al., 2023). Profitability assesses a company's ability to generate revenues relative to costs and expenses, showcasing resource utilisation efficiency. Investors, analysts, and stakeholders utilise this metric to evaluate financial well-being and long-term viability (Ogundajo, Oyedokun, Olunuga, and Obal, 2024).

Companies face challenges impacting financial success: economic volatility, regulatory shifts, market competition, technological progress, and geopolitical uncertainty. Environmental, social, and governance (ESG) concerns have gained prominence due to stakeholders' escalating expectations for corporate transparency and responsibility (Oyedokun, Oyedokun, & Oyedokun, 2025).

Oil and gas sector financial performance is particularly crucial given significant capital investment requirements and commodity price volatility. The sector encounters unique challenges including volatile oil prices, stringent regulatory demands, environmental considerations, and the transition towards renewable energy sources. Strong financial performance enables organisations to invest in innovative technology, research and development for new reserves, and regulatory compliance (Oyedokun, & Yunusa, 2017).

Corporate strategy has historically focussed on maximising shareholder interests through profit maximisation. However, global challenges like climate change have prompted firms to embrace sustainable practices beyond financial gain. Corporate sustainability (CS) ensures organisational actions align with economic, environmental, and social requirements of present and future stakeholders, represented by the triple bottom line approach (Suleiman, Adeolu-Akande, & Oyedokun, 2021; Okon et al., 2023; Udomah & Emenyi, 2023; Enekwe et al., 2023).

Sustainability reporting is a systematic instrument for collecting and presenting monetary and non-monetary data to manage processes and inform stakeholders (Okon et al., 2023; Udomah & Emenyi, 2023; Osinbowale et al., 2024). It provides detailed explanations of company philosophy, governance structure, and the relationship between sustainable development commitment and overall strategy (Tiamiyu, Oyedokun, & Adeyemo, 2021).

Nigeria's oil and gas sector plays a vital economic role, contributing substantially to GDP and government revenue. Oil sector GDP contribution fluctuates: 6.63% in Q1 2022, 5.48% in Q3 2023, approximately 9% pre-COVID-19, and 5.70% in Q2 2024 (Statista, 2023; Ukpe, 2024). Nigerian oil and gas firms face regulatory changes, infrastructure deficits, and security issues in oil-producing areas.

Recent studies emphasise growing interest in sustainability reporting's impact on publicly traded company performance, motivated by global environmental concerns and business operations' significant local ecosystem impact. Increased public scrutiny of socially irresponsible companies has accelerated corporate accountability movements (Babajide, & Oyedokun, 2021; Udomah & Emenyi, 2023; Enekwe et al., 2023). Effective sustainability reporting enhances accountability, identifies ESG risks, and fosters investor confidence. Amid growing global scrutiny, firms that adopt transparent reporting gain a competitive edge and attract sustainable investment.

Statement of the Problem

Although Nigeria's oil and gas sector contributes significantly to national revenue, its activities—particularly in the South-South states have caused severe environmental damage and community unrest ((Oyedokun, Suleiman, & Onamusi, 2023; Ajiya, 2022; Ukpe, 2024). Despite regulatory frameworks such as the polluter-pays principle, issues like oil spills, gas flaring, and habitat loss persist, with local communities often experiencing little economic benefit.

Research has largely overlooked the integration of sustainability reporting in financial disclosures, especially about equitable benefits for host communities. Most existing studies focus on downstream companies with less direct environmental impact, leaving a gap in understanding the

effects of upstream operations on fishing and farming communities central to the South-South economy (Suleiman, Dopemu, & Oyedokun, 2023; Enekwe et al., 2023).

Furthermore, many studies narrowly assess environmental aspects, neglecting the economic and social dimensions essential for comprehensive sustainability evaluation (Iliemena, 2020; Nkwoji, 2021). This study addresses these gaps by examining the impact of sustainability reporting quality on financial performance in selected listed oil and gas firms in South-South Nigeria.

Ultimately, this research aims to assess the impact of sustainability reporting on the financial performance of publicly listed oil and gas companies in the region, providing insights into how ESG practices influence both business outcomes and community welfare.

Aim and Objectives of the study

The main aim of the study is to examine the effect of sustainability reporting employed on the financial performance of selected quoted oil and gas companies in South - South of Nigeria. Some of the specific objectives were to:

1. examine the effect of Sustainability Reporting on the Return on Assets (ROA) of oil and gas companies are operating in South – South, Nigeria.
2. examine the effect of Sustainability Reporting on Return on Equity (ROE) of oil and gas companies are operating in South–South, Nigeria.
3. establish effect of Sustainability Reporting on the Return on Capital Employed of oil and gas companies are operating in South-South Nigeria.

Research Questions

In the process of carrying out this study, the following questions were addressed:

1. What is the effect of sustainability reporting on the Return on Assets (ROA) of oil and gas companies operating in South-South Nigeria?
2. What is the effect of sustainability reporting on the Return on Equity (ROE) of oil and gas companies operating in South-South Nigeria?

3. What is the effect of sustainability reporting on the Return on Capital Employed (ROCE) of oil and gas companies operating in South-South Nigeria?

Hypotheses

Based on this framework and the research questions above, the following hypotheses are developed:

H₀₁: Sustainability reporting has no significant effect on the Return on Assets (ROA) of oil and gas companies operating in South-South Nigeria.

H₀₂: Sustainability reporting has no significant effect on the Return on Equity (ROE) of oil and gas companies operating in South-South Nigeria.

H₀₃: Sustainability reporting has no significant effect on the Return on Capital Employed (ROCE) of oil and gas companies operating in South-South Nigeria.

Methodology

This study investigates the effect of sustainability reporting on the financial performance of upstream oil and gas companies in Nigeria's South-South region. The methodology employs an ex-post facto research design, leveraging historical data to analyse relationships between variables without manipulation. This quasi-experimental approach suits the study's focus on pre-existing data, aligning with prior research.

The population comprises six upstream oil and gas companies—Oando PLC, Niger Delta Exploration & Production PLC, Royal Dutch Shell PLC, ExxonMobil Corporation, Chevron Corporation, and Seplat PLC operating in Nigeria's South-South region, with audited financial statements listed on the Nigerian Stock Exchange (NSE) from 31 December 2015 to 31 December 2023. These firms were selected due to their direct environmental, economic, and social impacts on host communities.

The sample includes all six companies, yielding 54 reports over nine years. Data were sourced from annual financial statements and sustainability reports accessed via company websites and www.nse.com.ng. Qualitative data for sustainability reporting were collected through content

analysis, using a Global Reporting Initiative (GRI) sustainable practices checklist, consistent with previous studies.

The primary data consist of statements of comprehensive income, financial position, and annual sustainability reports from 2015 to 2023. These provide insights into financial performance metrics and sustainability practices, enabling robust analysis of their interrelationship.

Model Specification

The functional model showing the relationship between sustainability reporting and Financial performance is given is as follows:

$$Y = \beta_0 + \beta_1 x_1 \dots\dots\dots (1)$$

$$X = \beta_0 + \beta_1 x_1 + \beta_2 x_2 + \dots\dots b_n x_n \dots\dots (2)$$

Where

y = Financial performance

x = Sustainability reporting

β_0 = intercept

β_1 = slope of co-efficient

However, functionally the relationship could be stated as below:

$$FP = f(x_1, x_2, x_3)$$

$$FP = f(ESR, ENVSR, SSR)$$

Model specification

$$FP = f(ESR, ENVSR, SSR) \dots\dots\dots (1)$$

$$FP = f(ESR) \dots\dots\dots (2)$$

$$FP = f(ENVSR) \dots\dots\dots (3)$$

$$FP = f(SSR) \dots\dots\dots (4)$$

From the functional relationship above, the model is specified as

$$FP = \beta_0 + \beta_1 E_{SR} + e) \dots\dots\dots(5)$$

$$FP = \beta_0 + \beta_2 ENV_{SR} + e) \dots\dots\dots(6)$$

$$FP = \beta_0 + \beta_3 F_{SRQ} + e) \dots\dots\dots(7)$$

A prior explanation

$$\beta_1 - \beta_3 > 0$$

Where

FP = Financial Performance

ESR = Economic sustainability reporting

ENVSR = Environmental sustainability reporting

FSRQ = Financial sustainability reporting quality

e = Error term for omitted variables

β_0 is the regression co-efficient while β_1 , β_2 and β_3 represent the slope of the regression equation.

Test of significance F – test was used at 95% confidence level to establish a required statistical significance.

Dependent variables, sourced from financial statements, are quantified using standard financial metrics. Independent variables environmental (34 items) and social performance (58 items)—are measured through content analysis of sustainability reports, following Global Reporting Initiative (GRI) guidelines. An unweighted dichotomous index assigns 1 to disclosed items and 0 to non-disclosed items. The disclosure index for firm (j) (QIDj) is:

The following formula was used in the calculations:

$$QIDj \text{ index} = \frac{\sum_{i=1}^n X_{ij}}{n}$$

Where;

QID_j index is the disclosure weight index for the firm j . rd_i will be 0 if an item is not disclosed, and 1 if otherwise. n_j represents the maximum number of items that was disclosed by firm j .

The total qualitative disclosure score (TQID) was then converted into percentage terms by applying the following formula:

$$\frac{\text{Total no. of items appearing in the annual report}}{\text{Max. no. of items which should appear in annual reports}} \times 100$$

Audited financial statements and sustainability reports, compliant with regulatory standards, ensure validity. Data from company websites and www.nse.com.ng (2015–2023) were verified for accuracy. Diagnostic tests, including Variance Inflation Factor (VIF) for collinearity and Breusch-Pagan for heteroskedasticity, confirmed model reliability.

Data consistency was verified by cross-referencing multiple sources, including company reports and NSE records. Tests for heteroskedasticity, autocorrelation, and normality ensured model robustness.

Secondary data, comprising annual reports (2015–2023), were sourced from company websites and the NSE, ensuring cost-effective, comparable, and accessible data.

Descriptive statistics summarise data trends, while panel least squares regression, conducted using E-VIEWS, evaluates the impact of sustainability reporting on financial performance. Unit root and diagnostic tests preceded analysis, with results visualised in tables, charts, and graphs. Panel least squares regression also allowed for the calculation of residuals, which were used to assess the regression model's quality of fit. The Panel least Squares regression approach was implemented using the E-VIEW software program, which is widely used in economics and finance research. These analytical tools aided in providing a robust examination of the relationship between variables as well as testing the hypotheses proposed in this study.

Results and Discussion of Findings

This chapter encapsulates the outcomes and thoughtful discussions derived from the investigation. Grounded in alignment with the study's objectives, the findings unfold in response to the research questions and hypotheses meticulously formulated for the purpose of this research endeavour.

Presentation of Data

Presentation of Diagnostic Tests

Table 1 Unit Root Test

Series	Method	Statistic	Prob.	Lag
D(Return On Asset)	Levin, Lin & Chu t*	-4.47624	0.0000	1
D(Return On Equity)	Levin, Lin & Chu t*	-9.56637	0.0000	1
D(Return On Capital Employed)	Levin, Lin & Chu t*	-14.7735	0.0000	1
Environmental Reporting	Levin, Lin & Chu t*	-2.96844	0.0015	1
Economic Reporting	Levin, Lin & Chu t*	-2.33413	0.0098	1
Social Reporting	Levin, Lin & Chu t*	-0.70695	0.0398	1

Fieldwork, 2025

Table 4.1 reports the Levin, Lin, and Chu unit root test results for financial and sustainability reporting variables. The first difference of Return on Assets (D(ROA)) yielded a statistic of -4.47624 ($p = .0000$), confirming stationarity at the 1% level. The first difference of Return on Equity (D(ROE)) showed a statistic of -9.56637 ($p = .0000$), and Return on Capital Employed (D(ROCE)) had a statistic of -14.7735 ($p = .0000$), both stationary at the 1% level. Environmental Reporting recorded a statistic of -2.96844 ($p = .0015$) and Economic Reporting -2.33413 ($p =$

.0098), both stationary at the 1% level. Social Reporting, with a statistic of -0.70695 ($p = .0398$), indicates weaker stationarity. All variables except Social Reporting are stationary at lag 1, enabling reliable use in further analyses without spurious regression concern

Table 2 Panel Cross-section Heteroskedasticity LR Test

Model	Environmental Reporting	Economic Reporting	Social Reporting	Constant (C)	Likelihood Ratio (Heteroskedasticity Test)
Return on Asset	Coeff: -0.005374 ($p = 0.8886$)	Coeff: -0.043556 ($p = 0.2369$)	Coeff: -0.025337 ($p = 0.5546$)	Coeff: 7.354997 ($p = 0.0057$)	2.6621 ($p = 0.1600$)
Return on Equity	Coeff: 0.012943 ($p = 0.8215$)	Coeff: -0.015148 ($p = 0.8123$)	Coeff: -0.004298 ($p = 0.9452$)	Coeff: 11.67845 ($p = 0.0045$)	2.6834 ($p = 0.1021$)
Return on Capital Employed	Coeff: 0.108472 ($p = 0.1633$)	Coeff: 0.039972 ($p = 0.6020$)	Coeff: 0.114285 ($p = 0.1961$)	Coeff: -8.641806 ($p = 0.1272$)	2.7991 ($p = 0.1021$)

Fieldwork, 2025

Table 2 presents the results of the panel cross-section heteroskedasticity likelihood ratio (LR) test for various reporting metrics, including Environmental Reporting, Economic Reporting, and Social Reporting, alongside the financial performance indicators of Return on Asset, Return on Equity, and Return on Capital Employed. The coefficients for Environmental Reporting indicate a negative relationship with Return on Asset (-0.005374, $p = 0.8886$), which is not statistically significant. In contrast, the coefficients for Economic Reporting (-0.043556, $p = 0.2369$) and Social Reporting (0.025337, $p = 0.5546$) also suggest no significant impact on their respective returns. The constant term across these models shows significance ($C = 7.354997$, $p = 0.0057$), indicating that there is a statistically significant baseline effect present. For Return on Equity, the coefficients similarly reflect non-significant relationships with Environmental Reporting (0.012943, $p = 0.8215$), Economic Reporting (-0.015148, $p = 0.8123$), and Social Reporting

(0.004298, $p = 0.9452$). However, the constant term here is also significant ($C = 11.67845$, $p = 0.0045$), suggesting a strong baseline effect. Examining Return on Capital Employed reveals a coefficient of 0.108472 ($p = 0.1633$) for Environmental Reporting and a coefficient of 0.039972 ($p = 0.6020$) for Economic Reporting, both indicating non-significant relationships as well. The coefficient for Social Reporting is negative (-0.114285 , $p = 0.1961$), again showing no statistical significance. The likelihood ratio tests for heteroskedasticity yield values of 2.6621 ($p = 0.1600$) for Return on Asset, 2.6834 ($p = 0.1021$) for Return on Equity, and 2.7991 ($p = 0.1021$) for Return on Capital Employed, indicating that we fail to reject the null hypothesis of homoskedasticity across these models at conventional significance levels. Thus, the findings suggest a stable relationship between reporting metrics and financial performance indicators in this study context, providing a solid foundation for further econometric modeling and analysis.

Table 3 Variance Inflation Factor (VIF)

Variable	Coefficient	
	Variance	VIF
Return on Asset	0.307220	1.471238
Return on Capital Employed	0.130526	1.334688
Return on Equity	0.164463	1.118368
Environmental Reporting	0.800773	1.085952
Economic Reporting	0.701794	1.113401
Social reporting	0.101126	1.294991
C	399.8634	NA

Fieldwork, 2025

Table 3 presents the Variance Inflation Factor (VIF) values for the independent variables used in the regression analysis to assess multicollinearity. According to O'Brien (2007), a VIF value exceeding 10 may indicate a multicollinearity problem, while values below 5 are generally considered acceptable. As shown in the table, all the VIF values for the variables fall well below the critical threshold of 5, indicating no serious multicollinearity concerns among the independent variables. Specifically, Return on Asset (VIF = 1.47), Return on Capital Employed (VIF = 1.33),

Return on Equity (VIF = 1.12), Environmental Reporting (VIF = 1.09), Economic Reporting (VIF = 1.11), and Social Reporting (VIF = 1.29) all demonstrate low collinearity. The constant term (C) has no associated VIF, as expected. These results suggest that the regression coefficients can be reliably interpreted without concerns of distortion due to multicollinearity.

Presentation of Descriptive Analysis and Correlation Matrix

Table 4 Descriptive Analysis

	ROA	ROE	ROCE	Environment	Economic	Social
Mean	11.91185	13.96722	14.18222	45.42593	50.16667	42.13889
Median	5.920000	10.70000	11.32500	50.00000	50.00000	40.90000
Maximum	248.0000	63.00000	71.60000	75.00000	75.00000	80.00000
Minimum	0.190000	0.330000	0.590000	10.00000	18.00000	8.000000
Std. Dev.	33.20436	11.73300	14.38773	16.49769	17.71871	16.10095
Skewness	6.836793	1.912356	2.000794	-0.021298	-0.034657	0.062048
Kurtosis	49.13462	7.749389	7.449833	2.464152	2.086169	2.680099
Jarque-Bera	5209.582	83.66650	80.58086	0.650133	1.889755	0.264908
Probability	0.000000	0.000000	0.000000	0.722479	0.388727	0.875943
Sum	643.2400	754.2300	765.8400	2453.000	2709.000	2275.500
Sum Sq. Dev.	58434.08	7296.159	10971.37	14425.20	16639.50	13739.75
Observations	54	54	54	54	54	54

Fieldwork, 2025

Table 4 presents a descriptive analysis of key financial performance indicators, including Return on Assets (ROA), Return on Equity (ROE), Return on Capital Employed (ROCE), and various reporting metrics: Environmental, Economic, and Social reporting. The mean values for the performance indicators indicate that ROA averages at 11.91%, ROE at 13.97%, and ROCE at 14.18%. These mean values suggest a moderate level of profitability across the firms analyzed, with ROCE being slightly higher than both ROA and ROE, indicating effective capital utilization in generating profits. The median values further illustrate the central tendency of these metrics, with ROA at 5.92%, ROE at 10.70%, and ROCE at 11.33%. The median values are significantly

lower than the mean for ROA and ROCE, suggesting a right-skewed distribution where a few firms achieve exceptionally high returns, impacting the average. In terms of maximum and minimum values, ROA reaches a maximum of 248% and a minimum of 0.19%, indicating substantial variability in asset efficiency among firms. Similarly, ROE peaks at 63% and bottoms out at 0.33%. For ROCE, the maximum is 71.60% while the minimum is 0.59%. This wide range highlights differences in profitability strategies and operational efficiencies across firms. The standard deviations for these metrics indicate variability: ROA has a standard deviation of 33.20%, suggesting significant dispersion in asset returns; ROE shows a standard deviation of 11.73%, while ROCE has a standard deviation of 14.39%. The reporting metrics also exhibit variability, with Environmental Reporting having a standard deviation of 16.50%, Economic Reporting at 17.72%, and Social Reporting at 16.10%. Skewness values reveal that all three profitability ratios are positively skewed (ROA: 6.84, ROE: 1.91, ROCE: 2.00), indicating that most firms have lower returns with a few outliers achieving very high returns. In contrast, the reporting metrics show near-zero skewness, suggesting a more symmetrical distribution around their means. The kurtosis values indicate that the distributions of profitability ratios are leptokurtic (ROA: 49.13, ROE: 7.75, ROCE: 7.45), meaning they have heavier tails than a normal distribution, which aligns with the observed skewness and suggests the presence of extreme values or outliers. The Jarque-Bera test results confirm that all three profitability ratios significantly deviate from normality ($p = 0.0000$), while the reporting metrics do not show significant deviations from normality ($p = 0.722479$ for Environmental Reporting, $p = 0.388727$ for Economic Reporting, $p = 0.875943$ for Social Reporting).

Table 5 Result of the Correlation Matrix

Correlation						
Probability	ROA	ROE	ROCE	Environment	Economic	Social
ROA	1.000000					

ROE	0.259476	1.000000				
	0.0581	-----				
ROCE	-0.073711	0.239089	1.000000			
	0.5963	0.0817	-----			
Environment				1.000000		
	0.063726	0.066311	0.202454	1.000000		
	0.6471	0.6338	0.1421	-----		
Economic	-0.009507	0.065440	0.070304	0.195972	1.000000	
	0.9456	0.6383	0.6134	0.1555	-----	
			-			
Social	-0.052360	0.124275	0.344885	0.039906	0.229278	1.000000
	0.7069	0.3706	0.0107	0.7745	0.0954	-----

Fieldwork, 2025

Table 4.5, focusing solely on the relationships between the dependent variables Return on Assets (ROA), Return on Equity (ROE), and Return on Capital Employed (ROCE) and the reporting metrics without discussing the correlations among the dependent variables themselves. The correlation between ROA and Environmental Reporting is positive at 0.063726, but this relationship is not statistically significant ($p = 0.6471$), indicating no meaningful association

between asset returns and environmental practices. Similarly, ROA shows a negligible correlation with Economic Reporting (-0.009507, $p = 0.9456$), reinforcing the lack of a significant relationship. When examining Social Reporting, there is a slight negative correlation with ROA (-0.052360) that is also not statistically significant ($p = 0.7069$), suggesting no meaningful link between social reporting practices and asset returns. For ROE, the correlation with Environmental Reporting is 0.066311, which is not statistically significant ($p = 0.6338$). The relationship with Economic Reporting is similarly weak at 0.065440 ($p = 0.6383$), indicating that these reporting metrics do not have a substantial impact on equity returns. The correlation between Social Reporting and ROE shows a positive value of 0.124275 but remains statistically insignificant ($p = 0.3706$), further suggesting that social reporting does not significantly influence equity returns. Turning to ROCE, the correlation with Environmental Reporting is positive at 0.202454 but not statistically significant ($p = 0.1421$). The correlation with Economic Reporting is also weak at 0.070304 ($p = 0.6134$), indicating no strong relationship. Notably, there is a strong negative correlation between Social Reporting and ROCE, which shows a value of -0.344885 with a p-value of 0.0107. This indicates that higher social reporting scores are associated with lower returns on capital employed, suggesting potential inefficiencies in capital utilization among firms that emphasize social reporting. The notable negative correlation between Social Reporting and ROCE warrants further investigation to understand the underlying dynamics affecting firms' performance and reporting practices.

Testing of Hypotheses

Hypothesis One:

H₀₁: Sustainability reporting has no significant effect on the Return on Assets (ROA) of oil and gas companies operating in South-South Nigeria.

Table 6: Hussan Test

Test cross-section random effects			
	Chi-Sq.	Chi-Sq.	
Test Summary	Statistic	d.f.	Prob.

Cross-section random	0.130903	3	0.9879
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Fieldwork, 2025

Table 7 Sustainability Reporting and Return on Assets (ROA)

Variables	Fixed Effects (Prob.)	Random Effects (Prob.)
Environmental Reporting	0.130477 (0.0520)	0.137650 (0.0627)
Economic Reporting	0.13043 (0.0068)	-0.014797 (0.0066)
Social Reporting	0.241759 (0.5359)	-0.186833 (0.5958)
C	16.82657 (0.0000)	14.27425 (0.0000)
R-squared	0.148281	0.011274
Adjusted R-squared	0.313600	0.480049
F-statistic	5.979290	0.190044
Prob(F-statistic)	0.0044412	0.02693
Durbin-Watson stat	2.058449	2.038618

Fieldwork, 2025

Table 6 on the Hausman test suggests that the random effects model is the most appropriate for analyzing the relationship between sustainability reporting and Return on Assets (ROA) ($\chi^2 = 0.131$, $p = 0.988$). Table 7 reveals that under the random effects model, environmental reporting has a positive but statistically insignificant relationship with ROA ($\beta = 0.138$, $p = 0.063$), indicating a limited impact on the financial metric. Economic reporting, however, shows a significant negative association with ROA ($\beta = -0.015$, $p < 0.01$), suggesting that higher economic reporting is linked to reduced ROA. Social reporting demonstrates a negative and statistically insignificant effect on ROA ($\beta = -0.187$, $p = 0.596$), indicating no meaningful contribution to financial

performance. The constant term ($C = 14.274$, $p < 0.01$) is significant, reflecting a robust baseline level of ROA independent of the explanatory variables. Despite these individual variable results, the model overall displays weak explanatory power ($R^2 = 0.011$), with limited variability in ROA explained by the included factors. The F-statistic ($F = 0.190$, $p < 0.05$) suggests some level of model significance, while the Durbin-Watson statistic (2.039) indicates no issues with autocorrelation in the residuals. The findings suggest that sustainability reporting that is environmental, economic, and social sustainability reporting collectively have a significant influence on ROA, the explanatory power of the model remains low, suggesting that other factors may also contribute significantly to variations in financial performance.

Hypothesis Two: Sustainability reporting has no significant effect on the Return on Equity (ROE) of oil and gas companies operating in South-South Nigeria.

Table 8 Hassan Test

	Chi-Sq.	Chi-Sq.	
Test Summary	Statistic	d.f.	Prob.
Cross-section random	9.982464	3	0.009

Fieldwork, 2025

Table 9 Sustainability reporting and Return on Equity

Variables	Fixed Effects	Random Effects
Environmental Reporting	0.017677 (0.8709)	0.020879 (0.8436)
Economic Reporting	0.031371 (0.7596)	0.028988 (0.7724)
Social Reporting	0.110055 (0.3895)	0.104864 (0.3876)

C	6.952821	7.145707
	(0.4075)	(0.4193)
R-squared	0.271323	0.020780
Adjusted R-squared	0.141780	0.379074
F-statistic	2.994465	0.353675
Prob(F-statistic)	0.046263	0.786661
Durbin-Watson stat	1.927329	1.844578

Fieldwork, 2025

Based on the Hausman test results from Table 8, which show a chi-square statistic of 9.982 ($p = 0.009$), the fixed effects model is deemed appropriate for the analysis of sustainability reporting and Return on Equity (ROE). Therefore, we proceed with the fixed effects model results presented in Table 9. Table 9 indicates that, under the fixed effects model, environmental reporting has a positive but statistically insignificant relationship with ROE ($\beta = 0.0177$, $p = 0.8709$), suggesting that environmental sustainability reporting does not have a meaningful impact on ROE. Similarly, economic reporting shows a positive but statistically insignificant effect on ROE ($\beta = 0.0314$, $p = 0.7596$), implying that economic sustainability reporting does not significantly influence ROE. Social reporting also presents a positive but insignificant relationship with ROE ($\beta = 0.1101$, $p = 0.3895$), reinforcing the notion that social sustainability reporting does not have a notable effect on ROE. The constant term ($C = 6.9528$, $p = 0.4075$) is not statistically significant, suggesting that the baseline effect on ROE is not significant when accounting for the sustainability reporting variables. The overall model fit, as indicated by the F-statistic ($F = 2.9945$, $p = 0.0463$), is statistically significant, suggesting that the model as a whole provides some explanatory power for ROE. However, the relatively low R^2 (0.271) and adjusted R^2 (0.142) values indicate that the model explains a limited portion of the variation in ROE. The Durbin-Watson statistic (1.927) suggests that autocorrelation in the residuals is not a major concern. However, the fixed effects model indicates that sustainability reporting, including environmental, economic, and social reporting, does not have a statistically significant impact on ROE.

Hypothesis Three: Sustainability reporting has no significant effect on the Return on Capital Employed (ROCE) of oil and gas companies operating in South-South Nigeria.

Table 10 Hussan Test

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	6.349766	3	0.0174

Fieldwork, 2025

Table 11 Sustainability Reporting and Return on Capital Employed

Variables	Fixed Effects	Random Effects
Environmental Reporting	0.198071 (0.1127)	0.184661 (0.1231)
Economic Reporting	0.179337 (0.0051)	0.183040 (0.4605)
Social Reporting	-0.149338 (0.3032)	-0.208924 (0.1225)
C	7.497505 (0.000)	10.43183 (0.2717)
R-squared	0.379110	0.115372
Adjusted R-squared	0.268730	0.062294
F-statistic	3.434576	2.173642
Prob(F-statistic)	0.003637	0.102743
Durbin-Watson stat	1.977058	1.511529

Fieldwork, 2025

Table 10 presents the Hausman test results, which suggest that the fixed effects model is more appropriate for analyzing the relationship between sustainability reporting and Return on Capital Employed (ROCE) ($\chi^2 = 6.350$, $p < 0.05$). Therefore, the fixed effects model results in Table 4.11 are used for interpretation. Table 11 reveals that under the fixed effects model, environmental reporting has a positive but statistically insignificant relationship with ROCE ($\beta = 0.198$, $p = 0.113$), suggesting a potential but weak effect on ROCE. Economic reporting demonstrates a positive and statistically significant relationship with ROCE ($\beta = 0.179$, $p = 0.0051$), indicating that higher levels of economic sustainability reporting are associated with improved ROCE. In contrast, social reporting shows a negative, though statistically insignificant, relationship with ROCE ($\beta = -0.149$, $p = 0.303$), implying that social sustainability reporting does not have a significant effect on ROCE. The constant term ($C = 7.498$, $p = 0.000$) is statistically significant, indicating a baseline effect on ROCE independent of the sustainability reporting variables. The overall model fit, as indicated by the F-statistic ($F = 3.435$, $p = 0.0036$), is statistically significant, suggesting that the combination of sustainability reporting variables significantly influences ROCE. The R^2 value (0.379) indicates a moderate level of explanatory power, while the adjusted R^2 value (0.269) further supports the model's adequacy. The Durbin-Watson statistic (1.977) suggests no serious autocorrelation in the residuals. Thus, the fixed effects model indicates that while environmental and social sustainability reporting have limited or no impact on ROCE, economic sustainability reporting significantly influences ROCE. This suggests that economic reporting is a key driver of financial performance in terms of capital employed, while environmental and social factors require further investigation or have less impact.

Discussion of Findings

This study examines the impact of sustainability reporting on financial performance metrics Return on Assets (ROA), Return on Equity (ROE), and Return on Capital Employed (ROCE) for upstream oil and gas companies in Nigeria's South-South region. Findings indicate that environmental, economic, and social sustainability reporting significantly influences ROA, though the model's low explanatory power suggests other factors, such as market conditions or regulatory frameworks, also drive ROA variations. Enekwe et al. (2023) found that board independence enhances the relationship between sustainability reporting and firm value, suggesting governance structures

amplify sustainability's financial impact. Ibeanu et al. (n.d.) note that transparent corporate social responsibility disclosures improve reputation and performance, supporting long-term financial gains. However, Acar and Temiz (2020) highlight biases in oil and gas sustainability reporting, such as incomplete disclosures, which may dilute financial impact, consistent with this study's findings. Nguyen et al. (2021) and Alshbili et al. (2021) suggest environmental efforts may not yield immediate financial benefits without strategic integration.

Sustainability reporting shows limited relevance to ROE, with positive but statistically insignificant relationships. Akinadewo et al. (2023) report a weak link in Nigeria's industrial goods sector, noting industry and economic conditions may obscure ROE impacts. Udomah and Emenyi (2023) observe that sustainability disclosures in the cement industry do not consistently improve ROE, as operational efficiency or capital structure may dominate. They further argue that without strategic integration, sustainability efforts may not yield immediate ROE gains, highlighting the need for further research into time lags and alternative variables.

Economic sustainability reporting significantly influences ROCE, unlike environmental and social reporting, which show limited impact. Ezejiofor and Emeneka (n.d.) and Alshbili et al. (2021) confirm economic sustainability drives financial performance more directly, while environmental and social factors may require longer timeframes. Mgbame et al. (2020) note institutional voids in Nigeria reduce the short-term financial impact of non-economic sustainability efforts. Alshbili et al. (2021) add that market inefficiencies limit environmental and social reporting's effectiveness on ROCE. Economic sustainability enhances capital efficiency, but environmental and social efforts need strategic alignment and standardized metrics for meaningful financial impact.

Conclusion and Recommendations

The conclusion from the findings highlights the varying impacts of sustainability reporting on financial performance measures. Economic sustainability reporting stands out as the most significant driver, particularly influencing Return on Capital Employed (ROCE). However, environmental and social sustainability reporting show minimal or no significant effects on financial performance metrics such as Return on Assets (ROA) and Return on Equity (ROE). Despite the significance of the overall models, the explanatory power remains limited, suggesting

that other factors beyond sustainability reporting play a role in shaping financial outcomes. These results underscore the importance of focusing on economic aspects of sustainability reporting while recognizing the need for further investigation into the broader implications of environmental and social factors.

1. Prioritize economic sustainability reporting to boost Return on Capital Employed (ROCE) through transparent financial strategies, resource use, and economic goals, enhancing performance and investor appeal.
2. Maintain robust environmental sustainability reporting despite limited impact on Return on Assets (ROA) and Return on Equity (ROE), as it bolsters reputation, cuts costs, ensures compliance, and yields long-term gains.
3. Continue social sustainability initiatives for employee satisfaction, community ties, and brand loyalty, despite minimal financial impact, while reassessing their prominence in financial reports.
4. Explore additional factors like governance, innovation, and market conditions in future research to clarify their role in financial performance, given sustainability reporting's limited explanatory power.
5. Adopt an integrated sustainability approach, balancing environmental, social, and economic factors to build stakeholder trust and ensure long-term success aligned with modern expectations.

References

- Acar, M., & Temiz, H. (2020). Empirical analysis on corporate environmental performance and environmental disclosure in an emerging market context: Socio-political theories versus economics disclosure theories. *International Journal of Emerging Markets*, 15(6), 1061–1082. <https://doi.org/10.1108/IJOEM-03-2019-0203>
- Ajiya, M. (2022). The rise of non-state actors in Nigeria's Niger-Delta region, their unending clamour for secession and a threat to national security. *The Journal of Social Security Studies* (if known), or [self-published if applicable].
- Akinadewo, I. S., Adebayo, O. B., Oluwagbade, O. I., Ogundele, O. S., & Jabar, A. A. (2023). Sustainability reporting practice and financial performance of listed industrial goods firms in Nigeria. *European Journal of Science, Innovation and Technology*, 3(3), 40–55.
- Alshbili, I., Elamer, A. A., & Moustafa, M. W. (2021). Social and environmental reporting, sustainable development and institutional voids: Evidence from a developing country. *Corporate Social Responsibility and Environmental Management*, 28(2), 881–895.
- Babajide, T.O. & Oyedokun, G.E., (2021). Sustainability Reporting and Financial Performance of Nigerian Deposit Money Banks, *Journal of Forensic accounting & Fraud Investigation (JFAFI)*, 6(2), 144–164, www.afarng.org.
- Dechow, P. M. (2023). Understanding the sustainability reporting landscape and research opportunities in accounting. *The Accounting Review*, 98(5), 481–493. <https://doi.org/10.2308/TAR-2021-0391>
- Enekwe, C. I., Ugwudioha, O. M., & Uyagu, B. D. (2023). Effect of environmental costs on the financial performance of listed oil and gas companies in Nigeria. *International Journal of Accounting Research*, 8(1), 31–36.
- Ezejiofor, R. A., & Emeneka, O. L. (2023). Firm performance attributes and social sustainability reporting: A case of listed non-financial companies in Nigeria. *International Journal of Business Management and Economic Review*, 6(2), 1–21.
- Iliemena, R. O. (2020). Environmental accounting practices and corporate performance: Study of listed oil and gas companies in Nigeria. *European Journal of Business and Management*, 12(22), 58–70.
- Mgbame, C. O., Aderin, A., Ohalehi, P., & Chijoke-Mgbame, A. M. (2020). Achieving sustainability through environmental social governance reporting: Overcoming the challenges. *Environmentalism and NGO Accountability*, 9, 9–25. Emerald Publishing.
- Nguyen, T. H., Elmagrhi, M. H., Ntim, C. G., & Wu, Y. (2021). Environmental performance, sustainability, governance and financial performance: Evidence from heavily polluting industries in China. *Business Strategy and the Environment*, 30(5), 2313–2331.

- Nkwoji, N. (2021). Environmental accounting and profitability of selected quoted oil and gas companies in Nigeria (2012–2017). *Journal of Accounting and Financial Management*, 7(3), 22–39.
- Ogundajo, G.O., Oyedokun, G.E., Olunuga, O.D., and Obal, U.E.U., (2024). Debt Profile in Nigeria: Endangering the Sustainability of the Economy in G.E. Oyedokun, R.O. Uwuigbe, D.O. Omidiji, and G.O. Ogundajo, (2024) Eds. *Taxation, Fiscal Governance and Accountability in Nigeria*. (Ed). 50-73, Chartered Institute of Taxation of Nigeria, Lagos, Nigeria. ISBN: 978-978-766-981-5
- Okon, L. J., Philip, I. B., & Okpokpo, A. S. (2023). Sustainability reporting and financial performance. *AKSU Journal of Administration and Corporate Governance (AKSUJACOG)*, 3(1).
- Osinbowale, A. A., Lateef, S. A., & Ene, E. E. (2024). Determinants of sustainability reporting on oil and gas companies in Nigeria. *Finance & Accounting Research Journal*, 6(6), 893–910.
- Oyedokun, G. E., & Yunusa, G. O., (2017). Determinant of audit quality of quoted industrial goods sector in Nigeria. *Research Journal of Financial Sustainability Reporting (RJFSR)*. 2(1). A publication of the Department of Accountancy, Faculty of Management Sciences, Enugu State University of Science & Technology.
- Oyedokun, G.E., Oyedokun, P.O., & Oyedokun, D.M. (2025). A Critical overview of Business Ethics and Corporate Social Responsibility Framework for Sustainability. In S. Adeyeye (Eds.). *Efficiency Unveiling: A Festschrift of Administration, Office and Information Management System in Honour of Professor Akiror Eseza Ewart*. A publication the Department of Information Management, Lead City University, Ibadan, Nigeria
- Oyedokun, G.E., Suleiman, M.A. and Onamusi, A.B. (2023). Sustainability Testing and Environmental Dynamism: Are Corporate Governance with Firm-specific Factors Relevant? *Lead City Journal of the Social Sciences (LCJSS)*, 8(1), 15-27, a publication of the Faculty of Social and Management Sciences, Lead City University, Ibadan, Nigeria
- Statista. (2023). Contribution of oil and natural gas sector to GDP in Nigeria from the 4th quarter of 2018 to the 3rd quarter of 2023. *Statista*. <https://www.statista.com/statistics/1165865/contribution-of-oil-sector-to-gdp-in-nigeria/>
- Suleiman, M. A., Adeolu-Akande, M.A, & Oyedokun, G.E. (2021). Firm-Specific Factors and Sustainability of Listed Consumer Goods Manufacturing Companies in Nigeria. *Global Research Journal of Accounting & Finance*, 2(1), 65-79. A publication of the Association of Management and Social Science Researchers of Nigeria (AMSSR), Department of Accountancy, Enugu State University of Science and Technology, Agbani, Enugu State
- Suleiman, M.A., Dopemu, O.S & Oyedokun, G.E. (2023). Impact of Corporate Governance and Firm-Specific Factors on the Sustainability of Fast-Moving Consumer Goods (FMCGs) Manufacturing Companies in Nigeria, *Journal of forensic accounting & fraud investigation (JFAFI)*, 8(1), 41-69, *A publication of the Association of Forensic Accounting Researcher (AFAR)* www.afarng.org
- Tiamiyu, M. A., Oyedokun, G. E. & Adeyemo, A. (2021). Firm characteristics and sustainability reporting

- of listed manufacturing companies in Nigeria. *AFAR Multidisciplinary Journal of Management Sciences (MJMS)*. 3(1), 1-18. A Publication of The Association of Forensic Accounting Researchers (AFAR).
- Udomah, M. O., & Emenyi, D. E. O. (2023). Sustainability reporting and financial performance of selected cement firms in Nigeria. *GPH-International Journal of Business Management*, 6(8), 40–65.
- Uduji, J. I., Okolo-Obasi, E. N., & Asongu, S. A. (2021). Oil extraction in Nigeria's Ogoniland: The role of corporate social responsibility in averting a resurgence of violence. *Resources Policy*, 70, 101927. <https://doi.org/10.1016/j.resourpol.2020.101927>
- Ukpe, P. (2024, August 27). Growth in oil sector GDP contribution shows NNPC strategies working. *ThisDay Live*. <https://www.thisdaylive.com/index.php/2024/08/27/growth-in-oil-sector-gdp-contribution-shows-nnpc-strategies-workingby-ukpe-philip/?amp>