Sustainability Disclosures and Financial Performance of Listed Oil and Gas Firms in Nigeria

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Abstract
Despite the increasing global emphasis on sustainability and the growing pressure on Nigerian oil and gas companies to embrace sustainability reporting, sustainability disclosure is not fully embraced in Nigeria. The main objective of this study therefore was to examine the effect of sustainability disclosures on the financial performance of listed oil and gas firms in Nigeria. The independent variable, sustainability disclosures, was proxied by environmental sustainability disclosure, social sustainability disclosure and economic sustainability disclosure while the dependent variable, financial performance, was proxied by return on equity (ROE). The research design adopted for this study was ex post facto, secondary data were used and the population of the study was 9 listed oil and gas firms in Nigeria while the sample of 6 companies was purposively selected. The data were analyzed using ordinary least square regression analysis and the statistical package employed was STATA version 17. The findings of the study revealed that environmental sustainability disclosure (coeff. = -2.024[0.068]) has no significant effect on return on equity; social sustainability disclosure (coeff. = 0.582[0.005]) has a significant positive effect on return on equity; economic sustainability disclosure (coeff. = -0.162[0.652]) has a statistically non-significant negative effect on return on equity; Thus, it was concluded that sustainability disclosures could improve financial practices. It was therefore recommended amongst others that the management of listed oil and gas firms should expand their efforts in social sustainability practices by engaging in community development projects, employee welfare programs, and other socially impactful activities.

Keywords: *Sustainability reporting, environmental sustainability, social sustainability, economic sustainability, financial performance, return on equity*

1.1 Background of the study

The global landscape is increasingly characterized by a heightened awareness of environmental, social, and governance (ESG) issues, prompting a paradigm shift in how businesses operate and are perceived. This shift is particularly pronounced in the oil and gas sector, which has historically been associated with significant environmental impacts and social challenges. As a result, stakeholders, including investors, regulators, customers, and communities, are demanding greater transparency and accountability from companies regarding their sustainability performance. This demand has fueled the rise of sustainability reporting, also known as ESG reporting or non-financial reporting, which involves the disclosure of information on a company's environmental footprint, social impact, and governance practices (Mustafa & Mansor, 2024).

In Nigeria, a major oil-producing nation, the oil and gas sector remains the backbone of the economy. However, its operations have often been linked to environmental degradation, such as oil spills and gas flaring, and social issues, including community displacement and resource conflicts. Consequently, Nigerian oil and gas companies are under increasing pressure to demonstrate their commitment to sustainable development. Regulatory bodies, such as the Securities and Exchange Commission (SEC) and the Nigerian Stock Exchange (NSE), have begun to emphasize the importance of non-financial disclosures, encouraging listed companies to adopt sustainability reporting frameworks (Utomo et al., 2020). This is in line with global trends where frameworks like the Global Reporting Initiative (GRI) and the Sustainability Accounting Standards Board (SASB) provide guidelines for companies to report on their material ESG issues.

Sustainability disclosures refer to the public reporting by companies on their environmental, social, economic and governance performance and impacts (Iswati, 2020). This goes beyond traditional financial statements to provide a holistic view of an organization's operations, risks, and opportunities related to sustainable development. Environmental sustainability disclosure specifically pertains to a company's reporting on its impact on natural ecosystems and its management of environmental resources. Social sustainability disclosure refers to the reporting to the public of the company's impact on its stakeholders, including employees, customers, communities, and the broader society. Economic sustainability disclosure, refers to a company's contribution to the economic well-being of its stakeholders and the broader economy, beyond just its financial performance. According to Organization for Economic Co-operation and Development (OECD), corporate governance deals with the rights and responsibilities of a company’s management, its board, shareholders and various stakeholders (Isaac et al., 2024)

Financial performance refers to the overall health and effectiveness of a company in generating revenue, managing expenses, and utilizing its assets to create value for its shareholders. A While the primary objective of businesses is to generate financial returns for shareholders, there is a growing recognition that strong sustainability performance can contribute to long-term financial viability. Proponents argue that effective sustainability management can lead to cost savings through reduced resource consumption, enhanced brand reputation, improved access to capital from socially responsible investors, reduced regulatory and litigation risks, and increased employee morale and productivity (Ugbogbo & Obamwonyi, 2023). Conversely, poor sustainability performance can result in significant financial penalties, reputational damage, boycotts, and difficulty in attracting and retaining talent. Thus, this study was carried out to ascertain the effect of sustainability disclosure on financial performance in Nigeria

1.2 Statement of the problem

Despite the increasing global emphasis on sustainability and the growing pressure on Nigerian oil and gas companies to embrace sustainability reporting, sustainability disclosure s not fully embraced in Nigeria. The voluntary nature of comprehensive sustainability reporting for many Nigerian companies, coupled with the nascent stage of regulatory enforcement, raises questions about the quality, comparability, and reliability of the reported information. This makes it difficult for stakeholders, including investors, to accurately assess and compare the sustainability performance of different companies, and consequently, to ascertain its true impact on financial outcomes. There is a need to understand how the varying levels of transparency and rigor in sustainability reporting among these companies influence their financial standing. In addition to this, the unique operating environment of the Nigerian oil and gas sector presents specific challenges and opportunities that may moderate the relationship between sustainability reporting and financial performance. Issues such as community unrest, regulatory inconsistencies, crude oil theft, and fluctuating global oil prices introduce complexities not always captured by generic sustainability frameworks. The problem, therefore, lies in understanding how these contextual factors interact with sustainability reporting efforts to either enhance or hinder financial performance.

Worst still the findings on these empirical studies are mixed and inconclusive. Therefore, this study seeks to address these gaps by empirically investigating the nexus between sustainability reporting practices and the financial performance of listed oil and gas companies in Nigeria, thereby contributing to both academic knowledge and practical decision-making in the sector.

1.3 Objectives of the study

The main objective of this study was to examine the effect of sustainability disclosures on the financial performance of listed oil and gas firms in Nigeria. However, the specific objectives of the study were to;

1. Ascertain the effect of environmental sustainability disclosure on return on equity of listed oil and gas firms in Nigeria.
2. Examine the effect of social sustainability disclosure on return on equity of oil and gas firms in Nigeria.
3. Investigate the effect of economic sustainability disclosure on return on equity of listed oil and gas firms in Nigeria.

1.4 Research questions

The following research questions were raised in this study;

1. How does environmental sustainability disclosure affect return on capital employed of listed oil and gas firms in Nigeria?
2. What is the effect of social sustainability disclosure on the return on capital employed of listed oil and gas firms in Nigeria?
3. What effect does economic sustainability disclosure have on return on capital employed of listed oil and gas firms in Nigeria?

1.5 Research hypotheses

The following hypotheses were formulated to guide this study.

H_{01}: Environmental sustainability disclosure has no significant effect on return on capital employed of listed oil and gas firms in Nigeria.

H_{02}: Social sustainability disclosure has no significant effect on return on capital employed of listed oil and gas firms in Nigeria.

H_{03}: Economic sustainability disclosure has no significant effect on return on capital employed of listed oil and gas firms in Nigeria.

2.0 Review of related literature

2.1. Sustainability disclosures

Sustainability disclosures refer to the public reporting by companies on their environmental, social, economic and governance performance and impacts. This goes beyond traditional financial statements to provide a holistic view of an organization's operations, risks, and opportunities related to sustainable development. it encompasses all the information provided by listed oil and gas companies in Nigeria about their efforts to manage their environmental footprint, foster positive social impacts, and maintain sound governance practices Ugbogbo & Obamwonyi, 2023). This information can be found in various documents, including annual reports, dedicated sustainability reports, integrated reports, and company websites. The extent and quality of these disclosures are central to understanding a company's commitment to sustainability and its potential link to financial outcomes. According to GRI (2015), sustainability reporting is the practice of measuring, disclosing and being accountable to internal and external stakeholders for organizational performance of the goals of sustainable development.

Similarly, Dow Jones sustainability index in KPMG (2020) looked at sustainability reporting as a business approach that created long term shareholder value by embracing opportunities and managing risks deriving from economic, environmental, and social developments. It can be synonymous with triple bottom line reporting, corporate responsibility reporting and sustainable development reporting, but increasingly, these terms have become more specific in meaning and therefore, subsets of sustainability reporting (Evangelinos et al., 2020). Hussain (2019) defines sustainability reporting as a subset of accounting and reporting that deals with activities, methods, and systems to record, analyses and report, firstly, environmentally, and socially induced financial impacts and secondly, ecological, and social impacts of a defined economic system, measurement, analysis and communication of interactions and links among social, environmental, and economic issues constituting the three dimensions of sustainability.

2.2 Financial performance

Financial performance refers to the overall health and effectiveness of a company in generating revenue, managing expenses, and utilizing its assets to create value for its shareholders. A company's financial performance at a given point in time is determined by its financial health (Iswati et al.,2020). Stated differently, it is a monetary achievement attained by improved sales, improved efficiency, improved profitability and improve market value to its shareholders as a result of sound financial management (Ugbogbo & Obamwonyi, 2023). Company financial performance is the most important indicator of business growth because it demonstrates the companies' capacity to increase income levels. According to Abeyrathne and Illubethanne (2023) financial performance is in the question of “if a firm’s financial goals have been met or not”. Financial performance is a subjective measure of how well firms can use assets from its primary mode of business and generate revenue. It can be expressed in terms of income generated from its operation, after offsetting expenses to arrive at net income.

Financial performance is used as a general measure of firms’ overall financial health over a given period of time.it can be used to compare similar firms across the same industry or to compare industry or sectors in aggregation. Company’s performance indicators include the financial and non-financial indicators. Financial indicators have been widely adopted because a company’s long term long term goal is almost always purely financial in nature (Agarwal et al., 2023). Financial performance evaluation indicators directly link up the company’s financial study. Some common measures of financial performance frequently utilized in academic literature include, profitability ratios and market value ratio. This study used profitability ratio (return on equity) to measure financial performance.

2.3 Sustainability disclosure and financial performance

Effective sustainability disclosure is increasingly linked to improved financial performance. Companies that genuinely integrate ESG principles into their strategy and transparently report on their efforts are more likely to build long-term value, enhance their reputation, manage risks, and attract capital. Transparent sustainability reporting builds trust with stakeholders, including customers, investors, and employees. A positive brand image can lead to increased sales, customer loyalty, and a stronger competitive position. Investors, particularly those focused on socially responsible investing (SRI), are increasingly looking for companies with strong ESG performance.

2.3.1 Environmental sustainability disclosure and return on equity

Disclosing environmental performance often means the company is actively managing its resource consumption (energy, water, waste), leading to cost savings and improved efficiency. Companies that demonstrate a commitment to environmental protection can attract environmentally conscious consumers, boosting sales and market share. Proactive environmental disclosure and management can help companies avoid fines, penalties, and legal challenges related to environmental damage. Investors are increasingly seeking companies with strong environmental performance, potentially leading to lower costs of debt and equity. Many scholars have investigated whether firms are financially rewarded for improving environmental performance. One plausible argument is that any investment in the natural environment comes at a cost to firms and detracts from profit maximization (Etim & Akpan, 2023). Without clearly defined ownership rights to public goods such as air or water quality, society incurs the cost of a firm's pollution (Abeyrathne & Illubethanne, 2023). A firm that voluntarily internalizes these externalities incurs cost and is not maximizing profit. On the other hand, proponents of a "win–win" argument like Haidar and Sohail, (2021) claims that environmental performance often constitutes latent profit maximization opportunities into which Isaac et al., (2024) present arguments supporting several opportunities for firms to increase revenue or reduce costs by reducing their environmental impact.

2.3.2 Social sustainability disclosure and return on equity

The impact of social sustainability disclosure on ROE is mixed. Companies with strong social performance (e.g., fair labor practices, employee well-being, diversity) can attract and retain highly skilled employees, leading to increased productivity and reduced recruitment costs. Addressing social issues like labor disputes, human rights violations, or community opposition can prevent disruptions and reputational damage. Engaging positively with local communities can lead to smoother operations, easier access to resources, and reduced social license to operate risks. Attempts to identify the relationship between social sustainability and the performance of firms have been made by many scholars (Dan et al, 2025; Etim & Akpan 2023). Possible explanations for the lack of consensus and difficulties in measuring corporate social sustainability have been given in previous studies (Hendra & Yeni, 2022)). One possibility is to attribute this inconsistency to the multidimensional social sustainability concept and its interrelationship across many disciplines; varying concepts and issues from strategic perspectives to human resource management, culture, and stakeholder/shareholder perspective. Another research group suggested that these unidentified and omitted explanatory variables made it difficult to understand the latent mechanisms.

Meanwhile, several studies tested the existence of a relationship between a firm's corporate social sustainability and performance. Isaac et al (2024) and Dan et al. (2025) found a positive relationship between social performance disclosure and financial performance. On the other hand Ansari et al. (2023) found a negative relationship.

2.3.3 Economic disclosure and return on equity

This aspect of sustainability disclosure often has a direct and significant positive effect on financial performance, including ROE. Economic sustainability relates to the long-term viability and financial health of the company, and its contribution to the economic well-being of its stakeholders. Transparency in value creation: Disclosing how the company creates economic value for its stakeholders (e.g., through dividends, supplier payments, employee wages, taxes paid, economic benefits to local communities) can build trust and attract investors (Iswati et al., 2020). Companies focused on economic sustainability are often better at allocating resources efficiently and managing their finances for long-term growth. Transparent economic disclosure can reduce information asymmetry, making the company more attractive to investors and potentially lowering the cost of capital. Economic sustainability also means the practice of conserving natural and financial resources to create long term financial stability. Economic sustainability strategies can improve financial performance by boosting innovation, operational efficiency, sales and marketing, customer loyalty, risk management, employee relations, media coverage and stakeholder engagement. Economic sustainability disclosure can also affect performance through cost and savings optimization, decision-making facilitation and improved corporate confidence and reputation. The economic sustainability disclosure shows the impact of the companies' operation on the macro and microeconomic environment. Companies that have a major influence on improving macro and micro economy will attract investors and customers to join as fund advocates and users of company's products. By disclosing the companies economic sustainability performance, the companies financial performance can improve significantly. This is in accordance with Dan et al. (2025) which shows that the economic dimension has a positive effect on financial performance. Akpan and Simeon (2021) examined the effect of sustainability disclosures on cash flow return on investment and found that economic disclosures has significant effect on cash flow return on investment of oil and gas companies in Nigeria.

2.2 Theoretical framework

This study derived it foundation from agency theory

2.2.1 Legitimacy Theory by Dowling and Pfeffer (1975)

This study anchors on legitimacy theory propounded by Dowling and Pfeffer in 1975. Legitimacy theory is derived from the concept of organizational legitimacy. It posits that organizations continually seek to ensure that they operate within the bounds and norms of their respective societies. Legitimacy theory has often been invoked to explain corporate reporting practices. In accordance with this theory, external stakeholders require the enterprise to take such actions that will make its operations transparent, in line with the law and the principles of economics. The theory is hinged on the assumption that accounting for sustainable development and the associated role of management accountant in sustainable development is used as a communication mechanism to inform and/or manipulate the perception of the entity's actions (Loh et al., 2020).

Among several theories that have explained various factors that influences sustainability disclosure, Legitimacy theory is key to this study because it describes the relationship between a company and the community; it explains companies' motivations for social, governance and environmental disclosures; present how companies can use legitimacy strategies; determine the impacts of social, governance and environmental disclosures on the society. According to Deegan (2002) legitimacy theory depends upon the notion that there is a "social contract" between an organization and the society in which it operates. Therefore, corporation try to legitimize their corporate actions by engaging in corporate social responsibility reporting to get the approval from society (societal approach) and thus, ensuring their continued existence. The social contract as explained by Deegan (2002), represents myriad of expectations that society has and about how an organization should conduct its operations.

As stated by Deegan and Unerman (2006) the legitimacy perspective focuses on managing the relationship between the organization and society. The aim of the legitimacy theory is to manage the relationship with those stakeholders that are of critical importance to the continuity of the company. Shaban and Barakat (2023) argues that the legitimacy theory stems from the idea that for corporations to continue operating successfully, it must act within the bounds and norms of what society identifies as socially responsible behavior. The bounds and norms of society are considered not to be fixed, but they change over time. Hence, the company consequently must constantly change with the expectations of society in order keep their legitimacy. Due to the significant changes in society's expectations, companies tend to take responsibility for social issues for instances employees' health and safety and the environment. Through voluntary disclosures managers or companies attempt to influence stakeholders about the legitimacy of their operations. Hence, the relevance of legitimacy theory for this study.

2.4 Empirical Review

Sustainability reporting has been in the fore front of research in recent times, and few empirical studies on the subject matter are considered in this section.

Dan et al. (2025) examined the effect of sustainability disclosures on market capitalization of listed industrial goods companies in Nigeria from 2014 to 2023. The research design adopted for the study was ex post facto, secondary data were employed and purposive sampling technique was adopted to select 11 out of 13 listed industrial goods firms in Nigeria. The ordinary least square regression analysis was used in analysing the data and the statistical package employed was STATA 14.2. The findings of the study revealed that economic sustainability disclosures have significant positive effect on market capitalization of listed industrial goods companies in Nigeria and governance sustainability disclosures have significant positive effect on market capitalization of listed industrial goods companies in Nigeria.

Dan et al. (2025) examined the effect of corporate sustainability disclosures on market value of listed industrial goods companies in Nigeria from 2014 to 2023. The independent variable, corporate sustainability disclosure, was proxied by environmental sustainability disclosures, social sustainability disclosures, economic sustainability disclosures and governance sustainability disclosures. The research design adopted for the study was ex post facto, secondary data were employed and purposive sampling technique was adopted to select 11 out of 13 listed industrial goods firms in Nigeria. The ordinary least square regression analysis was used in analysing the data and the statistical package employed was STATA 14.2. The findings of the study revealed that environmental sustainability disclosure has non-statistically significant effect on market value of listed industrial goods companies in Nigeria and social sustainability disclosure has significant positive effect on market capitalization of listed industrial goods companies in Nigeria.

Utami et al. (2024) examined the examine the quality of sustainability reporting among publicly traded firms in Indonesia and Malaysia. The population consisted of manufacturing enterprises in Indonesia and Malaysia that have issued the Sustainability Report. The sampling was conducted using a random sampling approach and the sample size was determined using the Slovin formula. The data was gathered from the annual report and sustainability report coverage for the years 2018, 2019, and 2020, which were published on the company's website and on the stock market. The findings revealed that the practices of sustainability disclosure in Indonesia and Malaysia exhibit distinct emphases.

Eka et al. (2024) studied the effect of corporate sustainability disclosure on financial performance of listed companies in Indonesia. The data used were obtained from these companies' financial statement for the period 2011 to 2022. The panel data used were analysed using E-views 9. The result of the analysis showed that economic sustainability has significant and positive influence on almost all the sub-variables of financial performance proxied by net profit margin (NPM), return on equity (ROE) and average asset turnover (AAT).

Adesunloye et al. (2024) examined the value relevance of corporate sustainability reporting in listed manufacturing firms in Nigeria. This study was motivated by the growing need for disclosures and accountability in the areas of social, environmental, and corporate governance from various stakeholders. The longitudinal research approach was employed because to its ability to explore connections between variables without necessitating researcher control or manipulation. Data were collected from secondary sources by utilizing the published annual reports of 35 listed manufacturing firms in Nigeria. The data collected covered a period of 2011-2021 were analyzed using descriptive statistics and pooled panel regression analysis. The result revealed that the disclosure of information pertaining to corporate governance, environmental impact, and social responsibility significantly influences the valuation of a company.

Alodat et al. (2024) investigated whether corporate sustainability disclosures (SD) could improve financial, operational, and market performance for businesses in Jordan, based on the premise that firms that are open and transparent about their sustainability efforts tend to perform better than their competitors. The study analyzed 81 non-financial companies listed on the Amman Stock Exchange from 2014 to 2020. The research design adopted for the study was quantitative and secondary data were used. The findings revealed a significant and positive relationship between corporate sustainability disclosure and operational, financial, and market performance.

3.0 Methodology

Ex-post facto research design was used in this study. This design was suitable for this study because the study made use of historical data that were extracted from the studied firm's annual reports. The population of this study consisted of all oil and gas companies listed on the Nigerian Exchange Group from 2015 to 2024. According to the Nigerian Exchange group Factbook (2024), there are 9 listed oil and gas companies in Nigeria. The sample size of this study was 6 oil and gas companies in Nigeria. The sampling technique that adopted for this study was purposive to purposively select only those companies with complete data and remained listed to the end of the study period being 2024. The secondary data used were obtained from sourced from annual reports and accounts of the selected listed oil and gas companies in Nigeria. The data used were analysed using used ordinary least square regression analysis.

Model specification

In line with the previous researches, the model for this study was adopted from the study of Dan et al. (2025) but modified to suit this study. Hence, the researcher specifies the econometric function as;

Financial performance = f(sustainability disclosures) (i)

Return on equity = f(Economic sustainability, social sustainability and economic sustainability (ii)

$$ROE_{it} = \beta_0 + \beta_1 ENVD_{it} + \beta_2 SOSD_{it} + \beta_3 ECSD_{it} + £_{it} \quad \text{(iii)}$$

Where:

ROE = Return on equity
ENVD = Environmental sustainability disclosure
SOSD = Social sustainability disclosure
ECSD = Economic sustainability disclosure

β_0	=	Constant
β_1- β_3	=	Slope coefficient
μ	=	Stochastic disturbance
i	=	ith firm
t	=	time period

4.0 Analysis and discussion

This section examined descriptive statistics of each variable based on the mean, standard deviation, maximum and minimum. Table 1 below displays the descriptive statistics for the study.

Table 4.1 Descriptive Statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
roe	60	.041	.657	-3.09	2.078
envd	60	.504	.093	.321	.679
sosd	60	.514	.138	.2	.867
ecsd	60	.635	.227	.273	1.000

Source: Author's computation (2025)

From the table presented above, it was observed that the intended dependent variable return on equity (roe) had a minimum value of -3.09, that's about -310%. This implies that a firm(s) had a loss that was more than 3 times their owner's equity. The maximum value observed was 2.078 or 208%. This means that a firm or multiple firms at some point between 2015 and 2024 made profits that was 2 times higher than their owner's equity. The average return on equity in the oil and gas sector between the study period was 0.041, about 4%. This was a low average given the kind of sector involved as well as volume of operations in the oil and gas sector which is usually rumored to be attributable to high profits. Standard deviation of 0.657 was observed indicating a very high variation in the dataset, meaning that there were significant differences in the financial performances of the studied oil and gas companies.

The first independent variable environmental sustainability disclosure (ensd) presented a minimum of 0.321. The environmental disclosure items or checklist applied consisted of 28 items. This minimum shows a scenario where one or more firms had disclosed only 9 items out of the 28 which was really low. The highest score obtained was 0.679, this indicates that one or more firms had disclosed about 19 items out of the 28 and that was massive given the jurisdictional standing of Nigeria in these voluntary disclosures. The mean score was 0.504, indicating that on average, oil and gas firms in the sector disclosed or cared about 14 items out of 28 on that checklist. These with a standard deviation of 0.093, with a relatively low variation in the dataset, meaning there was no uniformity in this particular disclosure between the studied companies as expected.

Social sustainability disclosure (sosd) showed a minimum of 0.2. Bearing in mind that the number of items on the social disclosure checklist used was 15, the minimum implies that one or more firms disclosed only 3 out of 15 items on the list. The maximum or highest was 0.867 indicating that one or more firms disclosed up to 13 out of the 15 which was commendable. The mean score for sosd was 0.514 indicating that on average, firms in the oil and gas sector care about 8 out of the whole 15 items with a standard deviation of 0.138 which indicated a moderate variation in the data for social sustainability. This means that the disclosure practices for this one was similar among all the studied firms with no much difference apart from outliers.

Economic sustainability disclosures have been the most disclosed in past research. For this study however, the minimum ecsd was 0.273. With 11 items on the checklist, this was 3 out of 11 for one or more companies who did. The maximum score for ecsd was 1.000 which was about 100% of all the items on the checklist. This implies that one or more firms disclosed up to 11 of all 11 items. The average score was 0.635 indicating that on average, firms in the oil and gas sector comfortably disclose about 7 items on that checklist out of 11. The standard deviation came in at 0.227 indicating moderate variation in the datapoints. Variations could not be said to be low nor high but somewhere in the middle. This implies that the economic disclosure practices of these firms were not uniform with some differences between how firms treat matters concerning economic disclosures. Looking at the average though, the firms took this one seriously.

4.1.2 Normality test

Table 4.2 Shapiro Wilk W test for normal data

Variable	Obs	W	V	z	Prob>z
roe	60	0.594	22.061	6.669	0.000
envd	60	0.992	0.409	-1.925	0.973
sosd	60	0.995	0.281	-2.737	0.997
ecsd	60	0.943	3.123	2.455	0.007

Source: Author's computation (2025)

Table 4.2 presented the results of the normality tests conducted for each variable in the study. Out of the six variables examined, three were found to follow a normal distribution, while the other three did not. Specifically, the intended dependent variable: return on equity (roe) did not exhibit normality. This conclusion was based on its probability value of 0.000, which was statistically significant at the 5% level. According to the rule for assessing normality, a non-significant p-value (greater than 0.05) is required to confirm a normal distribution. Therefore, the null hypothesis of normality was rejected for this one. The associated Z-statistics for roe was 6.669 further indicating deviation from normality. In contrast, environmental sustainability disclosure (envd) yielded a Z-statistic of -1.925 and a probability value of 0.973, which exceeds the 0.05 threshold. As such, the null hypothesis of normality was accepted, implying that the data for environmental sustainability disclosure followed a normal distribution. Similarly, social sustainability disclosures (sosd) showed a Z-statistic of -2.737 and a p-value of 0.997, also exceeding the 5% significance level and indicating that the data followed a normal curve.

Table 4.3 Spearman's rank correlation coefficients

Variables	(1)	(2)	(3)	(4)
(1) roe	1.000			
(2) envd	-0.188	1.000		
(3) sosd	-0.038	0.064	1.000	
(4) ecsd	0.031	0.017	-0.170	1.000

Source: Author's computation (2025)

From table 4.3, it was observed that environmental sustainability disclosure (envd) had a weak negative correlation with return on equity (roe) given the correlation coefficient of -0.188. This implies that increase in environmental sustainability disclosures comes with decrease in return on equity of listed oil and gas companies in Nigeria to a low extent, with environmental disclosures not causing the decrease in return on equity. For social sustainability disclosure (sosd) and return on equity (roe) with correlation coefficient of -0.038. This coefficient even if negative was negligible meaning that social sustainability disclosure has no association with return on equity of listed oil and gas companies in Nigeria. Similar case (no association) was present for economic sustainability disclosure (ecsd) and return on equity (roe) with 0.031 as coefficient.

4.2.2 Regression

Table 4.4 Regression Results before moderation

	(1) OLS roe	(2) REM roe	(3) ROB-OLS roe
envd	-2.024**	-2.071**	-2.024*
	(0.034)	(0.026)	(0.068)
sosd	0.082	0.103	0.582***
	(0.899)	(0.873)	(0.005)
ecsd	-0.162	-0.132	-0.162
	(0.671)	(0.726)	(0.652)
Constant	1.786	1.731	1.786
	(0.107)	(0.110)	(0.208)
r^2	0.089	0.089	0.332
N	60.000	60.000	60.000
F/W	1.054	5.432	12.100
p	0.396	0.365	0.002
hettest	22.56(0.000)		
vif	1.04		
lagrange		0.02(0.448)	

p-values in parentheses
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$
Source: Author's computation (2025)

Table 4.4 and 4.5 presents the regression output examining the effect of sustainability disclosures on financial performance, both before and after incorporating the moderating variable (firm size). In the unmoderated model, the F-statistic of 12.100 with a corresponding p-value of 0.002 indicates that the robust OLS regression is statistically significant and appropriate for inference. The model reports an R-squared value of 0.332, suggesting that approximately 33% of the systematic variations in the return on equity of listed oil and gas companies in Nigeria are explained by the proxies of sustainability disclosures included in the model. The remaining 67% of the variation is accounted for by other factors captured in the error term.

4.2.3.1 Homoscedasticity

This holds that error terms of the regression model should have a constant variance across all levels of the independent variables (Soomiyol et al., 2024). The homoscedasticity assumption of the pooled ordinary least squares (OLS) model is tested using the Breusch-Pagan module in Stata 17. The assumption of homoscedasticity specifically indicates that if the errors exhibit heteroscedasticity, it becomes challenging to rely on the standard errors of the least square estimates. Therefore, the confidence intervals will either be very narrow or excessively large. The results presented in table 4.4 however, indicated that the assumption of homoscedasticity in the OLS regression model was violated for both the unmoderated and the moderated models, as evidenced by the p-value from the heteroscedasticity test (Hettest = 22.56, p-value = 0.000<0.05) for the unmoderated model and Hettest = 22.20(p-value = 0.000<0.05) for the moderated model. As a result, the researcher, with the aid of the LM test, resolved to use the robust least square regression. The robust regression is a regression that makes use robust standard errors which is suitable to control for heteroscedastic datapoints as well as address possible outliers (Umeanozie & Ofoegbu, 2022).

4.2.3.2 Multicollinearity

From tables 4.4 the mean VIF for the model was 1.04. These indicate that the assumption of multicollinearity was not violated meaning absence of multicollinearity. Since multicollinearity assumption was not violated for all models, the researcher proceeded to depend on other diagnostics on the correct model to employ.

4.2.3.3 Lagrange Multiplier LM test

This test was applied to determine whether the random-effect GLS or pooled OLS model is more suitable for the data (Breusch & Pagan, 1980). The null hypothesis states that there are no random effects, implying that the variation across entities is zero, and thus, OLS is sufficient. The decision to accept or reject the null hypothesis depends on the probability value: if the p-value is greater than 0.05, the null hypothesis is accepted; otherwise, it is rejected. The results presented in table 4.4 {0.02(0.448)} indicated the acceptance of the null hypothesis. These outcomes suggested that the pooled OLS model was appropriate and sufficient for the analysis in all angles.

4.4 Discussion of findings

Environmental sustainability disclosure and return on equity

Estimates from the regression results in table 4.4 presented -2.024 and 0.068 as coefficient and p-value respectively for the effect of environmental sustainability disclosure on return on equity of listed oil and gas companies in Nigeria. Despite the negative coefficient, the probability value was not statistically significant at 95% confidence interval. This means that environmental sustainability disclosure has a non-statistically significant negative effect on return on equity of listed oil and gas companies in Nigeria. The negative coefficient suggested that engaging environmental disclosures could be detrimental to the oil and gas companies' financial performance. However, this fact had no evidence to back it or call it insignificant. It's possible that other factors not captured in the model may influence this outcome, or that the costs involved in environmental efforts temporarily outweigh the financial benefits. Still, without statistical significance, we can't say for sure that environmental disclosures actually affect ROE in the oil and gas sector.

In European Environmental Agency (Dincer et al., 2024), environmental reports are supposed to be "the principal vehicle for company communication on the environment and a fair and credible reflection of the company's environmental activities. According to Islam et al. (2020), a prerequisite for good environmental reporting is the establishment of an environmental management system and the foundation for any substantive environmental accounting. Now, it could be the substantiveness expected that could result in the negative coefficient that was observed. Be it as it may, several benefits of environmental disclosures had been disclosed in the literature review including but not limited to helping companies avoid fines, penalties, and legal challenges related to environmental damage. All these are based on the background information that the day-to-day activities of oil and gas companies affect the environment and could degrade it. Abeyrathne and Illubethanne (2023) buttressed this point stating that "without clearly defined ownership rights to public goods such as air or water quality, society incurs the cost of a firm's pollution". Therefore, sustainability is all about shifting these costs to the firms and making them take responsibility.

This study's finding is partly in line with Etim and Akpan (2023) which stated that any investment in the natural environment comes at a cost to firms and detracts from profit maximization (Etim & Akpan, 2023). The finding is however, contrary to many including proponents of a "win-win" argument of Haidar and Sohail (2021) which claimed that environmental performance often constitutes latent profit maximization opportunities. In the same vein, Isaac et al. (2024) presented arguments supporting several opportunities for firms to increase revenue or reduce costs by reducing their environmental impacts too.

Social sustainability disclosure and return on equity

Regression output from table 4.4 presented a coefficient of 0.582 with a p-value of 0.005 for the effect of social sustainability disclosure on return on equity of listed oil and gas companies in Nigeria. The p-value was significant at the 5% significance level ($p<0.05$). These imply that social sustainability disclosure has a significant effect on return on equity of listed oil and gas firms in Nigeria. This finding entails when social sustainability disclosure increases, return on equity increases. Put another way, increase in social sustainability disclosure causes increase in the return on equity of listed oil and gas companies in Nigeria. This shows a direct relationship; in the same direction. Possible explanation is that when companies act responsibly in social matters, it helps build a good reputation and strengthens their public image. This kind of transparency can earn the trust of important stakeholders such as investors, customers, employees, and local communities. When this trust is there, oil and gas companies could avoid costs associated with legal actions as well as penalties which could lead to higher ROE.

As earlier emphasized when reviewing relationships between variables, companies with strong social performance (e.g., fair labor practices, employee well-being, diversity) can attract and retain highly skilled employees, leading to increased productivity and reduced recruitment costs. It was also mentioned that addressing social issues like labour disputes, human rights violations, or community opposition can prevent disruptions and reputational damage. Also, engaging positively with local communities can lead to smoother operations, easier access to resources, and reduced social license to operate risks. All these points were supported by this study's finding. In the same vein, Isaac et al (2024) and Dan et al (2025) found a positive relationship between social performance disclosure and financial performance. Also, Ansari et al. (2023) found a negative relationship between the two variables. Hendra and Yeni (2022) in their study stated that there is no relationship between the variables.

Economic sustainability disclosure and return on equity

Estimates from the regression results in table 4.4 presented -0.162 and 0.652 as coefficient and p-value respectively for the effect of economic sustainability disclosure on return on equity of listed oil and gas companies in Nigeria. Despite the negative coefficient, the probability value was not statistically significant at 95% confidence interval. This interprets that economic sustainability disclosure has an insignificant negative effect on return on equity of listed oil and gas companies in Nigeria. The negative coefficient suggested a possible negative relationship that existed to some extent, implying that economic sustainability disclosures are detrimental to the studied firms' return on equities. However, this negative coefficient was not supported by its p-value. An explanation for this is that economic sustainability disclosures might not immediately translate into direct financial gains at least not in the short term.

The negative coefficient suggested that in some cases, the cost of implementing or reporting these initiatives might even outweigh the immediate financial benefits. This is because disclosure of activities could be cumbersome and demanding in terms of resources. Be it as it may, these disclosures are very relevant to the firms involved as well as stakeholders. Economic sustainability performance encompasses financial costs and benefits, and reflects the long-term profitability and financial sustainability of a company. In the lens of signalling theory, companies focus on economic sustainability to show stakeholders that they are better at allocating resources efficiently and managing their finances for long-term growth. Transparent economic disclosure can reduce information asymmetry, making the company more attractive to investors and potentially lowering the cost of capital which has been emphasized in extant literature. However, this was not the case pertaining to this study's finding which was negative. The finding is contrary to that of Dan et al. (2025) which showed that the economic dimension has a positive effect on financial performance. The finding is also contrary to Akpan and Simeon (2021) who found that economic disclosure has significant effect on cash flow return on investment of oil and gas companies in Nigeria.

5.0 Conclusion

This study investigated the effect of sustainability disclosures; specifically, environmental sustainability, social sustainability, economic sustainability, and governance sustainability disclosures on the financial performance of listed oil and gas companies in Nigeria, while also examining the moderating role of firm size. Borrowing views from stakeholder, legitimacy, agency, and spanning the period from 2015 to 2024, the study employed return on equity as dual proxies for financial performance. The findings revealed that while social and governance sustainability disclosures had significant positive effects on return on equity, environmental and economic sustainability disclosures had no effects. Also, firm size was found to enhance the relationships of environmental, social and governance sustainability disclosures, and return on equity. As such, the study concluded that firm size significantly moderates the relationship between sustainability disclosures and financial performance of listed oil and gas companies in Nigeria. In line with the study's findings, the following recommendations were made. Given the significant positive effect of social sustainability disclosure, the management of listed oil and gas firms should expand their efforts in social sustainability practices by engaging in community development projects, employee welfare programs, and other socially impactful activities. The management of oil and gas companies should reassess their economic sustainability activities whether the cost and efforts associated with disclosures align with their financial goals.

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