

# SUSTAINABILITY REPORTING AND FINANCIAL PERFORMANCE OF LISTED OIL AND GAS FIRMS IN NIGERIA

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## Abstract

*This study investigates the relationship between sustainability reporting and the financial performance of listed oil and gas firms on the Nigerian Exchange Group (NGX). Adopting an ex-post facto research design, descriptive and inferential statistics were used for data analysis while panel least square regression model was utilized to test the study hypotheses. Results indicated that firms listed on the Nigerian oil and gas industry exhibit a considerable degree of sustainability disclosures. However, only social disclosure has a significant and positive effect on return on total assets (proxy for financial performance) while economic and environmental disclosure do not exert a significant impact on ROTA. The study concluded that listed oil and gas firms should focus on sustainability issues, provide better environmental disclosures in terms of content and quality to enhance stakeholder confidence and integrate sustainability practices into their core business strategy to strengthen the potential impact of sustainability reporting on their financial performance.*

**Keywords:** *Economic Disclosure, Environmental Disclosure, Financial Performance, Social Disclosure, Sustainability Reporting*

## 1.0 INTRODUCTION

The demand for more comprehensive and detailed financial reporting has been growing around the world with specific concerns for the inclusion of non-financial information that can aid stakeholders in making well-informed decisions (Nnamani, Onyekwelu & Ugwu, 2017). The non-financial information covers areas such as the firms strategy, commitment to sustainability issues and sustainable development. Thus, increased sustainability reporting by firms has been particularly amplified by the introduction of a series of international sustainability standards such as Global Reporting Initiative, European Union Corporate Sustainability Responsibility Directive (EU CSRD/ESRS), International Financial Reporting Standards (IFRS) Sustainability Disclosure Standards etc. These standards exert considerable impact on disclosure practices, promoting a more thorough representation of a firms financial health and sustainability (Deloitte, 2021).

Sustainability reporting is a crucial instrument for communication of financial and non-financial information specifically tailored to stakeholders, and designed to showcase transparency and efficient governance systems (Al-Shaer, 2020). According to Global Reporting Initiative (GRI, 2020), the term sustainability reporting is often used interchangeably with several other alternative concepts of non-financial reporting such as corporate social responsibility, triple bottom line reporting and integrated reporting. Thus, sustainability reporting has led investors to adopt it as a benchmark for shaping their investment decisions in the firm. This has spurred the creation of various sustainability indices such as the Dow Jones Sustainability Index in the United States; the Corporate Sustainability Index in Brazil; the FTSE4Good in the United Kingdom and the STOXX Global ESG Leaders' Index in Germany tied to the financial market (Ching, Gerab & Thoste, 2017) designed to guide stakeholder decisions.

Financial performance primarily provides a comprehensive view of the financial status of a company within a specific period and is a critical tool used to gauge a company's operational effectiveness and efficiency. Gautam (2019) emphasized that financial performance serves as a metric to assess how a company has effectively utilized its resources to create revenue within a specific period. Felix (2021) further elaborated that financial performance is employed to determine a company's profitability in terms of return on assets, return on investments and return on equity showcasing an

organisations ability to create revenue from its assets and investments thereby reflecting its financial health.

Sustainability reporting could play a crucial role in boosting the performance of a firm in various areas such as maximizing profits, differentiating products and diversifying product offerings (Felix, 2021). Zaid and Issa (2023) also opined that the process of preparing and presenting high-quality sustainability reports often aids companies in enhancing their operational efficiency while Oncioiu, Petrescu, Bîlcan, Petrescu, Popescu and Anghel (2020) further emphasize that sustainability reporting can bolster a company's performance. The global community has thus intensified its focus on sustainable practices, making stakeholders to progressively take into account environmental, social and governance (ESG) factors during their decision-making processes (Issa & Zaid, 2023; Zaid, Wang & Abuhijleh, 2019). This makes it pertinent to understand whether sustainability reporting has any relationship with the financial performance of firms in the Nigeria oil and gas industry. This is particularly important because the industry plays a pivotal role in Nigeria's economy contributing up to 65% of governments' annual revenue (Onyeuche, 2023).

The study thus assesses the extent to which oil and gas firms in Nigeria report their sustainability practices (sustainability reporting) and its impact on their financial performance which would assist in providing valuable insights into the industry's ability to withstand environmental, economic and social challenges. Hence, the aim of this study is to examine the impact of sustainability reporting on the financial performance of listed oil and gas firms in Nigeria and the specific objectives are to: investigate the extent of sustainability reporting among listed oil and gas firms in Nigeria; analyze the relationship between sustainability reporting and financial performance of listed oil and gas firms in Nigeria and determine the measure of sustainability reporting with the most significant impact on financial performance of listed oil and gas firms in Nigeria.

The ensuing sections are presented as follows: a brief literature review is discussed in section 2, section 3 describes the research design, section 4 articulates the empirical results through the test of hypotheses and section 5 concludes the study and makes recommendations.

## 2.0 LITERATURE REVIEW AND HYPOTHESES DEVELOPMENT

### 2.1 Sustainability Reporting

Sustainability reporting refers to a formal system for collecting and communicating important sustainability information relevant to management decisions and therefore provides considerable benefit to stakeholders (Saji, 2014). Elkington (1997) describes sustainability reporting, also called triple bottom-line reporting as "a means of evaluating firms ecological, economic and social impacts and its disclosure". In the broader perspective, the term involves principles, challenges and processes that firms have to resolve for them to minimize negative effects associated with their activities in the service of social, economic and environmental values. In this regard, the three themes represent society, economy and environment. Thus, sustainability reports are documents by a firm showing how its daily activities affect the economy, environment, and society (Tyokoso, Teghtegh & Musa, 2020).

The roots of sustainability reporting can be traced to the 1970s and 1980s driven by the growing need for non-financial performance data that was necessary to realize market-oriented social activism driven by religious leaders and pioneer social investors (Brown, De Jong & Lessidrenska, 2009). The momentum persisted throughout the 1990s leading to the emergence of voluntary reporting as multinational corporations embraced these concepts to exert influence in shaping agendas and to anticipate activists' demands for global standards of corporate conduct (Brown, De Jong & Lessidrenska, 2009). In the last decade, sustainability reporting has gained widespread acceptance and in tandem, the volume of sustainability reports also grew significantly (G & A Institute, 2020). For example, the Corporate Register (2022) reports that there are over 159,737 corporate reports by more than 23,310 public entities, each usually running into 50 to 100 pages long. Organisations that have been actively engaged in the sustainability reporting initiatives include the Global Reporting Initiatives (GRI), the Institute of Directors in Southern Africa (IoDSA), the International Federation of Accountants (IFAC) and the Organisation for Economic Cooperation and Development (OECD).

The GRI which specifies the requirements of sustainability reporting has two large components, namely: the General Standard Disclosures (GSD) and the Specific Standard Disclosures (SSD). The GSD covers strategy and analysis, organizational profile, identified material aspects and boundaries, stakeholders' engagement,

governance and ethics while the SSD details material aspects, disclosure on management approach and indicators, omissions and external assurance. SSD has been further grouped into three broad dimensions, namely economic disclosures, environmental disclosures and social disclosures (Haladu & Salam, 2017) which are utilized as measures of sustainability reporting in the current study.

### *2.1.1 Economic Disclosures*

This pertains to disclosure of the influence an organization exerts on its stakeholders' economic conditions and over the economic systems at a general level—local, national, or global. In explaining the economic facet of sustainability, there is an emphasis on portraying the intricate web of capital flow among various stakeholders and delineating the overarching economic effects of organization on society (GRI, 2013). Economic performance stands out as a critical parameter, shedding light on the organization's financial prowess and how it contributes to economic vitality. It uses metrics such as revenue generation, profit margins, overall financial stability and market presence which delves into the organization's positioning and influence within the marketplace. Furthermore, indirect economic impacts form a significant component of economic disclosure which pertains to the ripple effects an organization generates throughout the economy, beyond its immediate operations through job creation, skills development and contributions to local economies. Examining these aspects provides a holistic understanding of how the organization weaves itself into the economic fabric, leaving enduring imprints on various facets of societal prosperity.

Procurement practices also play a pivotal role in economic sustainability. The choices an organization makes in sourcing goods and services can have far-reaching implications on the economic well-being of suppliers and the broader supply chain. Sustainable procurement practices contribute to fostering economic resilience among suppliers, promoting fair labor practices and minimizing negative environmental impacts associated with production and delivery of goods and services.

In essence, economic disclosure within the sustainability reporting framework encapsulates a multifaceted view of the organization's economic interactions extending to the broader economic landscape and highlighting the interconnectedness and interdependence between the organization and the larger economy. The study thus

hypothesises that “*economic disclosures do not significantly affect the financial performance of listed oil and gas firms in Nigeria*”.

### **2.1.2 Environmental Disclosures**

Environmental sustainability disclosures are vital to unveiling dimensions of renewable resource extraction, pollution generation and depletion of non-renewable resources. Environmental sustainability aligns with the concept of sustainable development however, traditionally economic growth seems to go against the core of sustainability because constant growth in the economy may result in degradation of the environment. This conundrum raises the imperative question of whether it is conceivable to achieve both sustainability and economic growth concurrently, a dilemma projected to persist for at least the next half-century (Daly, 1990).

The environmental dimension of sustainability plays a significant role since it highlights the complete influence that an organization has on the living and non-living natural systems, including air, water, land and ecosystems (GRI, 2013). The comprehensive scope of sustainability of the environment covers diverse facets such as energy consumption, water utilization, gas emissions, discharge of effluents and waste, biodiversity as well as adherence to environmental compliance. The study thus hypothesises that “*environmental disclosures do not significantly affect the financial performance of listed oil and gas firms in Nigeria*”.

### **2.1.4 Social Disclosures**

Social sustainability disclosures serve as a pivotal domain in assessing the social impact of business operations and encompasses the intricate interplay between business organizations and social systems in which they are embedded (GRI, 2013). This multifaceted outlook about social sustainability of organisations can be dissected into distinct categories, including labor and decent work practices, human rights, societal impact and product responsibility. The labor practices and decent work category, a critical facet of the social dimension, can be further delineated into various sub-domains which includes employment practices, labor-management relationships, occupational health and safety, training and education, diversity and equal opportunity, equal remuneration for both genders, supplier assessments for labor practices and mechanisms for addressing grievances related to labor practices (GRI, 2013).

Similarly, the human rights category unveils a spectrum of issues that demand meticulous attention. This category spans across aspects such as investment practices,

non-discrimination policies, freedom of association and collective bargaining, eradication of child labor, prevention of forced or compulsory labor, implementation of security practices, upholding indigenous rights, conducting assessments, evaluating supplier human rights compliance and establishing mechanisms for addressing human rights grievances (GRI, 2013). The study thus hypothesises that “*social disclosures do not significantly affect the financial performance of listed oil and gas firms in Nigeria*”.

## 2.2 Financial Performance

Financial performance, in essence, gauges a business's adeptness in utilizing assets from its primary operations to generate revenue for investors including benefits arising from shares and operational activities (Rouf, 2012). Enhancing financial performance contributes to augmenting stakeholders' wealth and is pivotal in evaluating a firm's profitability (Felix, 2021). Over a specific timeframe, financial performance predominantly reflects a firm's overall financial status. Gautam (2019) emphasises that financial performance serve as a yardstick for assessing how effectively an organization leverages its assets to generate revenue.

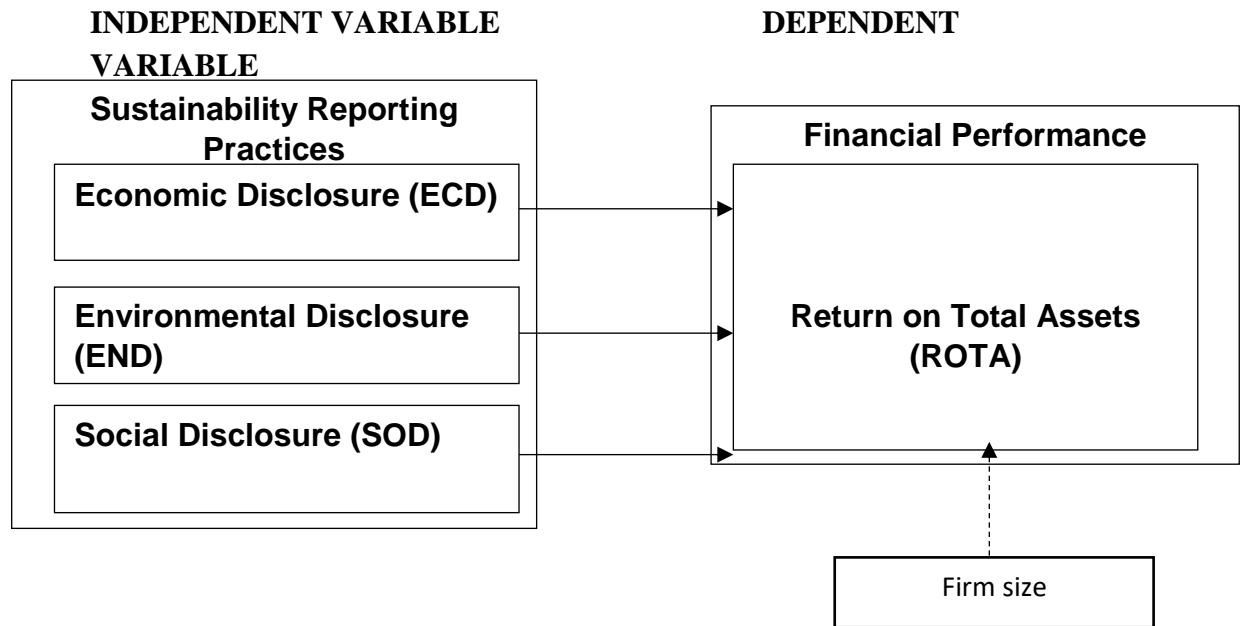
Financial performance utilises metrics such as Return on Assets (ROA), Return on Investments (ROI) and Return on Equity (ROE) for its measurement. The measures of financial performance could be grouped into accounting yardsticks (e.g. ROE, ROA) and market-value-based measures (e.g. market/book value ratio, stock returns) (Felix, 2021). Key ratios in measuring financial performance including Gross Profit Margin (GPM), Net Profit Margin (NPM), Return on Total Assets (ROTA) and ROE (Nuhui, Hoti & Bektashi, 2017).

This study specifically utilises ROTA as a measure of financial performance as it offers a comprehensive view compared to other financial performance measures. It is grounded in a firm's core financial activities such as securing effective financing, revenue generation from operations and assessing profitability (Gatuhu, 2013). Publicly listed firms use ROTA to gauge their management's effectiveness in profit generation with available assets, excluding non-operating income and donations.

**2.3 Conceptual Model**

This study focuses on examining the effect of sustainability reporting (measured by economic, environmental and social disclosures) on the profitability (measured by ROTA) of oil and gas firms in Nigeria. The conceptual model for the study is as illustrated in figure 1 below:

*Figure 1: Conceptual Model of the Study*



**Source:** *Authors Conceptualisation (2024)*

**2.4 Theoretical Framework**

**2.4.1 Stakeholder’s Theory**

In 1984, R. Edward Freeman introduced the stakeholder theory, initially labeled as the Stakeholder Theory of Organizational Management. This theory underscores the intricate web of relationships connecting an organization with its different stakeholders, including customers, employees, communities, suppliers, investors and others vested in the organization and advocates for generating value for all stakeholders.

Stakeholder theory suggests that engaging in sustainability activities perceived as important by non-financial stakeholders can be advantageous for a firm as failure to do so may result in the withdrawal of support from these groups (McWilliams & Siegel, 2000). Notably, the theory recognizes various factions within society to whom an organization bears responsibility, including financiers, governmental bodies, trade associations, political groups, trade unions, suppliers, communities, employees,

customers, and, at times, even competitors. Competitors are considered stakeholders due to their potential impact on the firm and its other stakeholders (Amahalu, Okoye, & Obi, 2018).

#### **2.4.2 Legitimacy Theory**

The concept of legitimacy theory, initially formulated by Dowling and Pfeffer in 1975 posits that a company's existence is contingent upon its ability to align with societal expectations. Legitimacy is defined as the condition whereby an element's structure resonates with the values of the larger social system in which it finds itself (Lindblom, 1994). Deviation by any such entity faces a legitimacy threat since the systems of values will be different. Legitimacy theory is founded on the truth that the license for a company to exist in society is rooted in a silent social contract between the firm and the society on which it operates.

Disclosing information that demonstrates the company's compliance with societal norms is a managerial obligation. Connelly, as cited in Felix (2021), acknowledges that legitimacy theory grapples with issues tied to society's perception, which is formed based on information available about the company. External stakeholders often rely on annual reports as legitimate sources of information to shape their opinions (Felix, 2021). In essence, legitimacy theory underscores that a company's existence lacks significance if it neglects to consider its impact on the immediate environment.

#### **2.5 Empirical Review**

Obiora and Ijoma (2022) examined the relationship that exists between environmental sustainability reporting and the financial performance of manufacturing firms in Nigeria. In this study, environmental sustainability reporting was evaluated using the Kinder Lydenberg Domini (KLD) performance rating system, while financial performance was evaluated using ROE and net assets per share. The study adopted the ex post facto research design; hence, data was collected from the annual reports and accounts of consumer goods firms in Nigeria, from 2016 to 2020. Utilizing the OLS regression model, it was found that there was a significant and positive relationship between the environmental disclosures and financial performance of manufacturing companies in Nigeria. The study concluded that environmental sustainability reporting enhanced firm performance and recommended that management of firms in Nigeria

should sustain and enhance environmental sustainability reporting since it has a positive and significant relationship with financial performance.

Okerekeoti (2022) ascertained the influence of profitability on the sustainability reporting of Nigerian multinational corporations. Using ex-post facto research design and content analysis method, the sample size of the study was seven listed Oil and Gas firms in Nigeria from 2010 to 2020. The results showed that the profitability of the firms insignificantly affects social sustainability reporting.

Igbekoyi, Ogungbade and Olaleye (2021) assessed the influence of financial performance on environmental sustainability reporting of listed manufacturing firms in Nigeria. Using the ex-post facto research design to source secondary data from 23 firms' annual reports, regression results indicated that the after-tax profit (proxy for profitability) has a significant influence on environmental sustainability reporting of manufacturing firms while earnings per share has a positive but insignificant influence and liquidity ratio has negative and insignificant influence.

Felix (2021) analyzed the impact of sustainability reporting on the financial performance of manufacturing firms in Nigeria from 2015 to 2020. Utilizing the Panel Least Square (PLS) regression technique based on fixed effects model, results showed that community relation disclosures and employee relation disclosures have a significant negative impact on return on assets, while board composition and environmental disclosures have a significant positive impact on return on assets of the selected manufacturing firms in Nigeria.

Tyokoso, Teghtegh and Musa (2020) assessed the impact of sustainability reporting on the financial performance of listed oil and gas firms in Nigeria and Mozambique. Multiple regression analysis results revealed that economic reporting and environmental reporting have a significant positive effect on financial performance while social reporting has an insignificant negative effect.

Eneh and Amakor (2019) analyzed the impact of firms' attributes of size, leverage and profitability on sustainability reporting in Nigeria from 2011 to 2017. Adopting an ex-post causal research design, thirty five (35) manufacturing firms listed on the Nigerian Stock Exchange (NGX) were selected. Using Generalized Least Squares, fractional regression and coefficient analysis the results showed that firm size has a significantly positive impact on sustainability reporting.

Sanusi and Sanusi (2019) determined the extent to which environmental sustainability reporting practices among listed manufacturing companies in Nigeria affects financial performance from 2010 to 2015. Environmental sustainability reporting indices were found to have positive influence on the measures of financial performance (earnings per share, revenue growth and return on assets).

Nnamani, Onyekwelu and Ugwu (2017) examined the influence of sustainability reporting on financial performance of listed manufacturing firms in Nigeria particularly in the brewery sector. Using the ordinary linear regression, the study found that sustainability reporting has a significantly positive impact on the financial performance.

Ukpong and Abuaja (2022) determined the value relevance of sustainability reporting among listed oil and gas firms in Nigeria. Using environmental, social and governance disclosures as metrics for sustainability reporting, the study employed the ex-post facto research design collecting data from 12 purposively selected listed oil and gas firms. Analysis was carried out using pearson product moment, correlation and ordinary least score regression analysis. It was found that the ESG metrics (proxy for sustainability reporting) are value relevant and affects the market value of the firms.

Majority of the reviewed studies were conducted in industries other than oil and gas despite its huge contribution to national economic growth and development. Additionally, some studies determined the effect of profitability on sustainability reporting and value relevance of sustainability reporting which are different from the focus of the current study. This thus necessitates the current study focus on the effect of sustainability reporting on the profitability of listed oil and gas firms in Nigeria.

### 3.0 METHODOLOGY

The study used the quasi-experimental design which is commonly used in social science research when it is not feasible or ethical to conduct a true experiment, often due to the inability to manipulate the independent variable (Leedy & Ormrod, 2015). Thus, data from secondary sources (audited annual financial and sustainability reports of each of the selected oil and gas firms in Nigeria) was collected for the period 2014 to 2023.

The study population encompasses the nine (9) publicly quoted companies operating within the oil and gas industry and listed on the Nigerian Exchange (NGX) as at 31<sup>st</sup> December, 2024. These firms carry out diverse array of operations including exploration, production, refining and distribution of petroleum products. Given the constraints of a small population size, the census sampling technique was adopted to include every member of the population in the sample.

The gathered data was analysed utilizing both descriptive and inferential statistical techniques with the aid of E-views 10. Diagnostic tests, such as correlation, heteroscedasticity, normality and serial correlation tests were conducted to ensure the data meets the assumptions required for employing a panel least squares (PLS) regression model as the data stems from various companies across a timeframe, constituting what is commonly termed as panel data. Once the assumptions for the PLS regression model are confirmed, hypotheses were subjected to testing at a significance level of 5%.

The proxies for sustainability reporting disclosures include economic disclosure, environmental disclosure and social disclosure while financial performance is measured with return on total assets (ROTA), firm size (proxy by total assets) was included as a the control variable due to its significance in determining the financial performance of a firm in literature. A content analysis of the secondary data is carried out where mention of the words highlighted for each disclosure in Table 1 were extracted while data on profitability was gotten from the financial statements of sample companies.

**Table 1: Measurement of Variables**

<b>Variables</b>	<b>Proxies</b>	<b>Measurement</b>
<i>Profitability</i>	Return on Total Assets (ROTA)	Profits for the year divided by total assets
<i>Sustainability reporting</i>	Economic Disclosure (ECD)	Assigning a dummy variable of 1 for each disclosure on <ul style="list-style-type: none"> <li>• Firm efficiency</li> <li>• Firm effectiveness</li> <li>• Firm productivity</li> </ul> A dummy variable of 0 is assigned for non-disclosure.
	Environmental Disclosure (END)	Assigning a dummy variable of 1 for each disclosure on <ul style="list-style-type: none"> <li>• Climate</li> <li>• Energy use</li> <li>• Emissions</li> </ul> A dummy variable of 0 is assigned for non-disclosure.
	Social Disclosure (SOD)	Assigning a dummy variable of 1 for each disclosure on: <ul style="list-style-type: none"> <li>• Labour-management relationships</li> <li>• Occupational health and safety</li> <li>• Freedom of association</li> <li>• Collective bargaining</li> </ul> A dummy variable of 0 is assigned for non-disclosure.
<i>Firm size</i>	Total assets (TA)	Log of total assets

The following regression model was used in the study:

Financial Performance =  $f$  (Sustainability reporting)

$$ROTA_{it} = \beta_0 + \beta_1(ECD)_{it} + \beta_2(END)_{it} + \beta_3(SOD)_{it} + \beta_4(TA)_{it} + \mu_{it} \dots\dots\dots (i)$$

$\beta_0$  = Constant parameter/Intercept

$\beta_1 - \beta_3$  = Partial regression parameters

$\mu$  = Error term

$i$  = Company identifier

$t$  = Time

## 4.0 RESULTS AND DISCUSSION

### 4.1 Descriptive Statistics

**Table 2: Descriptive Statistics**

	<b>ECD</b>	<b>END</b>	<b>SOD</b>	<b>ROTA</b>	<b>TA</b>
<b>Mean</b>	0.866667	0.729630	0.750000	0.013483	11.4437
<b>Median</b>	1.000000	1.000000	0.750000	0.017774	11.0258
<b>Maximum</b>	1.000000	1.000000	1.000000	1.750692	17.4796
<b>Minimum</b>	0.000000	0.000000	0.000000	-0.471715	3.3751
<b>Std. Dev.</b>	0.311254	0.338516	0.330984	0.214261	2.33824
<b>Skewness</b>	-2.208276	-0.966812	-1.314614	5.809088	0.38469
<b>Kurtosis</b>	6.286322	2.680696	3.461538	49.65865	3.06455
<b>Jarque-Bera</b>	113.6469	14.40323	26.72195	8670.043	20.4664
<b>Probability</b>	0.000000	0.000745	0.000002	0.000000	0.000000
<b>Observations</b>	90	90	90	90	90

**Source:** *Eviews 10 Output (2025)*

The average value for economic disclosures (ECD) is 0.87, indicating that firms generally have a high level of ECD with the mode of 1.00 showing that full disclosure is quite frequent. Highest value recorded is 1.00 while the lowest is 0.00, revealing a range from full to no disclosure. The variation in the data is moderate, with a very skewed left distribution and a high peak, suggesting that most firms have either high or no ECD.

Environmental disclosure (END) has an average value of 0.73 with the most common value being 1.00 indicating frequent full disclosure. Highest and lowest values are 1.00 and 0.00 with moderate variation in the data. The distribution is skewed left and less peaked compared to ECD, showing that while many firms disclose fully, there is a significant amount of data where disclosure is absent.

For social disclosure (SOD), the average value is 0.75 with highest and lowest values of 1.00 and 0.00 respectively indicating that SOD are somewhat common, but there are cases of no disclosure. The variation in the data is moderate, with a left-skewed distribution and a moderate peak.

Return on total assets (ROTA) has an average of 0.01, with the most common value being 0.02. The highest recorded value is 1.75 and the lowest is -0.47, showing a wide range of profitability. The variation is high, with a very skewed and extremely peaked

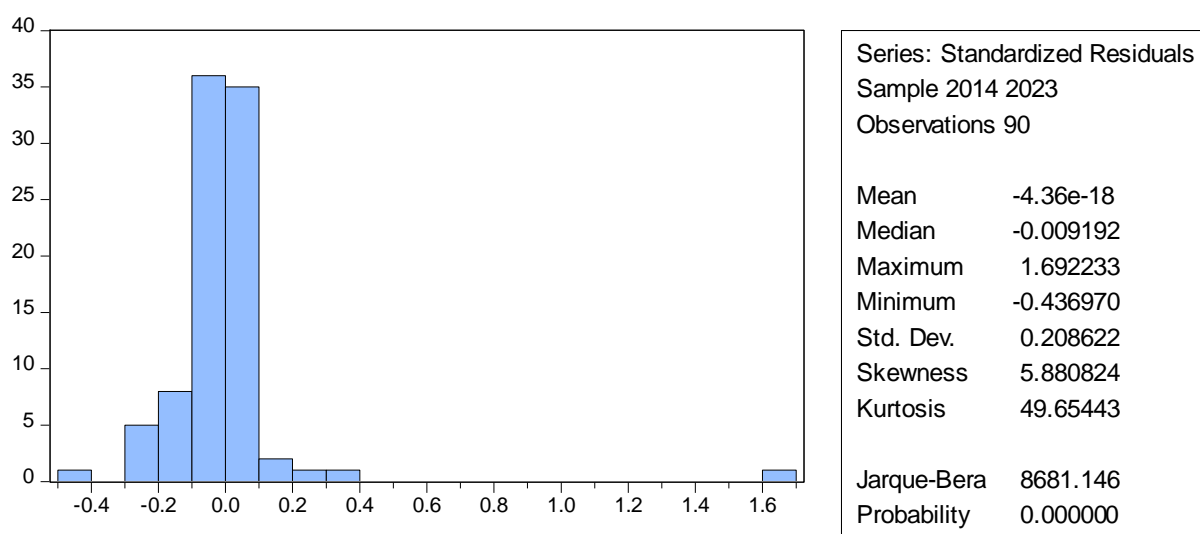
distribution. This suggests that while most firms have low or negative returns, there are a few with exceptionally high returns.

There is significant variation in the data, ranging from full to no disclosure. This suggests that while some firms are highly transparent, others fail to provide any information. This inconsistency in reporting aligns with broader trends observed in sustainability reporting across various industries globally. For instance; Obiora and Ijoma (2022) found a positive relationship between environmental sustainability reporting and financial performance in Nigerian manufacturing firms, yet highlighted similar inconsistencies in disclosure practices.

## 4.2 Diagnostic Tests

Diagnostic tests were carried out to ensure the data meets the assumptions of panel least squares (PLS) regression. Normality tests, cross-section dependence tests, Hausman tests, and correlation tests were carried out with results detailed as follows.

### 4.2.1 Normality Test



**Figure 2: Histogram Normality Test**

**Source:** *Eviews Output (2025)*

The normality test is carried out to assess whether the dataset follows a normal distribution. Figure 2 shows the standardised residuals from 2014 to 2023, with 90 observations. This helps us understand how well the model fits and the behaviour of the residuals.

The mean of the standardised residuals is very close to zero (-4.36e-18), meaning the residuals are balanced around zero, which is good for a well-fitting model. The median is -0.009192, also near zero, showing that the residuals are symmetrically distributed. The standard deviation is 0.208622, which shows a moderate level of spread. These fit into the assumptions of a normal distribution.

The skewness is 5.880824, meaning the distribution is highly positively skewed with many small residuals and a few large positive ones. The kurtosis is 49.65443, very high, indicating heavy tails and a sharp peak compared to a normal distribution. This suggests significant outliers. The Jarque-Bera test statistic is 8681.146 with a probability value of 0.000000, showing a significant deviation from normality. These statistics show a significant deviation from a normal distribution.

The normality test confirms the presence of outliers and that the residuals do not follow a normal distribution.

#### ***4.2.2 Residual Cross-Section Dependence Test***

This test checks for dependencies among the observations within the dataset. The results are as indicated in table 3.

**Table 3:** *Residual Cross-Section Dependence Test*

<b>Test</b>	<b>Statistic</b>	<b>d.f.</b>	<b>Prob.</b>
<b>Breusch-Pagan LM</b>	43.48068	36	0.1829
<b>Pesaran scaled LM</b>	0.881606		0.3780
<b>Pesaran CD</b>	-1.476831		0.1397

**Source:** *Eviews Output (2025)*

The results from the residual cross-section dependence tests show that the Breusch-Pagan LM statistic is 43.48 with a probability of 0.1829, indicating no significant cross-section dependence. The Pesaran scaled LM statistic is 0.88 with a probability of 0.3780 and the Pesaran CD statistic is -1.48 with a probability of 0.1397, both suggesting that cross-section dependence is not significant. The results indicate that there is no significant cross-section dependence. Therefore, the dataset does not violate the assumption of independence required by the statistical model adopted.

### 4.2.3 Hausman Test

This test was carried out to determine which is more appropriate between the fixed effects and random effects. The result is as indicated in table 4 below.

**Table 4:** Correlated Random Effects – Hausman Test

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Period random	0.799871	3	0.8495

Source: Eviews Output (2025)

The Hausman test results show a Chi-Square statistic of 0.80 with 3 degrees of freedom and a probability of 0.85, indicating that the period random effects are appropriate. Since the p-value  $< 0.05$ , the result suggests that the random effects model is appropriate for the dataset.

Overall, the results of the above tests carried out suggests that the dataset meets the assumptions of the panel least square (PLS) regression model, especially the lack of cross-section dependence and the appropriateness of random effects.

### 4.3 Test of Hypotheses

**Table 5:** Panel EGLS (Period Random Effects)

Dependent Variable: ROTA					
Sample: 2014 2023					
Periods included: 10					
Cross-sections included: 9					
Total panel (balanced) observations: 90					
Swamy and Arora estimator of component variances					
Variable	Coefficient	Std. Error	t-Statistic	Prob.	
SOD	0.220566	0.105329	2.094063	0.0392	
ECD	-0.100441	0.116834	-0.859690	0.3924	
END	-0.051239	0.101581	-0.504414	0.6153	
TA	1.010263	0.32947	-0.04149	0.0000	
C	-0.027507	0.068043	-0.404258	0.6870	
Effects Specification					
			S.D.	Rho	
Period random			0.000000	0.0000	
Idiosyncratic random			0.215083	1.0000	
Weighted Statistics					
R-squared	0.051941	Mean dependent var		0.013483	
Adjusted R-squared	0.018869	S.D. dependent var		0.214261	
S.E. of regression	0.212230	Sum squared resid		3.873566	
F-statistic	1.570541	Durbin-Watson stat		2.258411	
Prob(F-statistic)	0.202386				
Unweighted Statistics					
R-squared	0.051941	Mean dependent var		0.013483	
Sum squared resid	3.873566	Durbin-Watson stat		2.258411	

Source: Eviews Output (2025)

The regression analysis results at 5% level of significance, show that social disclosure (SOD) has a coefficient of 0.2206 with a p-value of 0.0392 indicating a significant positive effect on ROTA. This suggests that firms with higher levels of SOD tend to achieve better financial performance, as measured by their returns on assets. This finding aligns with Agwu and Iheduru (2021) which highlighted the growing importance of social responsibility in enhancing corporate reputation and, subsequently, financial outcomes. The positive impact of social disclosures may be attributed to improved stakeholder relations, enhanced brand loyalty and better risk management practices, all of which contribute to a firm's profitability.

Economic disclosure (ECD) has a coefficient of -0.1004 with a p-value of 0.3924 indicating an insignificant effect on ROTA at the 5% level. Environmental disclosure (END) has a coefficient of -0.0512 with a p-value of 0.6153 which shows that END is not significantly affecting ROTA at the 5% level. The lack of significant impact from these disclosures suggests that, within the Nigerian oil and gas sector, these aspects of sustainability reporting may not yet be fully integrated into financial decision-making processes or may not be perceived as directly relevant to profitability.

The overall model has an R-squared value of 0.0519 and an adjusted R-squared of 0.0189. This means that the model explains only a small fraction of the variability in ROTA. The F-statistic is 1.5705 with a p-value of 0.2024, indicating that the model is not statistically significant overall. The Durbin-Watson statistic is 2.2584, suggesting no significant autocorrelation in the residuals.

Based on the results, the study found that oil and gas firms listed on NGX demonstrate high levels of economic, environmental and social disclosures but there is no significant relationship between sustainability reporting and financial performance of listed oil and gas firms in Nigeria. The results also show that social disclosures has the most significant and positive impact on the financial performance of listed oil and gas firms in Nigeria.

These firms align with the stakeholder theory as they generally demonstrated high levels of economic, environmental and social disclosures, with full disclosure being a frequent occurrence thereby considering interests of various stakeholders. The results also align with the legitimacy theory which suggests that firms strive to align with societal expectations through the frequent occurrence of disclosures.

## 5.0 CONCLUSION

The study concludes that listed oil and gas firms in Nigeria are generally committed to sustainability reporting, with high levels of economic, environmental and social disclosures. However, while there is a positive relationship between sustainability reporting and financial performance, this relationship is not significant. Among the aspects of sustainability reporting, social disclosure has the most notable positive impact on financial performance. This could be linked to social disclosure enhancing peaceful coexistence of the firms with their host communities to foster their legitimacy thereby reducing the costs of settlement and having a positive effect on their financial performance. This indicates that firms' commitment to social initiatives can enhance their financial success. This is also linked to the stakeholder's theory where one of the means through firms focus on satisfying their stakeholders is sustainability reporting.

In line with the research findings, it is hereby recommended that listed oil and gas firms in Nigeria should focus more on social responsibility programs, as these have the most significant positive impact on financial performance. They should invest in community development, education and health initiatives to strengthen their reputation and financial performance. Although environmental disclosures are high, firms should improve the quality and transparency of their environmental disclosures. This can help build trust with stakeholders and may lead to better long-term financial outcomes. Firms should integrate sustainability practices more deeply into their core business strategies rather than treating them as separate activities. This could enhance the overall impact of sustainability reporting on financial performance.

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