

Sustainability Reporting Practices and Performance of the Quoted Oil and Gas Companies in Nigeria

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ABSTRACT: The primary aim of businesses, among other goals, is to maximize the wealth of shareholders in the foreseeable future. However, the achievement of this goal is substantially hinged on the organization's ability to operate in a sustainable manner that preserves the ecosystem of its operating environment in addition to the interest and well-being of key stakeholders. This concern remains a central issue globally among scholars, practitioners, and regulators, especially in the global oil and gas sector, where business activities could have a direct and substantial impact on the environment and stakeholders' interests. Considering that Nigeria is a major player in the global oil and gas industry, this study aimed to examine the sustainability disclosure practices of eight (8) oil and gas companies quoted in the Nigerian Exchange (NGX) and the effects of these practices on the performance of the companies. The study employed content analysis using globally recognized disclosure indices such as the GRI to extract sustainability disclosure with a focus on social, economic, and environmental disclosure of oil and gas companies for a period of ten (10) years, from 2014 to 2023. This study concluded that while sustainability disclosures are present, there is room for improvement, particularly in environmental reporting, which could enhance the overall performance and reputation of these companies. The study also provided empirical evidence to support policies and regulations that will promote sustainability in the Nigerian oil and gas industry.

KEYWORDS: sustainability reporting, oil and gas, environmental, economic, social, Nigerian Exchange

Introduction

Sustainability reporting has been an issue of importance to economies globally in light of growing demands for responsible business operations against the phenomena of increasing global warming. Organizations are expected to make disclosures related to efforts towards striking a balance between their operations and the environmental, social and economic aspects (Okeke 2021). One of the industries that is expected to be more aligned with this trend is the oil and gas industry because of the likely consequences of their operations on the environment and society. Sustainability reporting implies a means through which companies gain their stakeholders' trust and align their operations with the best global practices (Soyombo et al. 2024).

The oil and gas industry represents an important aspect of Nigerian economic activity. According to Olayungbo (2019), the industry contributes a huge part of the nation's foreign exchange earnings and keeps the wheel of the country's economy going. In the same vein, the industry and its stakeholders are also open to considerable environmental and social hazards, hence, the need for appropriate sustainability reporting (Osinbowale et al. 2024). While some firms have engaged in these corporate activities, the level of compliance and the effect it has on performance remains an issue for debate (Nwankwo 2023). Nevertheless, corporations agree that public relations strategy, risk reductions, and ethical considerations are among the numerous motivations for sustainability reporting (Eneh and Amakor 2019). These motivations, however, have not adequately closed the imbalance between profitability and sustainability operations, especially in Nigerian companies (Inegbedion 2024). There have been a number of research conducted on sustainability reporting in Nigeria, but most of such studies are limited in scope. This is particularly a source of concern, considering the global

efforts and commitment of stakeholders toward net-zero carbon emissions. Le et al. (2023) found that several countries have designed policy roadmaps and actions for achieving carbon neutrality by the middle of this century. This study, therefore, aims to examine the effect of sustainability reporting on the performance of listed oil and gas firms in Nigeria.

Objectives of the Study

The aim of this study is further broken down into the following specific objectives:

1. To determine the extent to which sustainability disclosures affect the return on assets of listed oil and gas companies in Nigeria.
2. To ascertain how sustainability disclosures affect the return on equity of listed oil and gas companies in Nigeria.
3. To examine the effect of sustainability disclosures on the firm size of listed oil and gas companies in Nigeria.

Research Hypotheses

1. Sustainability disclosures do not significantly affect the return on assets of listed oil and gas companies.
2. The disclosures of sustainability practices do not significantly affect the return on equity of listed oil and gas companies.
3. Sustainability disclosures do not significantly affect the firm size of listed oil and gas companies.

Literature Review

Overview of Nigeria's Oil and Gas Industry

The Nigerian National Petroleum Corporation Limited (NNPC Ltd) acts as the government's representative in joint ventures with international oil companies (IOCs) to facilitate the Oil Mining Licenses (OML) issued for crude oil and gas extraction in Nigeria (Makinde and Kuye 2022). The Petroleum Industry Act (PIA) 2021 focuses on transparency, fiscal reforms, and the involvement of host communities in the oil and gas sector (Isallah 2023). Nigeria is one of the leading oil producers in Africa and globally, with its oil industry playing a pivotal role in the country's economy. The industry has grown, with several multinational companies involved in exploration and production. Crude oil production has witnessed a steady decline over the years, as Figure 1 illustrates, due to a combination of factors, including insecurity, vandalism, and environmental degradation resulting from oil exploration activities (CEICDATA 2024).

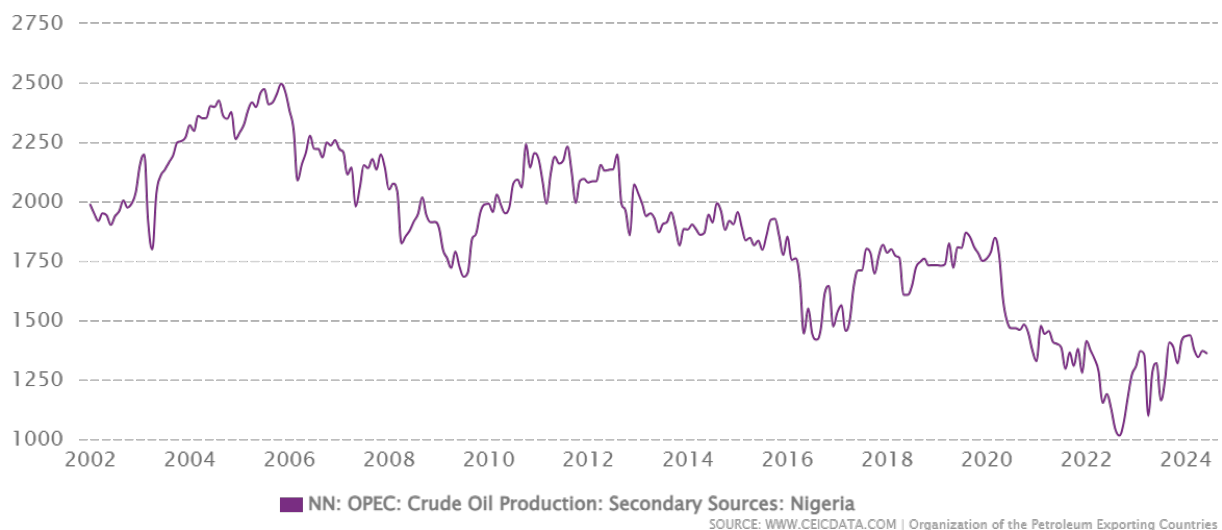


Figure 1. Crude Oil Production in Nigeria (CEICDATA 2024)

Oil exports remain the cornerstone of Nigeria's economy, contributing over 90% of the country's total exports for decades. As shown in Figure 2, oil exports continue to rise. It accounted for 87% of total export earnings in the fourth quarter of 2022, despite fluctuations in global oil prices and production levels (Nigerian Economic Summit Group 2023). Nigeria's proven crude oil reserves of 36.91 billion barrels are among the largest in Africa, positioning the country as a key player in the global energy market (Statista 2023). However, studies have shown the persistent challenges faced in balancing sustainable production with economic profitability, further emphasizing the need for improved sustainability practices in the oil and gas sector (Chijioke-Churuba 2023).

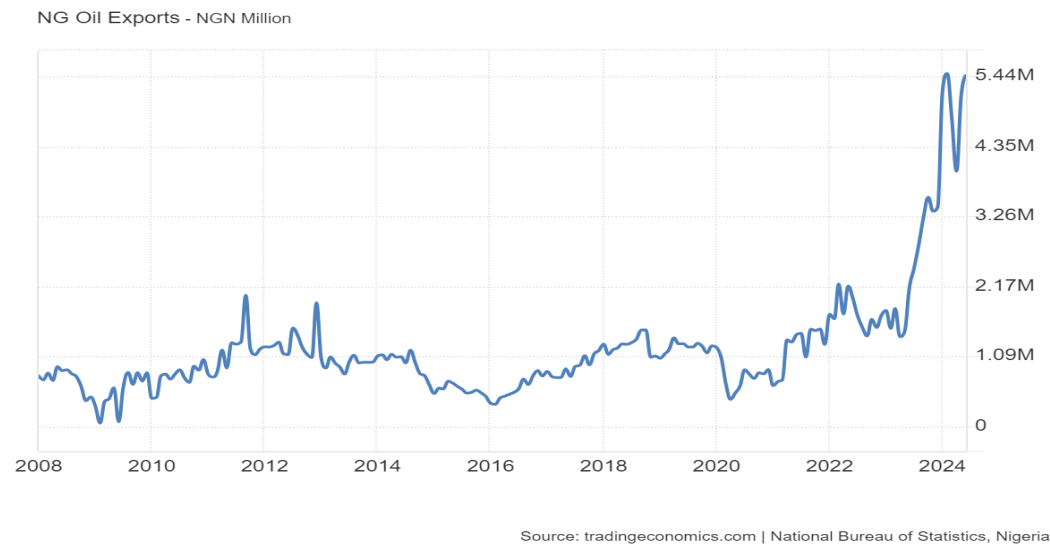


Figure 2. Nigeria's Oil Export in NGN Million (Trading Economics, 2024)

Global Practices of Sustainability Reporting

Sustainability reporting frameworks provide guidelines for companies to disclose their environmental, social, and governance (ESG) performance (Bosi et al. 2022). The Global Reporting Initiative (GRI) is one of the widely accepted frameworks as it has helped firms report economic, environmental, and social impacts through the appropriate means (Ismail et al., 2021). The Sustainability Accounting Standards Board (SASB) focuses on financial materiality and provides sector-specific standards, such as those in the oil and gas sector (Wang et al. 2023). The UN Sustainable Development Goals (SDGs) support firms in their ability to align activities with globally accepted sustainability goals, as indicated by Shayan et al. (2022). Other emerging trends include the disclosure of carbon emissions, water management, and community impacts (Hasan et al. 2024). Companies engaged in oil and gas exploration are considering renewable energy projects as part of their ecological footprint reduction drive (Romasheva and Ilinova 2023). This shows an upward trend for increased transparency in the disclosure of sustainability practices.

Sustainability Reporting in Nigeria's Oil and Gas Industry

The transition to sustainability reporting has recorded an array of diversity in its content and quality (Eneh and Amakor 2019). This development in Nigeria stems from the introduction of regulations to guide sustainability reporting.

According to Abuaja and Ukpong (2022), a couple of frameworks and guidelines influence the regulatory environment for sustainability reporting in Nigeria. In 2018, the Nigerian Exchange rolled out a set of guidelines known as the Sustainability Disclosure Guidelines. They facilitate the reporting of ESG factors by companies, which involves caring for limited resources and reducing risks resulting from companies' activities and operations

(Nigerian Exchange 2020). The government of Nigeria has also established policies like the Environmental Guidelines and Standards for the Petroleum Industry, to help oil and gas companies reduce the risk to the environment (Elenwo and Akankali 2014). These regulations demand that firms disclose the efforts put in place to reduce carbon emissions, manage waste, and protect the local communities affected by their activities. It was observed that over the years, oil and gas companies listed on NGX have improved their sustainability reporting practices (Elaigwu et al. 2024). In recent times, decarbonization and sustainability practices have improved in oil and gas companies around the globe. In 2023, 50 of the major oil companies committed to achieving net-zero carbon emissions between 2030 and 2050 (Gupte et al. 2023). This is in agreement with the Nigerian Transition Energy Plan to attain a 65% reduction and possibly promote renewable energy sources like solar and electric automobiles (Ekpotu et al. 2024).

Economic Sustainability

Economic sustainability ensures that the companies are able to handle the available financial resources with efficiency, balancing long-term profitability and sustainability of business operations (Mutambik and Almuqrin 2024). It is about incorporating various strategies that ensure ongoing growth without depletion of resources or causing harm to future generations. Eccles et al. (2014) observed that companies known for their high sustainability practices outperformed others in the stock market and accounting performance. Similar research in Nigeria indicated that firms demonstrating superior sustainability disclosure had enhanced financial performance results (Adepiti 2023; Elaigwu et al. 2024). Another study by Isaac et al. (2024) established that among companies practicing economic sustainability in Nigeria, there was an improvement in investment return and market competitiveness. These show that the inclusion of sustainability into the various corporate strategies will lead to a reduction in operational costs and an improvement in the financial status of the firm.

Environmental Sustainability

Environmental sustainability deals with reducing environmental deterioration while carrying out business activities in the long term. It concerns the reduction of greenhouse gas emissions, correct handling of generated wastes, proper waste management, and renewable resource usage accordingly (Lima et al. 2023). Studies like Rohendi et al. (2024) and Sohn et al. (2020) found that organizations with good environmental practices have fewer operational costs and lesser regulatory fines compared to others without. It has also resulted in increasing investor confidence and the value of the firm in developing countries. Another study by Nnaji (2020) revealed that the cost of oil spillage and the cost of gas flaring did not make any difference in the earnings per share of the oil and gas industries. Also, Korolo and Korolo (2024) found that environmental prevention costs negatively and insignificantly affects the return on assets, although the environmental detection cost is positive and significantly affects the ROA of oil and gas companies in Nigeria. These studies suggest that environmental sustainability has the potential to help companies maintain compliance with laws while improving their efficiency.

Social Sustainability

Social sustainability has to do with the responsibilities of a firm to its stakeholders, communities, employees, and customers. It promotes corporate social responsibility, community engagement, and making a positive impact on society in the long run (Wojtaszek et al. 2023). Eledum and Elmahgop (2024) found that companies with strong CSR programs experienced better relationships with stakeholders and had a competitive advantage. Akhigbe and Olokoyo (2019) found that Nigerian firms that engaged in social sustainability practices, such as community development, saw increased customer loyalty and brand recognition. Another study by Mamudu et al. (2021) examined CSR trends among oil MNCs in Nigeria and found that CSR spending on

community development, little or no growth has occurred. The study examined the issues facing the host communities and suggested more efforts towards sustainable development in the region to reduce environmental crises and promote peaceful co-existence or relationships among the various stakeholders in the region.

Theoretical Framework

The theoretical basis for this study is based on the propositions of the stakeholder's theory.

Stakeholder Theory

The Stakeholder Theory was propounded by Freeman in 1984. The theory suggests that companies must manage their relationships with various groups or individuals (stakeholders) who can affect or be affected by the company's activities (Freeman et al. 2021). These stakeholders include shareholders, employees, customers, suppliers, and the broader community. In relation to sustainability reporting, companies disclose their environmental, social, and economic practices to demonstrate accountability to these groups (Ahmad et al. 2023). It also suggested that no business can operate separately and long-term business performance has to weigh different interests of various stakeholders. Through sustainability reporting, organizations involved in the oil and gas industry in Nigeria will be able to gain the trust of the local communities, investors as well as regulators. This will contribute to improving performance and build a positive image for the companies among various stakeholders.

Methodology

This study adopted an ex post facto research design focusing on the already existing data in order to test the relationship between sustainability reporting and the performance of oil and gas companies in Nigeria. The population described in the study comprises the listed eight oil and gas companies in the Nigerian Exchange (NGX). The entire population will be studied hence no need for sampling.

The independent variables include the sustainability disclosures grouped under environmental sustainability, social responsibility, and economic sustainability in the annual reports. A checklist was prepared in line with the Global Reporting Initiative (GRI) 2018 guidelines, where each occurrence in the report was assigned a value of '1' and '0' indicates the absence of disclosure. The total number of items disclosed under each category was recorded for the companies. The study included value added to society (Natural Log of Donation) and value added to government (Effective tax rate) as control variables, while the dependent variables include ROA, ROE, and Firm size. Panel regression analysis is adopted for the analysis of the data. The data was first checked for a fixed or random effect using the Hausman test before the application of the suitable regression analysis. This study adapted three econometric models from similar studies, such as Eccles et al. (2014), which guided the analysis of data.

The functional form of the model is specified as follows:

$$\text{Performance} = F(\text{Sustainability Disclosure}) \quad (1)$$

The full models are stated as follows:

$$\text{ROA} = \beta_0 + \beta_1\text{ESD} + \beta_2\text{EVSD} + \beta_3\text{SSD} + \beta_4\text{VTG} + \beta_5\text{VTS} + \epsilon \quad (2)$$

$$\text{ROE} = \beta_0 + \beta_1\text{ESD} + \beta_2\text{EVSD} + \beta_3\text{SSD} + \beta_4\text{VTG} + \beta_5\text{VTS} + \epsilon \quad (3)$$

$$\text{FSZ} = \beta_0 + \beta_1\text{ESD} + \beta_2\text{EVSD} + \beta_3\text{SSD} + \beta_4\text{VTG} + \beta_5\text{VTS} + \epsilon \quad (4)$$

Where; β_0 = Intercept; β_1 – β_5 = independent variables coefficients; ROA = Return on Assets; ROE = Return on Equity; FSZ = Firm size; ESD = Economic Sustainability Disclosure; EVSD = Environmental Sustainability Disclosure; SSD = Social Sustainability Disclosure; VTG = Value to government; VTS = Value to Society; ϵ = Error term.

Result and Discussion

Data Analysis

Table 1. Descriptive Statistics

	ESD	EVSD	SSD	VTS	FM SZ	ROA	ROE	VTG
Mean	7.987013	2.14285	5.49350	15.1217	25.6679	0.02967	0.05733	0.21361
Median	8.000000	2.00000	5.00000	16.6130	25.2565	0.02980	0.09810	0.29440
Maximum	10.00000	6.00000	9.00000	25.0954	28.7473	0.13220	2.07840	2.38980
Minimum	5.000000	0.00000	0.00000	0.00000	23.6446	-0.21620	-3.09040	-4.63610
Std. Dev.	1.312826	1.66001	2.21611	5.51029	1.24965	0.06122	0.58061	0.66160
Observations	77	77	77	77	77	77	77	77

The summary statistics for the variables provide valuable insights into their characteristics and distribution in the study. Economic sustainability indicates a relatively high level of economic sustainability disclosures among the firms. The standard shows that most firms report similar levels of economic disclosures. For the environmental disclosures, the mean of 2.14 and median of 2.00 indicate they are comparatively lower than economic disclosures. The maximum value of 6.00 shows that while some firms engage in substantial environmental reporting, many do not prioritize it as highly. The Social disclosures appear to be more prominent, with a mean of 5.49 and a maximum of 9.00. The standard deviation of 2.22, indicates a wide range of practices among firms in terms of social sustainability reporting. The financial performance indicators, ROA and ROE show average values of 0.03 and 0.06, respectively, indicating modest profitability across the firms in the study. However, the significant standard deviation in ROE (0.58) and a negative minimum of -3.09 suggest that while some firms perform exceptionally well, others face significant challenges.

Test of Hypotheses

Hypothesis One

Table 2. Summary of Regression Results for ROA and Sustainability Disclosures

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.			
Hausman Test	13.292285	5	0.0208			
Variable	Pooled OLS Coefficient	Pooled OLS t-Statistic	Pooled OLS Prob.	Fixed Effects Coefficient	Fixed Effects t-Statistic	Fixed Effects Prob.
C (Constant)	0.011380	0.278587	0.7814	0.045697	0.812206	0.4197
ECONOMIC	0.009149	1.526522	0.1313	-0.001990	-0.232936	0.8166
ENVIRONMENTAL	0.007933	1.571408	0.1205	0.005026	0.550656	0.5838
SOCIAL	-0.016701	-4.613465	0.0000	-0.004193	-0.793755	0.4303
TAX_RATE	0.044350	5.236118	0.0000	0.039392	4.766942	0.0000
LOG_DON	0.000694	0.622641	0.5355	0.000246	0.237244	0.8132
R-squared	0.417567			0.560850		
Adjusted R-squared	0.376551			0.478510		
F-statistic	10.18050			6.811345		
Prob(F-statistic)	0.000000			0.000000		

The Hausman test result shows a Chi-Square statistic of 13.292 with a p-value of 0.0208, indicating that the fixed effects model is more appropriate than the random effects

model. As the p-value is less than 0.05, the null hypothesis of the Hausman test (that the random effects model is consistent) is rejected. Thus, we interpret the results from the fixed effects model. In the fixed effects model, the R-squared value of 0.5608 indicates that about 56% of the variation in return on assets (ROA) is explained by the independent variables (sustainability disclosures and other control variables). Social disclosures have a negative coefficient (-0.004193) but are not statistically significant ($p = 0.4303$), suggesting that social disclosures do not significantly impact ROA. Tax rate is the only variable with a statistically significant positive effect ($p = 0.0000$), indicating that higher tax rates are associated with an increase in ROA. Other variables like economic, environmental disclosures, and log donations do not have significant effects on ROA, as their p-values are all greater than 0.05. Therefore, we fail to reject the null hypothesis that sustainability disclosures do not significantly affect the return on assets of listed oil and gas companies.

Hypothesis Two

Table 3. Summary of Regression Results for ROE and Sustainability Disclosures

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.			
Hausman Test	4.415706	5	0.4912			
Variable	Pooled OLS Coefficient	Pooled OLS t-Statistic	Pooled OLS Prob.	Random Effects Coefficient	Random Effects t-Statistic	Random Effects Prob.
C (Constant)	-0.544997	-1.337096	0.1855	-0.538062	-1.296167	0.1991
ECONOMIC	0.094350	1.577791	0.1191	0.093303	1.531982	0.1300
ENVIRONMENTAL	-0.034437	-0.683631	0.4964	-0.036184	-0.700328	0.4860
SOCIAL	-0.043410	-1.201789	0.2334	-0.042377	-1.149747	0.2541
TAX RATE	0.510754	6.043577	0.0000	0.511939	6.030568	0.0000
LOG DON	0.003433	0.308594	0.7585	0.003396	0.304504	0.7616
R-squared	0.355150			0.354511		
Adjusted R-squared	0.309738			0.309054		
F-statistic	7.820613			7.798817		
Prob(F-statistic)	0.000007			0.000007		

The Hausman test yielded a Chi-square statistic of 4.4157 with a p-value of 0.4912. Since the p-value is greater than 0.05, we fail to reject the null hypothesis of the Hausman test, indicating that the Random Effects model is preferred. However, both models show similar outcomes, with the adjusted R-squared values of 0.3097 (OLS) and 0.3091 (Random Effects). This suggests that about 30.9% of the variability in ROE is explained by the sustainability disclosures and control variables. Economic Disclosures have positive coefficients in both models (0.094 in OLS and 0.093 in Random Effects), but they are not statistically significant, with p-values above 0.05. Environmental Disclosures show negative coefficients in both models (-0.034 and -0.036), but these are also not statistically significant (p -values > 0.05). Social Disclosures also have negative coefficients (-0.043 in OLS, -0.042 in Random Effects) but remain statistically insignificant (p -values > 0.05). Tax Rate is statistically significant in both models. The regression results indicate that sustainability disclosures (economic, environmental, and social) do not significantly affect the return on equity (ROE) of listed oil and gas companies. Therefore, we fail to reject the null hypothesis that sustainability disclosures do not significantly affect ROE.

Hypothesis Three

Table 4. Summary of Regression Results for firm size and Sustainability Disclosures

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.			
Hausman Test	374.987389	5	0.0000			
Variable	Pooled OLS Coefficient	Pooled OLS t-Statistic	Pooled OLS Prob.	Fixed Effects Coefficient	Fixed Effects t-Statistic	Fixed Effects Prob.
C (Constant)	23.26978	30.32571	0.0000	24.50012	52.73359	0.0000
ECONOMIC	0.101144	0.898456	0.3720	0.089507	1.268725	0.2091
ENVIRONMENTAL	0.189909	2.002597	0.0490	-0.085100	-1.129193	0.2630
SOCIAL	0.237663	3.495022	0.0008	0.112617	2.581575	0.0121
TAX RATE	-0.285163	-1.792359	0.0773	-0.001880	-0.027551	0.9781
LOG_DON	-0.004052	-0.193444	0.8472	0.001129	0.131710	0.8956
R-squared	0.506655			0.471912		
Adjusted R-squared	14.58309			0.000000		
F-statistic	0.928111			0.914632		
Prob(F-statistic)	68.85558			0.000000		

The Hausman Test result indicates a chi-square statistic of 374.987389 with a p-value of 0.0000, suggesting that the Fixed Effects model is the more appropriate choice for this analysis. In the Fixed Effects model, the coefficient for social disclosures remains statistically significant (0.112617, p-value = 0.0121), while the coefficient for environmental disclosures is not significant (p-value = 0.2630). The coefficients for economic disclosures, tax rate, and LOG_DON also remain insignificant. Since the significant variables in both models include social disclosures, we can conclude that sustainability disclosures do affect firm size. Therefore, we reject the null hypothesis that sustainability disclosures do not significantly affect the firm size of listed oil and gas companies. The data supports the idea that social disclosures specifically have a meaningful effect on firm size in this sector.

Conclusion

The analysis of sustainability disclosures among listed oil and gas companies has yielded critical insights into the relationship between sustainability practices and firm size. The findings reveal a notable emphasis on economic and social sustainability disclosures, with environmental disclosures lagging behind. The significant variability in disclosures across firms indicates that not all companies prioritize sustainability equally, which may reflect differences in resource allocation, corporate strategy, and market pressures. Furthermore, the relationships between firm size, financial performance indicators, and sustainability disclosures underscore the complexities firms face in integrating sustainability into their core operations. This study concludes that while sustainability disclosures are present, there is room for improvement, particularly in environmental reporting, which could enhance the overall performance and reputation of these companies. Based on the findings, the study recommends that firms should enhance their environmental sustainability disclosures by adopting comprehensive reporting frameworks, investing in staff training on sustainability practices, and implementing advanced technologies for more efficient reporting.

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