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ENVIRONMENTAL DISCLOSURE AND FINANCIAL PERFORMANCE: A STUDY OF LISTED OIL AND GAS FIRMS IN NIGERIA

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ABSTRACT: *Oil and gas firms are expected to align with global sustainability goals and contribute to mitigating environmental challenges. Understanding how environmental disclosure influences financial performance is crucial in meeting these evolving stakeholder expectations. The study examined the effect of environmental disclosure on the financial performance of listed oil and gas firms spanning 2012 to 2022. Environmental disclosure was measured using the 34 GRI index. Financial performance was proxied as ROA, ROE, EPS, and NPM while the control variable was proxy as firms age, firms' size, and leverage. The hypotheses were tested using Generalized Least Square and robust pooled regression. Based on the findings, environmental disclosure has a significant negative effect on ROA and EPS but is insignificant on ROE and NPM. In addition, firm age has a significant effect on ROA and ROE but is insignificant to EPS and NPM. Firm size and leverage have insignificant effects on ROA, ROE, EPS, and NPM. Based on these findings, the study concludes that EPS and NPM. Firm size and leverage have insignificant effects on ROA, ROE, EPS and NPM. Based on these findings, the study concludes that while environmental disclosure can enhance transparency and potentially lead to long-term benefits, it may have a significant negative effect on financial performance metrics like ROA and EPS in the short term. Management of oil and gas firms must carefully balance the benefits of environmental disclosure with its potential financial impacts, considering both short-term and long-term outcomes.*

KEYWORDS: Environmental disclosure; Return on Asset Return on Equity; Earning per share; Net profit margin.

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INTRODUCTION

As the global economy transitions towards sustainability, oil and gas firms face both challenges and opportunities. Studying the relationship between environmental disclosure and financial performance helps organizations position themselves competitively in the emerging green economy, where environmentally responsible practices are increasingly valued. According to Eccles and Serafeim (2013) and Malik et al. (2023), stakeholders, including investors, customers, and regulatory bodies, are placing greater emphasis on corporate environmental responsibility. Oil and gas firms are expected to align with global sustainability goals and contribute to mitigating environmental challenges. Understanding how environmental disclosure influences financial performance is crucial in meeting these evolving stakeholder expectations. The regulatory landscape and compliance pressures are evolving rapidly. According to Clarkson et al. (2008), Governments and regulatory bodies are implementing stricter environmental reporting requirements. Examining the effect of proactive environmental disclosure on financial performance helps oil and gas firms navigate regulatory complexities and position themselves strategically.

According to Verma (2019), financial performance in a broader sense refers to the degree to which financial objectives have been accomplished. It measures the results of a firm's policy and operations in monetary terms, and overall financial health over some time. It can also be used to compare similar firms across the same industry, industries or sectors. Oil and gas firms often make significant investments in environmental initiatives. Understanding how these investments, when disclosed, contribute to or detract from financial performance provides insights into the economic consequences of sustainability efforts. This knowledge is essential for strategic decision-making and resource allocation. Environmental disclosure serves as a vehicle for oil and gas firms to communicate their commitment to sustainable practices. A positive environmental reputation can enhance brand image and customer loyalty. Investigating how environmental disclosure contributes to building and maintaining corporate reputation has implications for long-term financial success.

The intersection of business and environmental sustainability has garnered increasing attention, with oil and gas firms facing growing pressure to disclose their environmental practices. The motivation for studying the effect of environmental disclosure on the financial performance of oil and gas firms is grounded in the recognition of the complex interplay between environmental responsibility and economic outcomes. This study proxy environmental disclosure using the Global Reporting Initiative (GRI) template which has been widely used by prior studies (Iyoha & Igbinovia, 2023; Malik et al., 2023; Salawu, 2020), while financial performance is proxied as Return on Asset (ROA, Return on Equity (ROE), Earnings Per Share (EPS) and Net Profit Margin (NPM). The study also introduced control variables namely firm size, leverage and age. According to the legitimacy theory and stakeholder theory, larger firms are more visible and tend to disclose more information to legitimise their operations and activities and to meet the expectations of society and stakeholders. Compared to small firms, larger firms are subject to increased pressure from society. These pressures push larger firms to disclose more environmental information than small firms (Rover et al., 2015). Moreover, the accumulation and publishing of environmental information are less costly for larger firms (Pahuja, 2009). Larger firms have more ability and sufficient resources to afford the costs of producing information (Welbeck et al., 2017).

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On the other hand, firms can alleviate the conflicts of interest between debtholders and shareholders by disclosing more information. Highly leveraged firms tend to disclose more environmental information to satisfy debtholders, gain their confidence, and provide evidence that the firm's projects are not so risky (Kouloukoui et al., 2019). Furthermore, Environmental disclosure mitigates the concerns about the transfer of wealth from debtholders to shareholders (Rover et al., 2015; Kouloukoui et al., 2019). Fonseka et al. (2019) and Luo et al. (2019) found that environmental disclosures result in lower debt costs. Put together, environmental disclosure contributes to a low cost of capital by reducing the agency costs of debt and information asymmetry.

This study is motivated by the dynamic landscape of environmental responsibility, the changing expectations of stakeholders, the evolving regulatory environment, and the strategic importance of environmental disclosure for oil and gas firms. The relationship between environmental accounting disclosure and financial performance for firms in Nigeria is dynamic (Abubakar & Sadiq, 2023; Arumona et al., 2021; Ayu et al., 2020; Okpala & Iredele, 2018). The dynamic nature is influenced by regulatory developments, market demands, and firms' commitment to sustainable practices. As global sustainability expectations evolve, Nigerian firms can strategically leverage environmental accounting to not only comply with regulations but also drive positive economic outcomes and contribute to the nation's sustainable development goals. Continued research and efforts toward standardisation are essential for maximising the benefits of environmental accounting in the Nigerian business context.

Prior studies focused on other sectors namely Abubakar and Sadiq (2023) examined the impact of environmental disclosure on the financial performance of cement manufacturing companies in Nigeria. Igbekoyi et al. (2021) study centred on listed manufacturing firms in Nigeria. Iyoha and Igbinovia (2023) focused on Agro-manufacturing firms in Nigeria. While Eniola (2022) used a case study of Oando Plc. However, environmental risks have the potential to impact the financial performance of oil and gas firms in Nigeria. The extent to which effective environmental accounting disclosure contributes to financial resilience is not well-established. The lack of clarity on this relationship hampers the ability of firms to proactively address environmental challenges. In addition, these studies disaggregate environmental disclosures into their components (water, energy, emission, biodiversity, transportation, and material). This study used the aggregate environmental disclosure based on the GRI (2021) template. Furthermore, this study explores various financial performance indexes (ROA, ROE, EPS and NPM) to understand if the effect of environmental disclosure on financial performance is measure-dependent.

The main objective of this study is to examine the effect of environmental disclosure on the financial performance of listed oil and gas firms in Nigeria.

Research Hypotheses

The hypotheses are presented in its null form:

1. Environmental disclosure has no significant effect on the ROA of listed oil and gas firms in Nigeria.
2. Environmental disclosure has no significant effect on the ROE of oil and gas firms in Nigeria.

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3. Environmental disclosure has no significant effect on the EPS of listed oil and gas firms in Nigeria.
4. Environmental disclosure has no significant effect on the NPM of listed oil and gas firms in Nigeria.

EMPIRICAL REVIEW

Malik et al. (2023) focus on the impact of environmental disclosure on financial performance. Moreover, the current study aims to explore the mediating impact of green innovation and provide novel evidence regarding this relationship using stakeholder and signalling theory. This study used a sample dataset comprising Chinese firms listed on the Shanghai and Shenzhen stock exchanges for the period of 2005–2016. In our measurement model, green innovation is the partial mediator between the positive relationship of environmental disclosure and firm performance. Empirical results show that environmental disclosure affects firm financial performance directly and positively influences it through green innovation in Chinese firms. The study suggests that Chinese firms have implications for improved performance by increasing environmental disclosure and green practices.

Muttanachai et al. (2023) investigate the level and pattern of environmental, social and governance (ESG) disclosure in annual reports of listed companies. Using annual reports from 2015 to 2019. Content analysis by word counting was used to quantify the level and pattern of ESG disclosure in corporate annual reports, while financial performance was measured by corporate net income. The variables used include stock reaction, firm age, firm risk, and ESG group. The template for disclosure is the Global Reporting Initiative (GRI). The tools for analyses used in this study include Descriptive analysis, independent sample t-test, Correlation matrix, and panel data analysis. The Findings demonstrate that stakeholder theory can be used to explain the benefit of ESG disclosure, although the disclosure is still voluntary reporting in Thailand.

Mehak et al. (2022) investigated the effect of corporate social responsibility (CSR) disclosure on financial performance in the Pakistani banking sector is the goal of this research study. The data used covered between the years 2010 through 2020 sourced from Pakistan Stock Exchange. Five dimensions of CSR disclosure return on assets (ROA) and return on equity (ROE), business size, debt ratio, and capital ratio. Ordinary least squares (OLS) regression, fixed effect model (FEM), and Random Effect Model (REM). The findings also show a substantial correlation between each chosen CSR disclosure factor, such as ethical, environmental, economic, and philanthropic, however only the legal factor significantly affects the financial performance of Pakistan's banking sector.

Zara et al. (2022) investigated the effect of corporate social responsibility (CSR) disclosure on financial performance in the Pakistani banking sector is the goal of this research study. The Pakistan Stock Exchange (PSX) official website and the annual reports of listed banks were the sources of the quantitative secondary data used in this study, which covered the years 2010 through 2020. CSR disclosure is an independent variable, while return on assets (ROA) and return on equity (ROE), business size, debt ratio, and capital ratio are important environmental, social, and governance (ESG) initiatives as well as the implementation of green banking, its regulations, and Pakistan's corporate governance standards in 2012, 2017 and 2019. Ordinary least squares (OLS) regression, a fixed effect model (FEM) or random effect model (REM)

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were used to analyse the data. The findings also show a substantial correlation between each chosen CSR disclosure factor, such as ethical, environmental, economic, and philanthropic, however only the legal factor significantly affects the financial performance of Pakistan's banking sector. This study aids businesses in realising the value of CSR disclosure, which is crucial for improving the banking sector's financial performance. The results of this study should have beneficial practical ramifications for businesses, decision-makers in government, financial advisors, and Pakistan's banking sector.

Ayman (2022) explores the extent of risk disclosure (RD) among conventional banks (CBs) and Islamic banks (IBs) listed on stock markets in the Gulf Cooperation Council (GCC). Using a sample of 240 firm-year observations over the period 2007 to 2014. The variables used include return on assets (ROA) and return on equity (ROE), firm size, depositor confidence, age and financial leverage. Descriptive statistics was used to analyse the data. The authors find that there is a significant association between RD and both models of financial performance (ROA and ROE) for IBs, after controlling other variables. However, RD has a significant association with only ROE for CBs.

Purnima and Shalini (2022) investigate the effect of CSR disclosures on financial performance (EPS) for select firms belonging to the Banking, ITES, Oil, Gas and Energy, and Automotive sectors during the pre-mandatory disclosure period in India (2011-2013). The variables used include EPS, market capitalisation, debt-equity ratio, Industry, research and development intensity, and advertisement expense. The results revealed that disclosures of ethical, transparent, and accountable functioning, safe and sustainable products, stakeholder management, and policy advocacy impacted EPS positively. Disclosures associated with employee well-being, environmental CSR, and inclusive growth practices were negatively associated with EPS. The direction of the association of Human rights disclosures with EPS varied depending on the model utilised.

Wong et al. (2021) investigated the relationship between voluntary corporate risk disclosures (VCRD), board leadership effectiveness, audit committee financial expertise, and firm performance of 290 companies listed on the Kuala Lumpur Stock Exchange (KLSE). The variables used include (ROA) and market-based performance (Tobin’s Q), Firm Size, Firm Age, and Leverage. Partial least square structural equation modelling (PLS-SEM) results showed evidence that firms with a higher presence of audit committee financial expertise are associated with higher firm performance.

This section reviews studies on the effect of environmental disclosure on financial performance with a focus on Nigeria. Olaoye and Alao (2023) examine the effect of green accounting practices on the business health of listed oil and gas firms in Nigeria. The variables used include EPS, Propriety ratio, Return on Asset Waste management practice disclosure, Safety relation practices disclosure and green restoration practices disclosure. The inference of this discovery is that waste management practices disclosure has no potency to significantly influence earnings per share of listed oil and gas firms in Nigeria. It is negative probably because avoidance or ineffective waste reduction or waste avoidance tends to maximise cost in the organisation, thereby resulting in low performance and sustainability.

Enekwe et al. (2023) examine the effect of environmental costs on the financial performance of listed oil and gas companies in Nigeria. The ex-post facto research design was employed for

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the collection of financial statements of four listed oil and gas companies in Nigeria for a ten-year period from 2010 to 2019. The variables used include ROA. The hypotheses were Panel Ordinary Least Square. The findings revealed that staff development costs have a negative but insignificant effect on listed Nigerian oil and gas companies' return on assets while community development costs and employee health and safety costs have a positive but insignificant effect.

Iyoha and Igbinovia (2023) examined environmental information disclosures and the value of agro-manufacturing firms listed on the Nigerian Exchange Group (NXG). The conflicting arguments between free market capitalism and eco-modernist theorists and the paucity of empirical evidence on the place of carbon accounting, environmental consciousness, environmental disclosures, and firm value relying on the submissions of the signalling and legitimacy theories necessitate the study. The study adopted an ex post facto research design. A census of the five (5) agricultural firms, twelve (12) industrial goods firms, and three (3) consumer goods firms to make a sample size of twenty (20) firms listed in the NXG from 2014 to 2020 was taken. The panel least squares estimation technique is adopted. The result revealed that effluent and waste, and biodiversity information disclosures exhibit a positive significant impact on the firm value of Agro Manufacturing firms in the NXG while cost on environmental activities as well as compliance to environmental laws information disclosures exhibit a positive insignificant impact on the firm value of Agro Manufacturing firms in the NXG. The positive relationships conform with signalling theory, i.e., environmental information disclosure signals a firm environmental consciousness, and this tends to improve the value of the firm in the long run. The study recommends that a legal framework for environmental reporting in Nigeria be promulgated, as it will serve as a basis for environmental reporting practices and upon which appropriate sanctions will be meted out on defaulting companies.

Olagunju and Ajiboye (2022) examined how environmental accounting disclosure influences the market value of listed non-financial firms in Nigeria between 2012 and 2020. The variables used include earnings per share (EPS), and environmental disclosure using Global Reporting Initiatives (GRI). Panel Regression was used to test the hypotheses. This study found robust proof which suggests that environmental disclosure significantly influences the market value of listed non-financial firms in Nigeria. The implication is that non-financial firms in Nigeria are yet to show much concern about the physical environment.

Jerry et al. (2022) examined the impact of environmental and social disclosure on the financial performance of Nigerian-listed oil and gas businesses. This study's population included thirteen (13) oil and gas businesses listed on the Nigerian Exchange as of December 31st, 2020. The analysis included data from eight oil and gas businesses. Data for the study were obtained from the annual reports and accounts of the sampled companies between 2012 and 2020. The variables used include Environmental disclosure, social disclosure, ROE, ROA, EPS, FIRM AGE, FIRM SIZE, and ROCE. The data were analysed using a Correlation Matrix. According to the findings of the regression study, environmental and social disclosure have a negative, non-significant influence on both the return on assets and the return on capital employed. However, a strong positive relationship was seen between environmental and social disclosure and earnings per share. The study indicated, among other things, that investors who want to invest in companies that are socially and environmentally responsible should evaluate the earnings per share value.

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Olowookere et al. (2021) examined the impact of environmental accounting disclosure on the financial performance of listed cement companies in Nigeria. The study employed an expo facto research design. Data were sourced from three annual reports and accounts of three cement companies listed on the Nigerian Stock Exchange from 2011 to 2019. The variables used include ROA return on Asset, ROE is the return on Equity, firm size, financial leverage, and EAD. The study used descriptive statistics and estimated panel regression to estimate the model. The results of the study revealed that environmental accounting disclosure has a positive and significant impact on firm financial performance of the listed cement companies in Nigeria. The study concluded that there was a significant positive impact of environmental accounting on return on equity and return on assets respectively.

Uniamikogbo and Ali (2021) examined corporate environmental accounting disclosure and the financial performance of selected manufacturing firms in Nigeria. The variables used include environmental accounting disclosures, Share Price, Return on Asset and Return on equity. Descriptive statistics, correlation matrix and regression analysis were used to estimate the model. Findings revealed that environmental accounting disclosures had a significant effect on the Share Price, Return on Asset and Return on equity of manufacturing firms in Nigeria.

Ayu et al. (2020) empirically investigate the effect of environmental cost disclosure and social cost disclosure on financial performance mediated by earning management. The variables used include Return on Asset (ROA). The GRI template was used for the Sustainability Reporting Guidelines. The quantitative method and Smart PLS were used to test the hypotheses. The study results revealed that the environmental and social costs disclosure significantly affected financial performance. This was in agreement with theories of instrumental stakeholders, legitimacy and agency. This means that more costs on environmental and social information disclosure can generate greater opportunities for corporations.

Deswanto and Siregar (2018) investigate both the direct and indirect associations of environmental disclosures with financial performance, environmental performance and firm value. Data are collected from sustainability reports, annual reports and annual financial statements covering the year 2012 to 2014. The variables used include firm size (SIZE), leverage (LEV), strategic holdings (STH), media exposure (MDX), book value per share (BVPS), earnings per share (EPS) and return on assets (ROA). Findings indicated that the financial performance does not affect the environmental disclosures. The lagged environmental performance has a positive effect on the current environmental disclosures, and environmental disclosures do not affect the firm market value and do not mediate the effect of financial performance and environmental performance on firm value.

RESEARCH METHODOLOGY

This study adopts an ex-post facto research design. The panel data for this study are sourced from the annual audited report of listed consumer goods firms in Nigeria. The population for this study comprises all consumer goods firms listed on the Nigeria Exchange Group as of 2022, totalling eight firms. The study employed a purposive sampling technique, guided by two primary selection criteria. First, the selected firms must have been listed on the Nigeria Stock Exchange (NGX) throughout the period under review (2012–2022). Second, only firms with complete datasets covering the entire study period were included in the analysis.

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The study adopted panel regression analysis as a tool for data analysis. This method is relevant to the study and the data for the study is panel data, which is a combination of time series and cross section data. Panel data analysis is a statistical method used in social sciences and economics to examine data gathered over time from multiple individuals, groups, or entities. This approach allows researchers to study the differences between individual subjects and the changes within the same subjects over time. This analysis is also known as longitudinal or repeated measures data. It combines both dimensions and offers valuable insights into individual behaviours and the dynamics of change. The data analysis allows a greater understanding of complex relationships by capturing both within-unit variations and between-unit variations. Moreover, it effectively accounts for individual-specific effects and time-related influences.

The fixed effect model accounts for individual-specific effects by introducing dummy variables for each entity in the dataset. This method controls for time-invariant individual characteristics and allows the examination of changes within the same entity across different time points. Fixed effects models help identify individual variations while focusing on within-subject differences over time. The random effects models assume that the individual-specific effects are random and uncorrelated with the regressors. These models estimate the average effect of variables across the entire sample. They consider both within-group and between-group variations. Random effects models are beneficial when examining changes that affect the entire group or sample under study. The method can accommodate heterogeneity, which is often a challenge in other research designs. The analysis can reduce the impact of unobserved factors that affect outcomes by examining how different entities or individuals respond to changes over time. It aids in providing more accurate and comprehensive results.

Model Specification and Variable Measurement

The panel regression model that captures the effects of environmental disclosure on the financial performance of listed consumer goods firms in Nigeria is presented below:

$$ROA_{it} = \alpha + \beta_1 ENVD_{it} + \beta_2 FS_{it} + \beta_3 FA_{it} + \beta_4 LEV_{it} + \varepsilon_{it} \quad (1)$$

$$ROE_{it} = \alpha + \beta_1 ENVD_{it} + \beta_2 FS_{it} + \beta_3 FA_{it} + \beta_4 LEV_{it} + \varepsilon_{it} \quad (2)$$

$$EPS_{it} = \alpha + \beta_1 ENVD_{it} + \beta_2 FS_{it} + \beta_3 FA_{it} + \beta_4 LEV_{it} + \varepsilon_{it} \quad (3)$$

$$NPM_{it} = \alpha + \beta_1 ENVD_{it} + \beta_2 FS_{it} + \beta_3 FA_{it} + \beta_4 LEV_{it} + \varepsilon_{it} \quad (4)$$

Table 1. Description of study variables

Variables	Operational definition	Description	Source
ENVD	Independent variable	the number of environment items disclosed by the firm based on the GRI template	Kurawa & Shuaibu (2022)
ROA	Dependent variable	Measured as net income divided by total assets	Malik et al. (2024)

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ROE	Dependent variable	the net profit divided by the shareholders' equity	Kalash (2020)
EPS	Dependent variable	Divides net earnings available to common shareholders by the average outstanding shares over a year	Kurawa & Shuaibu (2022)
NPM	Dependent variable	Net profit divided by the total revenue	Villaester (2021)
FS	Control variable	The natural log of total asset	Yadav et al. (2021)
FA	Control variable	Measured as the number of years the firm has been in existence. i.e., year of incorporation to date	Malik et al. (2024)
LEV	Control variable	Measured by dividing total debt by total assets	Malik et al. (2024)

RESULTS AND DISCUSSION

Table 2: Descriptive statistics

Variables	Mean	Std Dev.	Min	Max
ROA	.0290575	.0841592	-.521	.426
ROE	.4028256	1.842674	-1.291	16.075
EPS	20.38756	265.123	-1.291	714
NPM	.0429048	.4541151	-3.194	1.918
ENVD	35.0658	35.8232	0	100
FA	38.375	15.63691	3	66
FS	5.92e+07	5.61e+07	3278.2	3.17e+08
LEV	1.11e+10	1.03e+11	3278.2	9.60e+11

Table 2 shows the descriptive statistics of the proxies used in the study. Findings show that the average ROA of listed oil and gas firms in Nigeria is 2.9% with a deviation of 8.4%. The minimum ROA of listed oil and gas firms in Nigeria is -52.1 and a maximum of 42.6%. This indicates that the profitability of oil and gas firms generated from assets is volatile, that is, while firms recorded high ROA, others were operating at a loss. Also, the results show that the average ROE of the selected firms is 40.28% with a deviation of 184%. This implies that on average, listed oil and gas firms generate high profits from shareholder funds. The minimum

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and maximum ROE are -129% and 1607.5% respectively. This indicates the high level of volatility in the oil and gas sector. Table 2 also shows that the average EPS of oil and gas firms is 20.38 Naira with a deviation of 265.12 Naira and a minimum and maximum EPS of 714. This supports the previous findings that the oil and gas sector is highly volatile which could result in abnormal profits or huge losses. The average NPM of listed oil and gas firms in Nigeria is 4.29% with an average of 45.4%. This indicates a wide variation from the average. In addition, the minimum and maximum NPM is -319.4% and 191.8% respectively. This explains the wide variations in oil and gas firms' ability to generate income from their revenue.

Table 2 also shows that the average amount of environmentally disclosed items by listed oil and gas firms in Nigeria is 35.06% with a deviation of 35.82%. This implies that on average, listed oil and gas firms disclosed only 35% of the required items. Some firms did not disclose any information, hence the minimum value of 0 while others fully disclosed which is represented by 100. Table 2 also shows that the average age of the firms is 38 years with a deviation of 15 years. The minimum and maximum ages are 3 and 66 years respectively. Also, the average size of the sampled firms is 592 billion Naira with a deviation of 561 billion Naira. The minimum and maximum total assets of the selected firms are 3.28 billion and 317 billion Naira respectively. Table 2 also shows that the average leverage incurred by the selected firms is 1.11 billion Naira with a deviation of 1.03 billion Naira. The minimum and maximum leverage is 7.4 billion Naira and 9.6 billion Naira respectively.

Table 3: Pairwise correlation matrix

Variable	ROA	ROE	ESP	NPM	ENVD	FA	FS	LEV
ROA	1							
	0.3698							
ROE	0.0005	1						
	0.0206	-0.0110						
EPS	0.8506	0.9204	1					
	0.2662	0.2267	-0.0144					
NPM	0.0144	0.0393	0.8967	1				
	-0.1663	-0.1377	-0.2514	0.0523				
ENVD	0.1237	0.2063	0.0195	0.6369	1			
	-0.2054	-0.1661	0.0502	-0.0017	-0.0494			
FA	0.0564	0.1263	0.6460	0.9879	0.6477	1		
	-0.1460	-0.2430	0.0216	0.0159	0.0923	0.6154		
FS	0.1773	0.0241	0.8439	0.8855	0.3951	0.6154	1	
	-0.2040	-0.3520	-0.0419	0.0215	0.2269	0.6225	0.8394	
LEV	0.0581	0.0009	0.7015	0.8461	0.0346	0.0000	0.0000	1

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Table 3 shows the relationship between the independent and dependent variables. From the analysis, the result shows that the relationship between environmental disclosures and financial performance measured as ROA, ROE and EPS are negatively correlated. However, this relationship is insignificant except for NPM. The finding implies that an increase in environmental disclosures by listed firms results in to decrease in EPS. On the other hand, the relationship between environmental disclosure and NPM is positive. However, this relationship is insignificant. The table also shows the relationship between the control variables and financial performance. Based on the findings, firm age is negatively correlated with ROA and ROE. On the other, the relationship is positively correlated with EPS and NPM. Similarly, the result shows that firm size is negatively correlated with ROA and ROE, while positively correlated with EPS and NPM. Results also show that leverage is negatively correlated with ROA, ROE and EPS but positively correlated with NPM.

Table 4: Hypotheses Testing

	Model 1		Model 2		Model 3		Model 4	
	Coefficient	Z	Coefficient	t	Coefficient	Z	Coefficient	Z
ENVD	-.0005179	-1.98**	-.0082446	-1.63	-1.983275	-2.38**	.0007643	0.52
FA	-.0016316	-2.19**	-.0224655	-2.04**	.05659	0.02	.0004598	0.11
FS	1.84e-10	0.87	5.09e-10	0.16	1.99e-07	0.29	-1.39e-10	-0.12
LEV	5.00e-14	0.57	7.51e-13	1.66	1.02e-10	0.37	-8.91e-14	-0.18
Hettest	18.05	0.000	249	0.000	58.41	0.000	39.98	0.000
Hausman	4.28	0.369	5.14	0.273	3.01	0.222	1.15	0.886
Lagrangian	4.28	0.3697	0.00	1.000	0.28	0.776	0.00	1.000

This section presents the result of the test of hypotheses which captures the effect of environmental disclosure on financial performance (ROA, ROE, EPS and NPM). The techniques applied were based on the outcome of the preliminary tests. Table 4 shows the heteroscedasticity test output which was rejected at a 5% significant level. Hence, the null hypotheses which state that the residuals are homoscedastic are rejected for all models. Additionally, Table 4 shows the result of the Hausman test which tested the best model between fixed and random effects. The outcome shows that the random effect was preferable for all models. The Lagrangian multiplier test between Random effect and Pooled regression revealed that pooled were preferable for the models. Hence, robust pooled regressions and Generalised Least Squares (GLS) were used as a basis for testing the null hypotheses.

The first model which tests the null hypothesis that environmental disclosure has no significant effect on the return on assets of listed oil and gas firms in Nigeria revealed that the null hypothesis is rejected based on the p-value which is significant at 5%. The study, therefore, concludes that environmental disclosure has a significant negative effect on the ROA of listed oil and gas firms in Nigeria. Impliedly, an increase in disclosure reduced the financial performance of oil and gas firms in Nigeria. Environmental disclosure often requires companies to invest in data collection, reporting infrastructure, and compliance with regulatory

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standards. These compliance costs can be substantial, reducing net income and consequently, ROA. Implementing environmentally friendly practices may lead to higher operational costs. For instance, switching to renewable energy sources, enhancing waste management systems, and reducing emissions can be costly. Model one also shows that firm age has a significant negative effect on the ROA of listed oil and gas firms. That is older firms do not perform higher than younger firms. On the other hand, firm size and leverage do not affect the ROA of listed oil and gas firms in Nigeria.

Model two tests the effect of environmental disclosure on ROE. The null hypothesis which states that environmental disclosure has no significant effect on return on equity of oil and gas firms in Nigeria was accepted because the p-value was higher than 5%. Based on this outcome, the study concludes that environmental disclosure does not affect the ROE of listed oil and gas firms in Nigeria. The control variables measured as firm age show a significant negative effect on ROE. That is, older firms do not translate to higher profitability. Firm size and leverage were found to have no significant effect on ROE.

Model three tests the effect of environmental disclosure and EPS. The null hypothesis which states that environmental disclosure has no significant effect on earnings per share of listed oil and gas firms in Nigeria was rejected at a 5% significant level. Hence, the findings show that environmental disclosure has a significant negative effect on EPS. That is an increase in environmental disclosure results in a decrease in the EPS of listed oil and gas firms. While environmental initiatives can lead to long-term savings and efficiency gains, the initial investment can negatively impact short-term financial performance. This immediate financial burden may outweigh the benefits in the short term, leading to lower EPS. On the other hand, the firm's age, size and leverage had insignificant effects on the EPS of listed oil and gas firms in Nigeria.

Model four tests the effect of environment disclosure on net profit margin. The null hypothesis which states that environmental disclosure has no significant effect on the net profit margin of listed oil and gas firms in Nigeria was accepted at a 5% significant level. Hence, the study concludes that environmental disclosure does not affect NPM. Similarly, firm age, size and leverage do not affect the NPM of listed oil and gas firms in Nigeria.

CONCLUSION AND RECOMMENDATIONS

This study investigates the impact of environmental disclosure on the financial performance of listed oil and gas firms in Nigeria from 2012 to 2022. Environmental disclosure was quantified using 34 indicators from the Global Reporting Initiative (GRI) index while financial performance was measured using return on assets (ROA), return on equity (ROE), earnings per share (EPS), and net profit margin (NPM). Control variables included firm age, firm size, and leverage. Hypotheses were tested using Generalised Least Squares (GLS) and robust pooled regression techniques. The findings reveal that environmental disclosure has a significant negative effect on ROA and EPS but an insignificant effect on ROE and NPM. Additionally, firm age significantly influences ROA and ROE but is insignificant for EPS and NPM. Firm size and leverage show no significant effects on ROA, ROE, EPS, or NPM.

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Based on these results, the study concludes that while environmental disclosure enhances transparency and may yield long-term benefits, it can negatively impact financial performance metrics such as ROA and EPS in the short term.

Recommendations

i. Management of oil and gas firms must carefully balance the benefits of environmental disclosure with its potential financial impacts, considering both short-term and long-term outcomes.

ii. Management of oil and gas firms should conduct thorough cost-benefit analyses to ensure that environmental initiatives are economically viable. Focus on projects with clear financial and environmental benefits.

iii. The board of directors should develop performance metrics that include both financial and environmental targets. This can help in tracking the overall impact of environmental initiatives on business performance.

By addressing these issues, this study sheds light on the complexities of the relationship between environmental disclosure and financial performance in the oil and gas sector in Nigeria. Through its empirical findings and practical recommendations, the research contributes to the ongoing development of sustainable business practices within the Nigerian corporate landscape.

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