TSU-International Journal of Accounting and Finance (TSUIJAF)
e-ISSN: 28811-2709, p-ISSN: 28811-2695.Volume 4, Issue 2 (June, 2025).

NEXUS BETWEEN ENVIRONMENTAL, ECONOMIC REPORTING AND FINANCIAL PERFORMANCE OF LISTED OIL AND GAS COMPANIES (DOWNSTREAM SECTOR) IN NIGERIA

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Abstract

The financial performance of companies in the oil and gas sector tends to fluctuate over the years, with some years showing profits and others resulting in losses. This inconsistency of the financial performance has raised concerns about the reasons behind it. This study examines the influence of environmental and economic reporting on the financial performance of listed oil and gas companies in Nigeria's downstream sector from 2013 to 2023. Using a panel research design, secondary data was gathered from the companies' annual reports. The sample includes nine companies in the downstream oil and gas industry. The key variables in this study are Environmental Reporting and Economic Reporting as independent variables, with Financial Performance (measured by Net Profit Margin) as the dependent variable. Firm Size is used as a control variable. The data was analyzed using descriptive statistics, correlation, and regression analysis with E-Views 12 software. The results indicate that environmental reporting has an insignificant effect, while economic reporting has a significant effect on the net profit margin of listed oil and gas companies in Nigeria. The study concludes that both environmental and economic reporting positively influence the net profit margin of these companies. It recommends that companies should comply with environmental regulations and focus on the interests of various stakeholders to improve their financial performance.

Keywords: Environmental Reporting, Economic Reporting, Net Profit Margin, GRI Reporting Index, Signaling Theory

1. INTRODUCTION

One of the primary goals of entities in contemporary times is to increase financial performance and maximize shareholders' wealth. However, achieving this goal depends on different parameters. Financial performance can be looked at, as the level of performance of an organization at a point in time. It is a subjective measure of how well a firm can use assets from its primary mode of business and generate revenues. It shows the general well-being of a firm and its true financial position (Eze, 2021). According to Iliemena and Okolocha (2019) the measures of financial performance of an organization are as varied as the motive for the measurement. Organizational financial performance is measured to give the account of stewardship by the management team to the shareholders. It is commonly used as an indicator of a firm's financial health over a given period.

Environmental reporting issues have attracted the attention of companies and the public that are concerned about raising environmental standards, companies are forced to disclose environmental information in their annual reports. (Ibrahim *et al.* 2023). Understanding environmental management means that actions taken now affect the opportunities they may have in the future. Consequently, if resources are used today, it will not be available in the future, especially if the sources are limited. Companies, especially those active in industrial production, such as industrial products companies, disclose environmental issues to improve their image in the eyes of interesting groups and people alike thus gain legitimacy for their

existence. Disclosure of environmental aspects is one means by which companies can influence and improve society's perception of their business. In addition, environmental disclosure is considered an obligation and a right of stakeholders, as this type of information is used by different stakeholder groups to aid in decision making (Abdullahi, 2017).

Economic reporting is the disclosure of financial and economic information of a company, within a period. Economic reporting provides a basis for identifying and interpreting macroeconomic and microeconomic trends by examine how changes in economic policies (like taxation or interest rates) impact different industries or companies. Economic reporting is crucial for maintaining transparency and accountability to stakeholders, including shareholders, investors, regulators, and the public who often scrutinized financial statements for their accuracy and completeness, as they form the foundation for policy recommendations, business strategies, or investment decisions. Economic reporting that looks at how a company's environmental and social initiatives impact its bottom line, exploring the balance between sustainability and profitability.

The financial performance of companies in the oil and gas industry remains inconsistent within the years, as companies report profit in some years and losses in other years and this has caused a concern to why the inconsistency in financial performance. In the oil and gas sector, which plays a pivotal role in Nigeria's economy, understanding the factors that influence financial performance is essential. This can be attributed to volatility in the prices of oil prices, high operational cost, regulatory and compliance cost, currency fluctuation, access to finances, political instability and technological challenges among others. However, these metrics often overlook the substantial environmental and economic costs incurred by these companies, which can significantly impact their overall financial performance. Therefore, this study seeks to address the problem on how environmental and economic reporting do affect the financial performance of listed oil and gas companies (downstream sector) in Nigeria.

Environmental and economic reporting and financial performance studies have been conducted locally and internationally. Most of the research focused on environmental reporting, while this study focused on environmental and economic reporting. For example, Ibrahim *et al.* (2023) studied the effect of environmental reporting on financial performance of listed Industrial and Consumer Goods Firms in Nigeria. Amalya *et al.* (2023) examined the effects of environmental performance on the relationship between green accounting and financial performance. Muhammad and Shuaibu (2022), examined the effect of environmental disclosure on financial performance of listed non-financial companies in Nigeria. Nasruzzaman and Serkan (2022) analysed the impact of environmental, social and governance (ESG) performance of global energy and power generation corporations over their corporate financial performance. Haninun *et al.* (2018) also studied the effect of environmental performance and environmental disclosure on the financial performance of manufacturing companies in Indonesia. More also, existing studies use different variables and proxy for performance, for instance the study conducted by Igaga and Okolie, (2020) was on banks using return on asset and earnings per share as proxy for performance. Chikwendu, *et al*; (2020) studied listed companies and using Return on Assets as a proxy for performance. Koaje, *et al;* (2019) study was conducted on listed oil marketing companies using return on asset as proxy for performance. This study will use net profit margin as a proxy for financial performance because net profit margin has been selected as the metric for financial performance analysis due to its direct measure of profitability, simplicity, and clarity. Net profit margin only considers the profitability of core business activities, as opposed to ROA, ROE, and ROCE, which offer information on asset and equity efficiency. This study seeks to close the knowledge gap. Hence, this study is carried out

to evaluate the effect of environmental and economic reporting on the financial performance of the listed oil and gas companies (downstream sector) in Nigeria.

The major hypothesis underling this study is stated thus:

H_{O1}: GRI environmental reporting index has no significant effect on net profit margin of listed oil and gas companies (downstream sector) in Nigeria.

H_{O2}: GRI economic reporting index has no significant effect on net profit margin of listed oil and gas companies (downstream sector) in Nigeria.

2. LITERATURE REVIEW

2.1 Conceptual Framework

2.1.1 Environmental Reporting

Environmental reporting is the process by which a corporation communicates its information regarding range of its environmental activities to a variety of stakeholders. Herrera*, et al;* (2015) defined environmental reporting as the assessment of the impact of environmental issues on the company's financial performance and that it requires changes to the way company discloses environmental issues in their annual/financial report (Amahalu*, et al;* 2016). Environmental reporting is to fulfill its accountability regarding environmental efforts in their activities, and to provide useful information to decision making of interested parties. Environmental indicators of sustainability include environmental indicators such as renewable (non-renewable) materials, recycled materials, fuel/electricity consumption, electricity sold, energy conservation, water, greenhouse gas emissions, organic pollutants, waste, spills, environmental protection, assessment of suppliers and clients based on environmental risks (Global Reporting Initiative, 2013). It covers all the environmental factors including the reduction in emission, the resources' consumption and other innovations related to increasing the protection of the environment (Dorfleitner *et al;* 2013). This study will use average value of GRI environmental reporting index to measure environmental reporting.

2.1.2 GRI Environmental Index

The GRI Environmental Index is a useful instrument for evaluating how well businesses are controlling their environmental impact and coordinating with sustainability objectives. Additionally, it promotes the success of corporate sustainability initiatives, long-term research of environmental trends, and the wider effects of corporate conduct on environmental systems. The GRI framework is designed to provide a standardized approach for companies and organizations to disclose their environmental performance, and the environmental Index specifically focuses on a range of environmental factors such as energy usage, emission, waste management, materials cost etc. (GRI 2016).

2.1.3 Economic Reporting

Economic reporting refers to the impact of the entity on the economic systems in which it operates. The economic performance can be measured through analyzing the impact of the organizations on the stakeholders on a local, national and global level (Okudo, & Ndubuisi, 2021). Economic performance can influence the intangible assets of the organization, such as human capital and reputation. The economic reporting contains all the aspects of the economic interactions of the organization, including the traditional indicators used in financial accounting, but also intangible elements which do not usually show up in financial situations. Economic reporting includes investment in non-core business infrastructure,

economic value generated, value and supply chain, climate change -implications, risks, opportunities and risk management (Sustainability Reporting Guide, 2016). The increase in competitiveness and the development of an economy based on knowledge with an emphasis on the improvement of the energetic efficiency and the use of alternative bio-regenerating resources, the protection and improvement of the quality of the environment, the improvement of the living standards, the development and a more efficient usage of the human capital through social promotions are relevant requirements for a sustainable development (Omojolaibi *et al;* 2019). This study will use average value of GRI economic reporting index to measure economic reporting.

2.1.4 GRI Economic Index

According to Global reporting initiatives (2016), GRI Economic Index contains disclosures for organizations to report information about their economic performance-related impacts, and how they manage these impacts. It contains four disclosures, which provide information about the organization's economic performance-related impacts. This includes the economic value generated and distributed (EVG&D) by an organization, its defined benefit plan obligations, the financial assistance it receives from any government, and the financial implications of climate change.

2.1.5 Financial Performance

Financial performance refers to the measure of results of firm activities in financial terms. Financial performance is a measure of how efficient a firm uses its assets to generate revenue from its operating activities (Aniefor & Onatuyeh, 2020). Financial performance can be described as a description of the financial circumstances of a given period for fundraising and fund allocation elements, which are generally measured by capital adequacy, liquidity, and profitability indices (Yudharma, *et al;* 2016). Profit-making entities measure outputs in financial aspects in order to examine whether they are achieving their financial goals or not (Alemu & Deyganto, 2019).

There are different stakeholders in a company and each group has its own interest in tracking the financial performance of that company. The trade creditors are interested in the liquidity of the company, the bond holders are interested in the solvency of the company, the shareholders are interested in knowing how well their investment will yield return and the management are interested in knowing how well the firm perform in the market (Ahmadu, 2016). There are various reports used to rely financial performance across the board which include income statement, statement of financial performance, statement of cash flow and notes to the account. From these statements, concise financial ratios can be computed to examine corporate performance. Most entities use combination of measures in order to succinctly get to understand the financial health of entities (Deev & Nino, 2017). This study used net profit margin (NPM) to measure financial performance.

2.1.6 Net Profit Margin

Net Profit Margin is the ratio used to measure a company's ability to generate profits at a certain level of sales. This ratio compares net profit to sales. This ratio is often used by financial analysts, investors, and regulators to evaluate company's financial performance and the ability to generate net profits. A high Net Profit Margin indicates that the company earns a high enough profit at a certain level of sales, while a low net profit margin indicates that sales are low so that the profit the company gets is also low (Kasmir, 2018). In general, the higher the NPM ratio, the better the company's financial performance. However, in some cases, a high NPM ratio can also indicate unethical business practices, such as reducing service quality or

charging high fees to customers (Mahdatika, 2021). The relationship between net income after tax and net sales shows management's ability to drive the company successfully enough to leave certain margins as reasonable compensation for owners who have provided their capital for risk. It is calculated by dividing net profit by total revenue and representing the outcome as a percentage.

$$\text{Net Profit Margin} = \frac{\text{Net profit}}{\text{Total Revenue}} \times 100\%$$

The NPM ratio is not only used as a benchmark for company financial performance in general but is also used to compare financial performance between similar companies, monitor company profit growth over time, and assess company financial risk and stability. This ratio is also often used as an indicator in measuring a company's financial health.

2.1.7 Firm Size

Firm size is defined as ability to make investments and accelerate growth to achieve goals of the organisation (Chongyu, et al; 2018). Company Size is one of the factors considered in determining the value of a company. A company's total description of its assets is referred to as its size. The enormous size of the business demonstrates that it is growing and developing well, which raises the worth of a business. (Hertina, et al; 2019). Rais & Santoso (2017) defined firm size as the measurement to classify the size of the company according to various calculations. They are based on total assets, total sales, average total sales of assets, log size market value shares, number of employees, and others. The size of a company could be an indicator that illustrates the level of risk for investors to invest in the company. Large firms are deemed to have an excellent financial capacity, more capable of fulfilling all their obligations, and can accommodate an adequate return rate for investors. Investors more often invest in large companies, because large companies are considered to have good development and can improve company performance (Sergius et al; 2022). According to Sugiyanto et al. (2021) Companies with large total assets will get more attention from investors, creditors, and other users of financial information.

2.2 Empirical Review

Abdulrasheed and Aminu (2024) examined Sustainability Reporting (SR) and Financial Performance of listed Consumer and Industrial Goods Companies. Financial reports from 14 Consumer and 8 Industrial Goods Companies from 2012-2021 were used. Descriptive and Two-step System GMM were used for analysis. Social, environmental, and economic information are used as proxies of sustainability reporting while financial performance is proxies by ROE and EVA. The study found that consumer goods Companies are more Socially transparent than Industrial consumer goods. Consumer goods Companies disclose less environmental information than Industrial goods Companies. Both sectors exhibit transparency in reporting economic sustainability information. Importantly, the study found that sustainability reporting has no significant effect on these Industries' financial performance proxies by ROE and EVA. The study recommend that Nigerian exchange group limited should adopt industry-specific SR guidelines. Also, Sustainability activities should be linked to company strategy, as alignment boosts performance by boosting operational efficiency, risk reduction, and market expansion. The study used ROE and EVA as financial indicators which might overlook other metrics. Considering this, this study will use NPM as a proxy of financial performance as it shows a company's ability to generate net profit after deduction of tax.

Ibrahim et al. (2023) examined the effect of environmental reporting on financial performance of listed Nigerian industrial and consumer goods firms for the period of ten (10) years from 2012 to 2021. The population of the study comprises forty-two (42) listed industrial and consumer goods firms in Nigeria. Eleven (11) firms were selected as the study sample size, which comprises 5 industrial goods and 6 consumer goods firms. Return on Asset (ROA) was considered as proxy of financial performance. Secondary data were used and extracted from the firm's annual reports using environmental reporting Index (ISO 14031) content analysis. The study analyses were conducted using STATA 13 statistical software. The regression results revealed that environmental information has significant positive effect on return on asset (ROA); employee health and safety have negative significant effect on ROA; product safety has negative significant effect on ROA. The study recommended that listed Nigerian industrial and consumer goods firms should emphasize more on reporting their environmental issues as it can improve their financial performance. The study used ROE as financial indicator which might overlook other metrics. Considering this, this study will use NPM as a proxy of financial performance as it shows a company's ability to generate net profit after deduction of tax.

Amalya *et al.* (2023) examined the mediation of environmental performance on the relationship between green accounting and financial performance. The period of the study was from 2019 to 2020, and the key variables of the study were financial performance (dependent variable) measured by return on assets (ROA) and green accounting (independent variable) measured by environmental cost. The sample size of the study was three (3) selected industrial selected from the population of thirty-six (36) industries quoted on Indonesia Stock Exchange (IDX). Data for the study were collected from the annual reports and financial statements of the entities and analysis was conducted using simple linear regression approach. The results indicated that green accounting exerted significant influence on financial performance (ROA) of the entities sampled for the study. The study recommends that management of companies should ensure that they comply with the environmental laws of the nation as it will go a long way in enhancing their performance. The study uses ROA as proxies for financial performance while the present study will use net profit margin as it allows financial analysts, investors and regulators to evaluate a company's financial performance and its ability to generate net profit.

Iliemena *et al.* (2023) evaluated the effect of Sustainability reporting on economic value addition of Nigerian listed manufacturing companies from 2013 to 2020. Ex-post facto research design was adopted while secondary data were sourced from annual reports and accounts of 37 sampled companies out of 73 listed manufacturing companies in Nigeria as at 30th September 2019. Sustainability reporting was proxies by economic, social, and environmental reporting. The panel data gathered for the study were subjected to empirical tests using panel regression techniques. Evidence generated revealed among others that economic, social, and environmental reporting aspects of sustainability reporting all had positive effect on economic value added over the period. However, the effects were found to be significant for economic and social reporting while the effect of environmental reporting was not statistically significant. Consequently, it was concluded that sustainability reporting has significant positive effect on economic value addition by listed manufacturing companies in Nigeria. The study therefore recommends amongst others that business organizations should incorporate sustainability reporting in their reporting system to reap the associated benefit of economic value added which should also be measured and reported annually. By policy implication, government across countries should put in place, annual awards and recognition programmes for companies with highest disclosure scores for all indices of sustainability reporting to encourage a more sustainability driven economy, this will indirectly promote economic value added by corporations. To bridge the gap in literature this study will utilize net profit margin as the dependent

variable as against the used of economic value addition as is used for comparison between net profit and revenue.

Ilelaboye and Alade (2022) investigated the effect of environmental accounting and financial performance of listed family-owned companies in Nigeria. The study was conducted to cover the period from 2012 to 2020, and the relevant variables used in the study were financial performance (dependent variable) measured by return on capital employed (ROCE) and environmental accounting proxied by restoration cost (RC), community development cost (CDC) and health and safety cost (HSC). The population of the study consisted of 12 family-owned companies across industrial and oil and gas sectors that were quoted on the Nigerian Exchange Group (NXG). The study adopted purposive sampling technique to select six (6) family-owned companies. Data were extracted from the annual reports and financial statements of the sampled companies. Data analysis was conducted using both descriptive statistics and ordinary least squared (OLS) techniques analytical approach. The analysis indicated that RC had adverse and inconsequential influence on the financial performance, and CDC had adverse and material influence on financial performance while HCS exerted a direct and insignificant influence on financial performance. The study recommended that companies should design their operation to reduce waste or emission during their operations. The study uses restoration cost (RC), community development cost (CDC) and health and safety cost (HSC) as proxies for environmental accounting while the present study will use triple bottom line as it factors environmental, social and the economic aspect of a company.

Cletus *et al.* (2022) examined the effect of environmental accounting costs and financial performance of selected quoted oil and gas companies in Nigeria. The intention of the researchers was to examine the impact of environmental accounting costs on financial performance of the selected oil and gas firms in Nigeria. The period of the study was from 2000 to 2020, and the key variables of the study were environmental accounting costs (EAC) proxied by environmental pollution prevention costs (EPPC), environmental detection costs (EDC), environmental internal failure cost (EIFC) and environmental external failure cost (EEFC) and financial performance (dependent variable) was measured in terms of return on equity (ROE). To achieve the stated objective, secondary data was obtained from the annual reports and financial statements of Conoil, MRS Oil and Forte Oil. The obtained data were analysed using both the descriptive and inferential statistics. Results from the regression indicated that EIFC and EEFC had positive and significant influence on the financial performance of oil and gas companies in Nigeria while EPPC and EDC exerted insignificant effect on the financial performance of oil and gas companies in Nigeria. Thus, it was concluded that the EAC had significantly influenced the general financial performance of oil and gas industry in Nigeria. The study recommended that oil and companies should ensure that they comply with the environmental laws of the nation as it will enhance their performances. The study population are limited to two oil and gas in Nigeria which cannot be use for generalization while this study will focus on nine (9) listed oil and gas companies in Nigeria.

Nasruzzaman and Serkan (2022) analysed the impact of environmental, social and governance (ESG) performance of global energy and power generation corporations over their corporate financial performance. The study explores the impact of the environmental, social and governance (ESG) operations and performance over profitability and market value of the corporations operating business in sensitive industries such as energy and power generation corporations using panel data regression. The ESG performance data and financial data of 192 energy and power generation firms from 2008 to 2019 were collected from the Thomson Reuters Eikon database for the statistical analyses. According to the results, ESG performance is correlated in a significant way with the financial performance of the energy and power generation corporations. The findings suggest that ESG performance has both positive and

significant impacts over the profitability of the corporations but a negative impact over the market value of the corporations. The study used Thomson Reuters Eikon database while this study will use global reporting initiatives as its metrics is industry specific to oil and gas.

Okoye, *et al.* (2020) assessed the effect of sustainability reporting on economic value added of manufacturing Firms Listed on Nigeria Stock Exchange. Twenty-one (21) listed manufacturing firms constituted the sample size of this study between 2008 and 2019. Sustainability reporting was proxied by economic reporting, social reporting, environmental reporting, and governance reporting. Ex-Post facto research design and content analysis were adopted while secondary data were extracted from the annual reports and accounts of the sampled firms and were analysed using E-Views 10 statistical software. The study employed descriptive statistics and inferential statistics using Pearson correlation, Panel Least Square (PLS) regression analysis, granger causality test and Hausman test. Findings from the empirical analysis showed that economic reporting, social reporting, environmental reporting, and governance reporting exerted a significant positive effect on economic value added of listed manufacturing firms in Nigeria at 5% level of significance respectively. It was recommended inter alia that corporate entities in Nigeria should invest in sustainability activities in all its ramifications to boost the image/reputation of the firms thereby increasing their returns. The study focuses on the manufacturing sector in Nigeria while this study will focus on the oil and gas companies in Nigeria because of the impact of their activities in the environment.

2.3 Theoretical Framework

2.3.3 Signaling Theory

Signaling Theory is a fundamental concept in the fields of economics and organizational theory, particularly relevant in situations where information asymmetry exists between two parties. Originally developed in the context of labor markets by Michael Spence in 1973, it has since been applied broadly, including in finance, marketing, and corporate governance. The core of signaling theory involves two parties: one that has specific information (the signaler) and another that does not but is trying to infer it (the receiver). Signaling theory is a method that facilitates the incorporation of company financial management with external entities. Signaling theory facilitates communication between internal stakeholders of the company, typically represented by financial managers, and external stakeholders such as investors, capital investors, or the general public. Its purpose is to convey information about the company's financial status. The signal in question pertains to information regarding the company's internal management strategy aimed at fulfilling the desires of capital owners. This information serves as a crucial determinant for investors when making investment decisions regarding a company (Putri, 2020; Katterbauer *et al.,* 2022; Neto, 2023; Digdowiseiso, 2023). This theory adequately addresses the requirements of the company's internal stakeholders with regards to the company's prospects, considering that the company's management has greater influence over the circumstances and forecasts of prices and business operations in the future. Managers can utilize financial reports to communicate this signal, which outlines the efficacy of implementing company strategies. This enables investors to gauge the extent to which the company can meet its future objectives. The information derived from signaling theory can have both positive and negative implications. A positive signal signifies that the company is experiencing a rise in profits, whereas an adverse signal indicates a decline in profits for the company (Sari *et al.,* 2023; Digdowiseiso, 2023). The relationship between signal theory and the company's financial performance is that a wider disclosure will give a positive signal to the parties interested in the company (stakeholders). The information conveyed to stakeholders and shareholders will reproduce the information received about the company. This will make stakeholder and shareholder trust in the company and this trust is shown by

stakeholders' interest in the company's products and that will increase the financial performance of the company.

From the theoretical background discussed above is the fact that environmental and economic reporting runs across all the theoretical postulations as a potential business financing option. Understanding how environmental and economic reporting affects oil and gas businesses' financial performance requires an understanding of signaling theory. These businesses can improve investor confidence, lessen information asymmetry, establish a solid reputation, gain a competitive edge, reduce regulatory risks, draw in sustainable investment, and successfully manage long-term risks by demonstrating transparency, environmental responsibility, and proactive risk management. For oil and gas companies looking to achieve sustainable growth and profitability, environmental and economic reporting is a strategic instrument because of these signaling effects that add up to better financial performance.

3. METHODOLOGY

This study employed longitudinal panel research design where information on environmental reporting and economic reporting variables and financial performance variables of listed oil and gas companies (downstream sector) on the Nigeria Exchange Group were extracted from the audited annual reports of the companies from 2013-2023. The population of this study consists of 9 listed oil and gas companies and the sample size is the entire population since it is not large. The collected data was sorted, edited, and verified for accuracy while preparing it for analysis. E-views were used in analyzing the data. Descriptive statistics were used to show the measure of tendencies that include mean table, standard deviations, and percentages. Correlation and regression analyses were also used to find out the relationship between environmental and economic reporting and financial performance. The research adopted Ibrahim *et al* (2023) research model:

$$ROA_{it} = \beta_0 + \beta_1 Environmental\ Information_{it} + \beta_2\ Employee\ Health\ and\ Safety_{it} + \beta_3\ Product\ Safety_{it} + e_{it} \quad \text{(i)}$$

was modified for the study, as indicated below.

$$NPM = \beta_0 + \beta_1 ERT + \beta_2 ECRT + \beta_3 FS + e_{it} \quad \textbf{(3.1)}$$

Where;

NPM = Net Profit Margin
ERT = Environmental Reporting
ECRT = Economic Reporting
FS = Firm Size
β_0 = Constant
i = Number of firms (1, 2, 3….9)
t= time (2013……2023)
eit = error terms.

Table 1: Variables Measurement

Variable	Type	Measurement	Source
Net Proft Margin (NPM)	Dependent	Net Profit divided by Total Revenue. (NPM=NP/TR)	Nnamani, *et al.* (2017)
Environmental Reporting (ERT)	Independent	Average value of GRI Environmental reporting index	Chikwendu, *et al.* (2020)
Economic Reporting (ECRT)	Independent	Average value of GRI Economic reporting index	Chikwendu, *et al.* (2020)
Firm Size (FS)	Control variable	Natural logarithm of total assets	Utile T. *et al.* (2017)

Source: Researcher Compilation, (2024)

Decision Criteria

The null hypothesis (Ho) will not be rejected if the computed value falls within the critical positive value of the distribution table for whichever degree of freedom will be computed with a 5% (0.05) level of significance. Otherwise reject the null hypothesis.

4. RESULTS AND DISCUSSION

The main objective of this study is to investigate the effect of environmental reporting and economic reporting on financial performance. To enhance the validity of the results and the presentation and understanding of the panel multiple regression results, the result of the descriptive and diagnostic tests is included in the analysis presented here.

4.1 Descriptive Statistics

The descriptive statistics for the variables used in the study are displayed in Table 2. Using E views which analysis of variables for the period under consideration was obtained.

Table 2: Descriptive Statistics Results

	NPM	ERT	ECRT	FS
Mean	0.407410	2886105	2822273	9.011163
Median	0.012385	25277.60	141487.7	17.25276
Maximum	23.04588	847.10153	114.2108	37.05890
Minimum	-26.22281	58.04236	68.65324.	-47.18467
Std. Dev.	4.297332	10.017572	12.313132	15.18443
Skewness	0.061770	6.032748	7.658347	-1.281206
Kurtosis	26.71722	47.08020	68.06604	3.824800
Jarque-Bera	2320.402	8615.640	18431.29	29.89078
Probability	0.000000	0.000000	0.000000	0.000000
Sum	40.33361	2.862208	2.792108	892.1051
Observation	99	99	99	99

Source: E-views 12 Output (2024)

The descriptive statistics of the dependent and the independent variables are shown in Table 2 above. The table displays the mean, minimum, maximum, and standard deviation for net profit margin (NPM) which are 0.407410, -26.22281, 23.045888, and 4.297332 respectively. This value shows that there is a dispersion of the standard deviation from the mean value. The table also displays the mean, minimum, maximum, and standard deviation values for environmental reporting (ERT) as 2886105, 58.04236, 847.10153, and 10.017572 respectively. Comparing the range between the maximum and minimum values reveals there is a marginal increase in environmental reporting in the study period. The results further show economic reporting (ECRT) during the period has mean, minimum, maximum, and standard deviation values of 2822273, 68.65324, 114.2108, and 12.313132 respectively. This shows an increase in economic reporting in the study period. The firm size (FS) has a mean value of 9.011163, a standard deviation of 15.18443, and minimum and maximum values of -47.18467 and 37.05890 respectively. The standard deviation values represent the degree of dispersion in the data series. The kurtosis was employed to test the peakness of the series distribution which indicates that the value is leptokurtic if it exceeds 3 and platykurtic if it is below 3.

Correlation Analysis

Table 3 presents the correlation matrix showing the Pearson correlation coefficient between the dependent and independent variables as well as among the studies of the independent variables.

Table 3: Correlation Matrix

	NPM	ERT	ECRT	FS
NPM	1			
ERT	0.00738	1		
ECRT	0.42308	-0.0382	1	
FS	0.40217	-0.0606	0.19370	1

Source: E-views 12 Output (2024)

The table above shows that there is no relationship among the explanatory variables that is larger than 0.7 which can pose the problem of serial correlations among the data because the rule state that a correlation coefficient between two independent variables of 0.8 is excessive showing a sign of multicollinearity. The results show that ERT and NPM have a positive correlation coefficient of 0.0.00738. Furthermore, FS has a negative relation with environmental reporting but a positive relation with net profit margin and economic reporting as indicated by coefficients of (0.0606), 0.40217, and 0.19370 respectively.

Multicollinearity Test

The multicollinearity test was carried out in order to assess the robustness of the estimate, utilizing the Variance Inflation Factor (VIF). Multicollinearity is a breach of the assumptions for linear regression modeling and occurs when one or more independent variables have a strong influence on the others than they do on each other. This can affect the validity of the findings from any research.

Decision rule: If the value of VIF < 10, indicates the absence of multicollinearity, while VIF > 10 indicate the regression coefficients are feebly estimated with the presence of multicollinearity.

Table 4: Multicollinearity Test (VIF)

Variance Inflation Factors
Date: 08/25/24 Time: 17:10
Sample: 2013 2023
Included observations: 99

Multicollinearity			
	Coefficient Variance	VIF	1/VIF
C	576.7167	5.86734	NA
ERT	73.53136	6.00052	1.92721
ECRT	156.86667	8.01608	1.98417
FS	63.20278	7.00017	1.99983

Source: E-views 12 Output (2024)

Table 4 presented the results of the multicollinearity test conducted which revealed that from the distribution of the values in the table, the correlation coefficient of the independent variables is indeed in line with the variance inflation factors (VIF). The centered VIF ranges from 1.92721 to 1.99983, which is below a threshold of 10 and shows that the study variables are not multicollinear.

Heteroskedasticity Test

In order to validate the robustness of the estimates, the Heteroskedasticity test was conducted as a diagnostic check.

Decision Rule: At 5% level of Significance if the residuals are homoskedastic reject alternative hypothesis and null is not rejected

H0: No conditional Heteroskedasticity (Residuals are homoskedastic)
H1: There is conditional Heteroskedasticity

Table 5: Heteroskedasticity Test

Panel Cross-section Heteroskedasticity LR Test
Null hypothesis: Residuals are homoskedastic
Equation: UNTITLED
Specification: NPM C ERT ECRT FS

	Value	df	Probability
Likelihood ratio	106.706	9	0.0716

LR test summary:

	Value	df
Restricted LogL	105.1987	146
Unrestricted LogL	638.5518	146

Source: E-View 12 Output (2024)

Based on the findings in table 5, with a ratio value of 106 .706 and a probability value of 0.0716 exceeding 5%, the null hypothesis is accepted, showing no conditional heteroskedasticity, which means residuals are homoskedastic and samples accurately represent the population.

Hausman Test

This test is carried out to choose between the fixed effect model and random effect model, in order to interpret the objective of the study and the research hypotheses. The decision rule of Hausman test is at 5% level of significance.

Decision Rule:

If p-value is less than 0.05, reject the null hypothesis

Hypothesis:

H_0: Random effect is the most appropriate for the panel regression analysis.
H_1: Fixed effect is the most appropriate for the panel regression analysis.

Table 6: Hausman test

Correlated Random Effects - Hausman Test
Equation: Untitled
Test cross-section random effects

Test summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob
Cross-section random	9.01789	4	0.0243

Source: E-views 12 Output (2024)

The table above shows that the test is statistically significant at 0.0243 as the probability statistics lies below 5% level of significance. Therefore, this study rejects the null hypothesis that the random effect is the appropriate model.

Fixed Effect Likelihood Ratio Test

The fixed likelihood ratio test is carried to distinguish between the fixed effects regression model and the pooled effect regression model. Due to the panel format of the data set, pooled and fixed-effect regressions were conducted.

Decision Rule:

If p-value is less than 0.05, reject the null hypothesis

Hypothesis:

H_0: Pooled effect is the most appropriate for the panel regression analysis.
H_1: Fixed effect is the most appropriate for the panel regression analysis.

Table 7: Fixed Effect Likelihood Ratio (Test between Pooled and Fixed)

Effect Test	Statistic	d.f	Prob
Cross-section F	39.07865	74380	0.0000
Cross-section Chi square	374.27581	22	0.0217

Source: E-views 12 Output (2024)

The result of the analysis reveals a chi-square statistics value of 374.27581 with a probability value of 0.0217, implying that the null hypothesis should be rejected, which indicates that fixed effect is the most suited for the panel regression analysis.

Table 8: Regression Analysis

Dependent Variable: NPM
Method: Panel Least Squares
Date: 08/25/24 Time: 17:17
Sample: 2013 2023
Periods included: 11
Cross-sections included: 9
Total panel (balanced) observations: 99

Variables	Coefficients	Std. Error	t-Stat	Prob.
C	-0.85264	0.45025	-1.89369	0.0613
ERT	1.78108	3.72018	0.47783	0.6339
ECRT	1.26307	3.08108	4.07352	0.0001
FS	0.09480	0.02502	3.78865	0.0003
Effects Specification				
Cross-section fixed (dummy variables)				
R Square	0.587251	Mean dependent var		0.40741
Adjusted R Square	0.564743	S.D dependent var		4.29733
S.E of regression	3.125095	Akaike info criterion		3.41673
Sum squared resid	27.375286	Schwarz criterion		3.85601
Log Likelihood	-267.5518	Hannan-Quinn criter.		3.40297
F-value	12.76226	Durbin-Watson stat		1.93854
Prob (F-statistic)	0.000000			

Source: E-views 12 Output (2024)

The table above displays and analyze the effect of regression result of the explained variables proxied by NPM as well as the explanatory variables ERT and ECRT. It shows R2 of 0.587251 which means that about 58.53% of total variation in net profit margin of listed oil and gas companies in Nigeria is accounted

for by environmental reporting and economic reporting with other factors not included in the model. Furthermore, the regression of result as presented above shows an intercept of -0.85264.

The result reveals that environmental reporting (ERT) has a positive impact on the net profit margin (NPM) of the selected listed oil and gas companies in Nigeria. ERT has a beta coefficient of 1.78108 and a P-value of 0.6339 which is above 5% level of significance. This suggests that a shift of environmental reporting will result in a non-significant increase in the net profit margin of listed oil and gas companies in Nigeria. This implies that environmental reporting of listed oil and gas companies in Nigeria improves their net profit margin, although insignificantly. Also, economic reporting (ECRT) has a positive association with NPM. The result reveals a beta coefficient of 1.26307 and a P-value of 0.0001 which are significant at the 5% level. This implies that a change in the ERT will affect the net profit margin.

Discussion of findings

This study seeks to investigate the effect of environmental and economic reporting on financial performance of listed oil and gas companies (downstream sector) in Nigeria.

Evidence from the study shows that environmental reporting has an insignificant effect on the net profit margin (NPM) of listed oil and gas companies (downstream sector) in Nigeria. The result shows from the table above that ERT has a positive beta coefficient with a corresponding P-value which is above 0.05 significant value. Thus, we have no reason to reject the null hypothesis one. This finding does not agree with the findings of Iliemena *et al.* (2023) and Cletus *et al.* (2022) which show that environmental reporting has significantly improves financial performance of listed companies in Nigeria.

The study shows a significant effect of economic reporting (ECRT) on the net profit margin (NPM) of listed oil and gas companies (downstream sector) in Nigeria. As shown in Table 8 above ECRT has a positive beta coefficient and positive P-value which implies that it is a significant predictor of the NPM of listed petroleum marketing companies in Nigeria, with a positive relationship. Thus, the null hypothesis one was rejected and the alternative hypothesis was accepted that is, GRI economic reporting index has significant effect on net profit margin. This finding agrees with the finding of Iliemena *et al.* (2023) who evaluate the effect of sustainability reporting on economic value addition of Nigerian listed manufacturing companies from 2013 to 2020.

CONCLUSION AND RECOMMENDATION

This paper examines the effect of environmental and economic reporting on financial performance of listed oil and gas companies (downstream sector) in Nigeria as a sample between 2013 and 2023. The study regression shows that there is significant relation between economic reporting and net profit margin and an insignificant relationship between environmental reporting and net profit margin of the sampled companies. The findings revealed that both environmental reporting and economic reporting have a positive impact on net profit margin of listed oil and gas companies (downstream sector) in Nigeria. Giving the foregoing, the study recommends the following:

i. Companies should ensure that they comply and implement environmental laws of the nation to reduce the impact of their operation on the environment and to enhance their financial performance.
ii. The companies should pay attention to the need of various stakeholders, mainly external. Maximizing stakeholder value should remain an optimal strategy to achieve the company's financial goals.

REFERENCES

Abdulrasheed B., Aminu A. (2024), Sustainability Reporting and Financial Performance of Listed Consumer and Industrial Goods Companies in Nigeria: A Comparative Analysis. *African Journal of Accounting and Financial Research 7*(1), 132-151. DOI:10.52589/AJAFR-QS4IDNKM

Ahmadu, M. S. (2016). Effects of financial leverage on firms' performance. *Journal of Accounting and Finance, 15*(6), 57-65

Alemu, A. A., & Deyganto, K. O. (2019). Factors affecting financial performance of insurance companies operating in Hawassa City administration, Ethiopia. *Universal Journal of Accounting and Finance*, 7(1),1-11.

Amahalu, N.N, Okoye, P.V.C & Obi, J.C. (2018). Effect of sustainability reporting on Economic Value Added of Quoted Brewery Firms *in Nigeria. Journal of Accounting, Jos, 7 (1), 1-20*

Aniefor, S. J. & Onatuyeh, A. E. (2020). Effect of debt financing on the corporate performance: A study of listed consumer goods firms in Nigeria*. International Journal of Academic Accounting, Finance & Management Research. 3*(5), 26-34.

Arumona, J., Lambe, I., and Ogunmakinde, I. (2021). Effect of environmental disclosure on financial performance of quoted oil and gas companies in Nigeria. *Bingham University Journal of Accounting and Business,* 1(1): 1-16.

A. S. Yudharma, Y. W. Nugrahanti, and A. B. Kristano, "Pengaruh biaya corporate social responsibility terhadap kinerja keuangan dan nilai perusahaan," *DeReMa (Development Res. Manag. J. Manaj.*, 11(2), 171–190, Sep. 2016.

Ayoola, T.J. (2011), Gas flaring and its implication for environmental accounting in Nigeria. *Journal of Sustainable Development, 4*(5), 244-250.

Benson, N. C., Akabom Ita, A., Ethel Ohanya, I., & Adesola, F. A. (2021). Effect of green accounting on financial performance of oil and gas companies in Nigeria. *Journal of University of Shanghai for Science and Technology,* 23(12), 166-190.

Carandang, J. C., & Ferrer, R. C. (2020). Effect of environmental accounting on financial performance and firm value of listed mining and oil companies in the Philippines. *Asia-Pacific Social Science Review,* 20(1), 117–134.

Chikwendu, O., Okafor, G., & Jesuwunmi, C. (2020). Effect of sustainability reporting on financial performance of listed companies in Nigeria. *Canadian Contemporary Research Journal 1* (1), 96-111

Choiriah, S., and Lysandra, S. (2023). Effect of green accounting, quality management on financial performance, and green innovation as moderation variables. *Journal of Economics, Finance and Management Studies,* 6(7): 3534-3542.

Chude, D. I (2022). Green accounting practices and corporate performance: evidence from quoted consumer goods manufacturing companies in Nigeria. *Journal of Global Accounting* 53-65.

Cletus, O. O., Nwite, S. C., and Agana, O. J. (2022). Environmental accounting costs and financial performance of selected quoted oil and gas companies in Nigeria. *International Journal of Research and Innovation in Social Science,* 6(10): 175-187.

Deegan, C.M. (2019), Legitimacy theory. *Accounting, Auditing and Accountability Journal, 32*(8), 2307-2329.

Deev, O., & Nino, K. (2017). Corporate governance, social responsibility and financial performance of European insurers. *Acta Universitatis Agriculturae et Silviculturae Mendelianae Brunensis*, 65(191),1873-1888.

Digdowiseiso, K. (2023). What Drives the Stock Returns? Examining the Fundamental Factorson the Consumer Defensive Sector Companies. *Quality – Access to Success,* 24(194), 177-186. https://doi.org/10.47750/QAS/24.194.21

Dos Santos, J.A., Moura-Leite, R., Pereira, M.W.G., Pagán, M. (2020), Social and environmental disclosure of the largest companies in Brazil's agribusiness sector. *Social Responsibility Journal,* 2020, 1-9.

Dowling, J., & Pfeffer, J. (1975). Organizational legitimacy: Social values and organizational behavior. *Pacific Sociological Review, 18*(1), 122–136.

Dube, S., Maroun, W. (2017), Corporate social responsibility reporting by South African mining companies: Evidence of legitimacy theory. *South African Journal of Business Management, 48*(1): 23-34.

European Commission. (2011). Corporate social responsibility (CSR). Available online: http://ec.europa.eu/ growth/industry/corporate-social-responsibility (accessed on 20 February 2017).

Eze, E. (2021). Green accounting reporting and financial performance of manufacturing firmsin Nigeria. *American Journal of Humanities and Social Sciences Research,* 5(7), 179- 187.

Freeman, R.E. (1984). *Strategic management*: *A stakeholder approach*. Boston, MA: Pitman.

Friedman, A.L., & Miles, S. (2006). Stakeholders: theory and practice. *Oxford University Press.*

Dorfleitner, S. Utz, and M. Wimmer, "Where and when does it pay to be good? *A global long-term analysis of ESG investing,"* SSRN Electron. J., 2013.

Global Reporting Initiative [GRI], (2011). Sustainability Reporting Guidelines. Amsterdam:Global Reporting Initiative.

Global Reporting Initiative (2016). https://www.globalreporting.org/publications/documents/english/gri-201-economic performance-2016

G.N Ogbonna & Ebimobowei (2011). Ethical Compliance by the Accountant on the Quality of Financial Reporting and Performance of Quoted Companies in Nigeria. *Asian Journal of Business Management 3*(3): 152-160, 2011 ISSN: 2041-8744

Herrera, M.J., Larrán, J.M., Martínez, C.I., & Martínez-Martínez, D. (2015). Relationship between corporate social responsibility and competitive performance in Spanish SMEs: Empirical evidence from a stakeholders' perspective. *BRQ Business Research Quarterly, 19*(1), 55-72.

Ibrahim et al. (2023). Environmental Reporting and Financial Performance of Listed Industrial and Consumer Goods Firms in Nigeria. *FUDMA Journal of Accounting and Finance Research [FUJAFR]*, *1*(2), 123–140. https://doi.org/10.33003/fujafr-2023.v1i2.41.123-140

Ihenyen, J. C., and Ikegima, A. C. (2022). Environmental accounting and organisational performance of listed industrial sector companies in Nigeria. *International Journal of Management and Entrepreneurship Research,* 4(4): 202-212.

Ilelaboye, C. S., and Alade, M. E. (2022). Environmental accounting and financial performance of listed family-owned companies in Nigeria. *International Review of Business and Economics,* 61): 71-82.

Iliemena, R. O. C. & Okolocha, C. B. (2019). Effect of audit quality on financial performance, evidence from a developing capital market. *International Journal of Recent Research in Commerce Economics and Management* 6(3), 191-198.

Katterbauer , K. ., Syed , H. ., Genç , S. Y. ., & Cleenewerck , L. . (2022). Environmental Compliance and Financial Performance of Shariah-Compliant Enterprises – a Data-Driven Analysis. *Revista De Gestão Social E Ambiental,* 16(2), e03043. https://doi.org/10.24857/rgsa.v16n2-025

Luh Putu Puji Trisnawati, L. C (2022). Literature Review of Corporate Sustainability in Practices (The Implementation of Green Accounting in Modern Industries). *International Journal of Social Science and Human Research,* Volume 05

Matthew N. O. Sadiku, T. J(2021). Green accounting: A Primer. *International Journal of Scientific Advances,* volume 2.

Mazzioni, Sady & Soschinski, Caroline & Leite, Maurício & Magro, Cristian & Sanches, Simone. (2024). ESG Performance in Emerging Economies. *Macro Management & Public Policies. 6*. 21-35. 10.30564/mmpp.v6i1.6202.

Nasruzzaman Naeem, Serkan Çankaya (2022). The Impact of ESG Performance over Financial Performance: A Study on Global Energy and Power Generation Companies. *International Journal of Commerce and Finance,* Vol. 8, Issue 1, 2022, 1-25

Nejla Ould & Haitham Nobanee (2023). Impact of economic, environmental, and corporate social responsibility reporting on financial performance of UAE banks. Vol.:(0123456789) *Environment, Development and Sustainability* (2023) 25:3967–3983 https://doi.org/10.1007/s10668-022-02225-61 3

Neto, F.I.F. (2023). Accounting Demonstrations`s Contribution for Public Administration. *Revista De Gestão Social E Ambiental,* 17(10), e04152.

Nnamani, J.N, Onyekwelu, U.L., & Ugwu, O.K. (2017). Effect of sustainability accounting on the financial performance of firms in the Nigerian brewery sector. *European Journal of Business and Innovation Research, 5*(1), 1-15.

Nzekwe, O.G Pius, V. C & Amahalu N.N (2021). Effect of Sustainability Reporting on Financial Performance of Quoted Industrial Goods Companies in Nigeria. *International Journal of Management Studies and Social Science Research, Vol. 3*, ISSN: 2582 – 0265.

Okolie, O. A., & Igaga, A. C. (2020). Sustainability reporting and financial performance of deposit money banks in Nigeria. *International Business & Economics Studies 2* (2), 68-87

Okoye, Emmanuel & Ndum, Ngozi. (2020). Effect of Sustainability Reporting on Economic Value Added of Manufacturing Firms Listed on Nigeria Stock Exchange. *Journal of Economics, Management and Trade. 15*-33. 10.9734/jemt/2020/v26i1030295.

Okudo, A.G., & Ndubuisi, A.N. (2021). Corporate governance and carbon disclosure practices of quoted manufacturing firms in Nigeria. *International Journal of Contemporary Research and Review,* 12 (07), 20409

Omojolaibi, J.A., Okudo, A.G., & Shojobi, D.A. (2019). Are women financially excluded from formal financial services? Analysis of some selected local government areas in Lagos State, Nigeria. *Journal of Economic and Social Thought,* 6(1), 16-47.

Rais, B. N., & Santoso, H. F. (2017). Pengaruh Kepemilikan Manajerial, Kepemilikan Institusional, Profitabilitas dan Ukuran Perusahaan Terhadap Kebijakan Deviden. *Jurnal Ilmiah Manajemen Bisnis, 17*(2), 111–124.

Riyadh, H. A., Al-Shmam, M. A., Huang, H. H., Gunawan, B., and Alfaiza, S. A. (2020). The analysis of green accounting cost impact on corporations' financial performance. *International Journal of Energy Economics and Policy,* 10(6): 421-426.

Sari, D, P. et al. (2023). Implementasi Teori Agensi, Efisiensi Pasar, Teori Sinyal Dan Teori Kontrak Dalam Pelaporan Akuntansi Pada Pt. Eskimo Wieraperdana. *Mercubuana.* https://www.researchgate.net/profile/Desi- Puspita-Sari- 4/publication/36539371

Sergius F. B. and Sri H. (2022). The Effect of Dividend Policy, Investment Decision, Leverage, Profitability, and Firm Size on Firm Value. *European Journal of Business and Management Research www.ejbmr.org*

Singh, S., Singh, A., Arora, S., & Mittal, S. (2019, October). Revolution of green accounting: A conceptual review. *In 2019 2nd International Conference on Power Energy, Environmentand Intelligent Control (PEEIC)* (481 -485). IEEE.

Sugiyanto, E., Trisnawati, R., & Kusumawati, E. (2021). Corporate Social Responsibility and Firm Value with Profitability, Firm Size, Managerial Ownership, and Board of Commissioners as Moderating Variables. *Riset Akuntansi Dan Keuangan Indonesia*, *6*(1), 18–26.

Sustainability Reporting Guide (2016). Sustainability reporting guide, *Working Paper*. Available online:http://rulebook.sgx.com/net_file_store/new_rulebooks/s/g/SGX_Mainboard_Practice_Note_7.6_July_20_2016.pdf (accessed on 2 September 2017).

Üçoğlu, D. (2022). Challenges and threats to environmental accounting and reporting. In Modern Regulations and Practices for Social and Environmental Accounting (1-25). *IGI Global.*

Utile, B., Tarbo, D. & Ikya, E. (2017). Corporate environmental reporting and financial performance of listed manufacturing firms in Nigeria. *International Journal of Advanced Academic Research 3* (8) 15-25

Yusuf, M. A & Kighir, E. A (2022). Sustainability Reporting and Financial Performance of Listed Non-Financial Companies in Nigeria. https://www.researchgate.net/publication/358847438