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Effect of Corporate Environmental Performance and Community Engagement on The Financial Performance of Listed Extractive Industries Firms and Downstream Oil and Gas Firms in Nigeria

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ABSTRACT:- *Corporate environmental performance and community engagement are prominent issues in the extractive sector especially in the extractive industries and downstream oil and gas sector due to the extent of environmental damage caused by their operations. This study assesses the effect of corporate environmental performance and community engagement on the financial performance of listed extractive industries and downstream oil and Gas firms in Nigeria. This study built on the ex post facto research design and focused on a period spanning from 2012 to 2023. The study population and sample include 4 extractive industries firms and 8 listed downstream oil and gas firms in Nigeria. The study employed the use of corporate environmental performance costs as well as community engagement costs as proxies. The study employed the use of return on assets as a proxy for measuring financial performance. The study employed descriptive statistics, correlation analysis, variance inflation factors, Hausman specification tests, and random effect regression tests as tools for statistical analysis. The study found that both corporate environmental performance costs and community engagement costs were not significant in affecting the return on assets of sample firms. This study concluded that corporate environmental performance cost was not significant in affecting the financial performance of listed Nigerian extractive industries and downstream oil and gas firms. The study recommends more transparency in disclosing corporate environmental performance costs and Community engagement costs in the financial statements of quoted natural resources industry and downstream Oil and Gas firms.*

Keywords:- Corporate environmental performance Costs, community engagement costs

I. INTRODUCTION

Financial performance is a critical determinant of a firm's sustainability and competitiveness, particularly in capital-intensive industries such as downstream oil and gas and natural resources industries. It encompasses various financial metrics, including profitability, return on assets (ROA), return on equity (ROE), and earnings per share (EPS), which provide insights into a company's ability to generate turnover, manage costs, and create value for stakeholders. In the downstream oil and gas sector and natural resources industries, financial performance is influenced by both operational and external factors, including regulatory compliance costs, environmental liabilities, and community engagement (CSR) expenditures. As firms navigate increasing pressure from regulators, investors, and the public to mitigate environmental damage and engage in sustainable business practices, the financial implications of environmental protection and sustainability costs and CSR initiatives have become a subject of growing concern. Understanding the relationship between these costs and financial performance is essential for assessing how firms balance profitability with environmental-related costs and social responsibilities.

Corporate environmental performance has become a central concern for industries globally, especially in sectors known for their significant environmental impacts, such as the downstream oil and gas and natural resources industries. Increasingly, stakeholders ranging from investors, and regulators to local communities are demanding greater transparency regarding how companies address environmental issues (Irhoma, 2017). This growing pressure has led to the adoption of corporate environmental performance cost practices, which provide detailed information on how companies manage and mitigate their environmental footprints.

Community engagement refers to the process by which organizations, institutions, or individuals actively involve members of a community in discussions, decision-making, and activities that impact their collective well-being. The aim is to build trust, foster collaboration, and create solutions that benefit both the community and the engaging entity. This interaction can take various forms, including town hall meetings, online forums, or collaborative projects. Community engagement costs encompass voluntary expenditures that companies allocate to fulfill their responsibilities to various stakeholders beyond profit generation. These include costs related to compliance with environmental and labour regulations, charitable contributions, employee welfare programs, and investments in sustainable operations (Santhanakrishnan *et al*., 2024).

In Nigeria's extractive industry, particularly in the Niger Delta, environmental concerns are critical due to the severe degradation caused by oil exploration (Adeniyi & Adebayo 2020). This has intensified scrutiny of how firms disclose corporate environmental performance costs and their financial implications. Despite global evidence linking environmental performance to financial outcomes, Nigerian studies on this relationship remain limited (Iheduru & Chukwuma 2019). Understanding how oil companies listed on the Nigerian Stock Exchange manage environmental costs and whether these efforts yield financial benefits is crucial.

The extractive sector, vital to Nigeria's economy, faces sustainability threats, evident in the declining number of publicly listed firms. As of 2022, only eight remain, following the delisting of 11 Plc in 2021 Ardova Petroleum Plc, Global Spectrum Energy Services Plc, and RAK Unity Petroleum in 2023. This decline raises concerns about firms' ability to navigate environmental challenges and financial pressures. Given the industry's exposure to environmental scrutiny, firms must balance compliance costs with financial performance.

This study examines the impact of corporate environmental performance and community engagement costs such as environmental protection and regulatory compliance on financial performance. While some research suggests environmental transparency enhances stakeholder trust and profitability, others argue that compliance costs hinder profitability, particularly in volatile markets like the downstream oil and gas. The study aims to determine whether listed natural resources and downstream oil and gas companies in Nigeria benefit financially from environmental disclosures and explore factors influencing this relationship.

This study aims to examine the effect of corporate environmental performance and community engagement costs on the financial performance of listed natural resources and downstream oil and gas companies in Nigeria. The findings will contribute to the growing body of literature on how environmental practices can shape financial outcomes within the context of Nigeria's extractive sector. To fill the observed gaps, the study tests the following hypothesis:

H_o1: Corporate environmental performance costs do not significantly affect the return on assets of listed natural resources industries and downstream oil and gas firms in Nigeria.

H_o2: Community engagement costs do not significantly affect the return on assets of listed natural resources industries and downstream oil and gas firms in Nigeria.

II. LITERATURE REVIEW

2.1 Conceptual Framework

2.1.1 Corporate Environmental Performance Costs

Corporate environmental performance costs refer to the immediate financial expenditures required to remove, contain, or remediate pollution or contamination from a site (Aghion *et al*., 2016). This includes costs for labour, equipment, materials, and technologies necessary for soil remediation, water treatment, and waste disposal.

From a regulatory standpoint, corporate environmental performance costs are the expenses that organizations must incur to meet legal obligations under environmental protection laws (Buchanan *et al*., 2018). These costs often arise from fines, penalties, or mandated remediation efforts after regulatory violations related to pollution or hazardous waste.

Corporate environmental performance costs can also include expenses associated with legal liabilities for contamination or pollution, such as settlements, court judgments, and legal fees (Jiang *et al*., 2020). These costs are borne by companies or individuals held responsible for causing environmental damage.

Corporate environmental performance costs may encompass indirect expenses, such as the long-term monitoring of a contaminated site, loss of land value, or damage to the organization's reputation (Gunningham, 2017). These costs, while not immediately apparent, can have a significant financial impact over time.

From a sustainability and corporate responsibility viewpoint, corporate environmental performance costs represent the investments made by companies or governments to restore ecosystems and address the environmental impact of industrial or commercial activities. These costs reflect a commitment to environmental stewardship and the long-term preservation of extractive industries. These include site protection and sustainability costs, remediation costs, waste management costs, and environmental compliance costs.

2.1.2 Community Engagement Costs

Community engagement costs encompass voluntary expenditures that companies allocate to fulfill their responsibilities to various stakeholders beyond profit generation. These include costs related to compliance with environmental and labour regulations, charitable contributions, employee welfare programs, and investments in sustainable operations (Santhanakrishnan *et al*., 2024). Such costs highlight the company's commitment to reducing negative impacts on society and the environment while fostering ethical governance.

As a measure of environmental and social accountability, Community engagement costs are expenses borne by organizations to mitigate the adverse impacts of their operations on the environment and local communities. These costs include implementing energy-efficient technologies, waste management, emission

reduction efforts, and contributions to community health and education initiatives (Padhi, 2024). Community engagement costs reflect a company's dedication to minimizing its ecological footprint and promoting positive social outcomes.

Community engagement costs can be understood as investments in employee welfare, aimed at improving job satisfaction, productivity, and retention through fair wages, health benefits, skill development programs, and safe working conditions (Izevbekhai & Mansur 2024). By allocating resources towards employee-centric policies, companies not only fulfill their social responsibility but also cultivate a motivated workforce, which can positively impact overall productivity and contribute to a positive corporate culture.

This study views community engagement as expenses incurred by firms to voluntarily improve the social infrastructure of their local communities such as donations, scholarships, construction of physical infrastructure, and gifts.

2.1.3 Financial Performance

Financial performance refers to the process of measuring and evaluating an organization's financial outcomes and capabilities, such as its profitability, liquidity, solvency, and efficiency (Naser & Mokhtar, 2004). It shows the ability of a company to generate profits and maintain financial stability over a certain period, using indicators like turnover growth, return on investment, and asset utilization (Ilesanmi, 2011). Financial performance also signifies the financial health and success of an individual, company, or investment portfolio, considering aspects such as income generation, cost management, and the achievement of financial goals (Ghosh & Subrata, 2006).

This study describes financial performance as the comparison of an entity's financial results with previous periods, industry peers, or predetermined benchmarks. It involves examining key financial ratios, cash flow patterns, and balance sheet strength. The study evaluates the effectiveness and efficiency of the entity's financial management practices, such as budgeting, financial planning, and resource allocation. The evaluation aims to provide insights into the organization's capacity to increase profits, reduce costs, and optimize financial resources, with a focus on the return on asset ratio as a key measure.

2.1.4 Return on Assets

Return on Assets (ROA) refers to a financial metric that measures the profitability and efficiency of a company's assets in generating earnings (Nwaorg & Abiahu, 2020). Kurawa and Saidu (2018) expressed return on assets (ROA) as a financial ratio that assesses a company's ability to generate profits and returns from its investments in assets. It is computed by dividing the net income of the company by its total assets. A higher Return on Assets indicates that the company is effectively utilizing its assets to generate earnings. This ratio is crucial for investors, as it helps them evaluate a company's efficiency in generating returns from its asset base.

Return on assets (ROA) serves as a fundamental financial metric that assesses the profitability of Nigerian extractive industries and oil and gas firms relative to their total assets. It offers valuable insights into how efficiently these companies are leveraging their assets to generate profits. Calculating Return on Assets involves dividing a firm's net income by its average total assets over a specified period. This calculation yields a percentage, representing the return generated by each unit of assets.

Return on Assets (ROA) is a key financial indicator that measures a company's profitability in relation to its total assets. It is calculated by dividing the net income of the company by its average total assets. ROA provides insights into how efficiently a company is utilizing its assets to generate earnings. Higher ROA values indicate better utilization of assets and profitability, making it a useful metric for investors, creditors, and analysts to assess the financial performance and efficiency of a company. Return on asset is calculated by dividing the profit before interest and tax on the total assets of the firm for that day. After that, it can then be expressed as a ratio as it is or multiplied by 100 to get the percentage. This is shown below:

$$\text{ROA} = \frac{\text{Profit before interest and tax}}{\text{Total Asset}} \times \frac{100}{1}$$

a. Empirical Framework

Gangi *et al*,. (2024) examined the impact of business ethics on ESG engagement on corporate financial performance (CFP) in family firms. The study employed a two-stage Heckman model (1979) to analyze data from a worldwide panel of 335 family firms over 18 years from 2002 to 2020. This methodology was used to address two primary research questions: whether business ethics predict greater environmental costs in family firms, and whether environmental costs positively impact CFP. The study found that an ethical business approach significantly drives corporate environmental performance, and higher levels of corporate environmental performance subsequently led to improved financial performance in family firms. The findings highlight the positive connection between business ethics and corporate environmental performance constructs, and the beneficial impact of corporate environmental performance engagement on CFP, providing insights into

the drivers and effects of corporate environmental performance engagement in family firms. The study concluded that corporate environmental performance was significant in affecting financial performance. The study failed to proffer any recommendations from the findings. However, the study's reliance on data that is limited to the 2020 financial year presents a time scope gap, suggesting a need for further research with more recent data to validate these findings.

Santhanakrishnan *et al* . (2024) explored the impact of Community engagement on Corporate Financial Performance (CFP) by examining various dimensions of CSR activities and their influence on financial metrics. The study utilized a multifaceted methodology, blending quantitative analysis of financial data with qualitative evaluations of community engagement practices. The research design included regression analysis to assess the impact of CSR initiatives on financial performance indicators such as return on investment, profitability, and stock performance, while qualitative techniques, including case studies and interviews with corporate leaders, provided insights into the motivations behind CSR initiatives and their perceived financial implications. The time scope covered in this study was not explicitly stated, indicating a possible time gap for future research updates. The sample focused on companies in India, thus avoiding a geographical research gap. However, the reliance on literature review as the primary method of analysis highlights a methodology gap, suggesting the need for future studies to incorporate more primary data collection and analysis. The findings demonstrated that CSR activities have a significant effect on financial performance. The study concluded that embedding CSR within corporate strategies could potentially yield both societal benefits and financial gains, and recommended that companies fine-tune their CSR to achieve these objectives.

Padhi (2024) investigates the Community engagement initiatives of Tata Capital, a prominent financial services company in India, with a focus on understanding its impact on societal welfare. Adopting a qualitative analysis approach, the study delves into Tata Capital's CSR programs, including community development projects, environmental sustainability initiatives, and employee engagement activities. Through this exploration, the study aimed to elucidate Tata Capital's efforts in integrating social and environmental concerns into its business operations, ultimately striving to create shared value for stakeholders. The findings of this research offer insights into the effectiveness and impact of CSR strategies within the financial services sector, providing valuable lessons for both industry practitioners and policymakers aiming to enhance corporate sustainability practices and promote social responsibility. The study concludes by highlighting the importance of CSR in fostering stakeholder engagement, improving brand reputation, and contributing to long-term organizational success. It recommends that companies prioritize CSR initiatives as a strategic imperative to not only fulfill their social obligations but also to enhance their financial performance and competitive positioning. However, a notable research gap exists regarding the scalability and replicability of CSR initiatives across different organizational contexts, industries, and countries, suggesting more robust samples and populations to be adjusted for future studies.

Izevbekhai and Mansur (2024) investigated the relationship between community engagement disclosure and firm financial performance, focusing on listed deposit money banks in Nigeria. Adopting a secondary data collection approach and utilizing purposive sampling, the study examined twelve selected banks. Employing Ordinary Least Square regression analysis, the research revealed that while employee relation disclosure did not significantly impact firm performance, local community relation disclosure had a substantial positive effect on the financial performance of listed deposit-taking banks in Nigeria. The findings underscored the increasing significance of community engagement activities in the banking sector, emphasizing their role in integrating moral principles into business practices. The study concluded by recommending increased allocation of funds for social donations to bolster the relevance of CSR, along with the provision of incentives for bank employees to ensure their inclusion in CSR initiatives. This research focuses on the deposit money banks sector and this limits the applicability to the oil and gas firms and industrial goods firms.

Bumin and Ayrancı (2024) analyzed the interactions between sustainability scores and the financial performance of companies in the BIST Sustainability Index. The study utilized a multiple regression analysis method, focusing on data from 2022. The sample comprised 62 companies included in the BIST Sustainability Index. The research examined the sustainability scores of these companies and their financial performance, measured by firm value, return on assets, and stock rate of return. The findings revealed a negative relationship between corporate environmental performance and firm value, while no significant relationship was found between sustainability scores and return on assets or stock rate of return. The study concluded that the negative relationship might be due to investors perceiving corporate environmental performance as cost-increasing, thus negatively impacting financial statements and stock returns. The study recommended streamlining sustainability processes. This study highlights a potential negative investor perception regarding sustainability investments but

is limited by its reliance on data from a single year and region, presenting both a temporal and geographical research gap.

Suleiman *et al* . (2024) investigated the effect of corporate environmental performance on corporate financial performance among listed firms in Nigeria. The study measured corporate environmental performance using sustainability committees. This study used a quantitative research design with a sample size of 154 publicly listed companies over ten years from 2014 to 2023. The study employed Ordinary Least Squares (OLS) regression analysis to examine the relationship between various characteristics of corporate environmental performance and financial performance, measured by return on equity (ROE). The data were collected from secondary sources such as company annual reports and sustainability reports. The findings indicated that sustainability committee characteristics positively affect financial performance. Control variables such as firm size showed a positive relationship, while liquidity, listing age, leverage, and audit quality were not significant, except liquidity at a 10 percent level. The research concluded that effective corporate environmental performance can enhance financial performance and recommended increasing the sample size and examining additional committee characteristics in future studies. However, the study's reliance on an unspecified sector of the economy limits the applicability of the findings to extractive industries firms and the oil and gas industry.

Rahi (2023) investigated the nexus between corporate environmental performance and financial performance. This doctoral thesis employed a multi-theoretical approach to analyze how sustainability practices influence financial performance. The study used a combination of static and dynamic econometric models to analyze data from European countries over various periods. The sample size included corporations from different sectors within the macro business ecosystem. Findings indicated that corporate environmental performance positively impacts financial performance, albeit with a time lag. The research concluded that a comprehensive framework, incorporating macro and micro business environments and effective network governance, is crucial for ensuring long-term corporate environmental performance and financial performance. The thesis recommended that policymakers and practitioners prioritize sustainable strategies and develop governance mechanisms to foster these initiatives. However, the study's reliance on European data presents a geographical research gap, suggesting a need for similar analyses in other regions.

Enekwe *et al*., (2023) studied the effect of environmental cost performance on the financial performance of listed oil and gas firms in Nigeria during a 10-year scope that spanned from 2010 to 2019. The study was drafted in line with the ex post facto research design and relied on the use of secondary panel data for the period of interest. The study used the EViews software to carry out multiple regression tests. The study employed the use of a purposeful sampling technique to select a sample of four Nigerian oil and gas firms. The study leveraged return on asset as the proxy for measuring financial performance while staff development costs, community development costs, and health and safety costs as proxies for corporate environmental performance. The study found that staff development costs exerted a negative and insignificant influence on the return on assets of listed Nigerian oil and gas companies. The study also found that community development costs and health and safety costs exerted a favourable but insignificant effect. These findings led to the conclusion by the authors that the corporate environmental performance was not enough to significantly affect the financial performance metrics. The study recommended that there should be increased participation by management in managing community development, employee development, and health and safety implementations. The study also recommended that regulatory authorities should exercise prudence in their duties to the public by ensuring proper environmental compliance within their jurisdictions. The study provides valuable insights into the relationship between corporate environmental performance and the financial performance of oil and gas firms in Nigeria but the study had a small sample which may not be adequately representative of the study sample. The study also focuses on a time scope which is limited due to developments on the subject matter from the end of the scope which were not captured. This study intends to fill these research gaps by concussing the entire oil and gas industry and including a larger sample from the industrial goods sector over a more recent period.

Ibrahim *et al* . (2023) examined the relationship between environmental reporting and financial performance in listed industrial and consumer goods firms in Nigeria for a ten (10) year period spanning from 2012 to 2021. The population covered by the study includes forty-two (42) listed industrial and consumer goods firms in Nigeria. Eleven (11) firms were selected as the study sample size, which comprises five (5) industrial goods and six (6) consumer goods firms. Return on Asset (ROA) was employed as the proxy of financial performance. Secondary data was used from the firm's statutory reports using environmental reporting Index content analysis. In relation to financial performance, the data was also collected from the firm's annual reports. The study's statistical analysis using STATA 13 statistical software. The regression result revealed that corporate environmental performance has a significant positive effect on return on asset (ROA). The study

concluded that corporate environmental performance influences the financial performance of listed industrial and consumer goods firms in Nigeria. The study recommended that Nigerian industrial and consumer goods firms should enhance environmental reporting in view of improving their financial performance. The study's time scope can no longer be considered current as its time scope elapsed in 2021.

Lassala *et al* . (2021) investigate how sustainable business practices affect the corporate financial performance of firms during the pre and post-SDG adoption period. The study focuses on the IBEX 35 companies, utilizing their adoption of the United Nations Sustainable Development Goals (SDGs) as a lens for assessing financial performance (FP). Leveraging fuzzy-set qualitative comparative analysis, the research identifies configurations affecting FP, specifically return on equity (ROE). Emphasizing the importance of corporate environmental performance indicators within business strategies, the study underscores the alignment of company values with long-term economic and social value creation. By examining the link between corporate environmental performance and FP, considering social and environmental sustainability aspects, the paper delves into the companies' financial data obtained from the Spanish National Securities Market Commission (CNMV) and the SABI platform, involving 20 SDG-implementing companies within the IBEX 35. The research scrutinizes the relationship between corporate environmental performance and FP while navigating company-specific variables (age, sector, size, risk), employing fuzzy-set qualitative comparative analysis for its suitability in handling limited variables within small sample sizes. Surprisingly, the study finds that companies financial performance is not significantly affected by sustainability practices. Despite historical correlations favouring poor corporate environmental performance for better FP, the study encourages companies to persist in embracing SDGs within their business models. It underscores the importance of sustainability-based models for securing future well-being and suggests future research encompassing diverse company samples to comprehensively analyze this relationship.

Arumona *et al* ., (2021) investigates the impact of corporate environmental performance on the Financial Performance of quoted oil and gas companies in Nigeria using panel series data and regression analysis. It explores the relationship between corporate environmental performance (proxied by Research and Development Cost and Estimated Future Expenditure) and Financial Performance (proxied by Net Profit Margin and Return on Asset) based on annual reports from 12 listed companies over ten years (2010-2019). The findings affirm a positive and statistically significant effect of corporate environmental performance on Financial Performance within the Nigerian oil and gas sector, suggesting its role in enhancing profitability and fostering an environmentally friendly national stance. Employing an ex-post facto research design and multiple regression analysis, this study showcases the crucial link between corporate environmental performance and financial outcomes, echoing similar findings in existing literature. It underscores the need for regulatory support and legislative reinforcement to strengthen corporate environmental performance practices for the benefit of Nigeria's oil and gas industry and the overall economy. The study provides valuable insights into corporate environmental performance in the Nigerian oil and gas sector, however, the developments in the sector since the completion of the research have given a new direction to sustainability which was not captured in the paper.

b. Theoretical Framework

2.3.1 Social Cognitive Theory

Social Cognitive Theory (SCT), originally proposed by Albert Bandura in 1986, provides a robust framework for understanding how individuals learn and behave within social contexts. The theory emphasizes the reciprocal interactions between personal factors, environmental influences, and behaviours (Bandura, 1986). These interactions suggest that behaviours are shaped not only by external stimuli but also by personal cognitive factors such as beliefs, attitudes, and expectations. In the context of corporate disclosure practices, SCT offers valuable insights into how companies, particularly in environmentally sensitive industries like oil and gas, may adopt corporate environmental performance and community engagement strategies to influence their stakeholders' perceptions and, subsequently, their financial performance.

One of the basic assumptions of SCT is that learning occurs through observation and imitation. Individuals observe the behaviours of others within their environment, assess the consequences of those behaviours, and adopt them if they perceive the outcomes as beneficial (Bandura, 1986). In the case of listed oil and gas firms in Nigeria, this concept can be extended to the corporate level, where companies observe the corporate environmental performance and community engagement practices of their peers or industry leaders and decide to implement similar strategies. Firms may disclose environmental information to shape the perceptions of investors, regulatory bodies, and the public, with the expectation that these disclosures will lead to improved financial performance through enhanced reputation, investor confidence, and regulatory compliance.

Another assumption of SCT is that individuals or entities are not passive recipients of information but are active agents in the learning process. Companies actively choose the level of environmental information they disclose,

influenced by the perceived benefits or consequences of such disclosures. For example, oil and gas firms may disclose positive environmental initiatives to mitigate the reputational damage caused by their environmental impact. These firms, aware of the growing importance of sustainability in global markets, might believe that demonstrating environmental responsibility can improve their competitive advantage and, consequently, their financial performance.

Supporters of Social Cognitive Theory argue that it effectively explains the role of observational learning and self-regulation in behaviour change. Bandura's (1986) theory emphasizes that entities, such as firms, can influence their environment by strategically modifying their actions to elicit favourable responses from stakeholders. This is particularly relevant for the oil and gas industry in Nigeria, where firms operate under intense scrutiny due to their significant environmental footprint. By adopting corporate environmental performance and community engagement practices, these firms can not only comply with regulatory demands but also project an image of corporate responsibility, which may positively influence financial performance through enhanced trust and stakeholder relationships.

However, critics of SCT argue that the theory places too much emphasis on cognitive processes and does not sufficiently account for external factors beyond individual or organizational control, such as economic conditions or regulatory frameworks. Some scholars contend that firms may face constraints in their ability to influence financial outcomes through corporate environmental performance and community engagement alone, as external factors like oil price volatility or political instability may play a more dominant role in shaping financial performance (Schwartz & Anderson, 2017). In this view, while corporate environmental performance and community engagement may improve stakeholder perceptions, they might not significantly impact financial performance in industries where external economic variables are the primary determinants of profitability.

In the context of the research topic Effect of Corporate Environmental Performance and Community Engagement on the Financial Performance of Listed Extractive Industries Firms and Oil and Gas Firms in Nigeria, SCT provides a theoretical foundation for understanding how oil and gas firms strategically use corporate environmental performance and community engagements to shape external perceptions. The theory supports the idea that these firms engage in environmental reporting not merely to comply with regulations but to influence stakeholder attitudes, with the expectation that enhanced transparency can lead to improved financial outcomes. By disclosing environmental performance, oil and gas firms in Nigeria may be trying to align themselves with global trends toward sustainability, thereby attracting socially responsible investors and enhancing their market valuation. Additionally, as stakeholders become more environmentally conscious, firms that fail to disclose their environmental impact may face reputational risks, which could adversely affect their financial performance. Therefore, SCT helps explain the potential link between corporate environmental performance community engagement, and financial performance by focusing on the cognitive processes and motivations driving corporate behaviour in response to external environmental and social pressures.

2.3.2 Institutional Theory

Institutional theory explains how organizations respond to external pressures and expectations in their environments. Introduced by Selznick (1948) and expanded by DiMaggio and Powell (1983), the theory posits that organizations are shaped by institutional forces, including regulations, norms, and stakeholder expectations. These pressures drive firms to adopt practices that enhance legitimacy, even if they are not always economically optimal.

The theory is based on isomorphism, legitimacy, and institutional pressures (Scott, 2001). Isomorphism occurs when firms in the same industry adopt similar practices due to coercive (regulatory), mimetic (emulating successful firms), or normative (professional standards) influences. Legitimacy ensures firms gain societal acceptance, while institutional pressures push firms to align with formal regulations and informal expectations.

Institutional theory underpins the study of corporate environmental performance and community engagement in Nigeria's oil and gas sector. Due to environmental concerns, firms face regulatory scrutiny and stakeholder pressure, compelling them to adopt sustainability practices for legitimacy (Okafor, 2020). These efforts may improve financial performance by enhancing reputation, attracting investors, and mitigating legal risks.

Critics argue that institutional theory overstates external pressures while downplaying firms' strategic agency. Some firms may engage in symbolic rather than substantive environmental practices (Oliver, 1991), and institutional conformity can sometimes lead to inefficiencies (Meyer & Rowan, 1977).

Institutional theory justifies the exploration of corporate environmental performance and community engagement practices in the oil and gas sector, particularly in a developing economy like Nigeria, where environmental concerns and regulatory frameworks are evolving. The theory provides a basis for understanding why firms engage in corporate environmental performance and community engagement beyond mere compliance, linking it to the broader institutional pressures they face and their need for legitimacy, which can have financial implications. Therefore, this theory is directly related to the research topic, as it explains how

external pressures, through corporate environmental performance and community engagement, could impact the financial performance of these firms.

III. METHODOLOGY

This study adopted the ex post facto research design. The population of the study is made up of 4 natural resources firms and 8 downstream oil and gas firms listed on the Nigerian exchange group for a period of 12 years spanning from the year 2012 to 2023. The census Sampling Technique was employed by this research to choose the sample size. The study used all 12 firms from its population as its sample size.

To complete the analysis of the study, the following tests were employed. These tests are descriptive statistics, variance inflation factors, Correlation Analysis, heteroskedasticity tests, Hausman specification tests, and random effect regression.

The regression model used to test the hypotheses was adopted from Bumin and Ayrancı (2024) as stated below:

$ROA = \beta_0 + \beta\ CNC_t + \beta CSR_{2t} + \beta RV_{3t} + \varepsilon_t$ ……..…..…. 1

Where:

ROA_t = Return on Asset

CNC_t = Corporate Environmental Performance Costs

CSR_t = Community Engagement Costs

RV_t = Turnover

β = coefficient of parameter estimate

ε = error term

t = time

For this study, the Apriori expectation proposes that growth in corporate environmental performance and community engagement will have a positive and significant effect on the financial performance of oil and gas firms in Nigeria. The table below presents a summary of the variables used in the model of the study.

Table 1: Measurement of Variables

S/n	Proxy	Type	Measurement	Source
1	Return on Assets	Dependent	Profit Before tax/Total assets	(Solanke *et al* ., 2022)
2	Corporate Environmental Performance Costs	Independent	Sanitation costs, remediation costs, environmental damage clean up costs, waste management costs and environmental compliance costs.	(Gunningham, 2017)
3	Community Engagement	Independent	The disclosed costs of community engagement activities per year	Santhanakrishnan *et al* . (2024)
4	Turnover	Control	Annual Income earned per year	Santhanakrishnan *et al* . (2024)

Source: Researchers Compilation (2024)

IV. RESULTS AND DISCUSSION

4.1.1 Descriptive Statistics

Descriptive Statistics summarizes the key statistical attributes of return on asset, corporate environmental performance, community engagement, and turnover. The mean, median, maximum, minimum, standard deviation, skewness, kurtosis, and Jarque-Bera values are provided for each variable to give insight into their distribution and spread.

Table 2: Descriptive Statistics

	ROA	CNC	CSR	REV
Mean	4.240863	0.767237	243.2805	92.57600
Median	5.018325	0.103470	8.600000	13.02992
Maximum	22.60000	25.76000	3382.000	1364.550
Minimum	-32.1759	0.004430	0.000000	0.000000

Std. Dev.	8.344053	3.042967	652.8528	155.7955
Skewness	-0.91671	6.840166	3.439715	4.499323
Kurtosis	4.920863	51.22683	14.47445	33.57990
Jarque-Bera	42.01286	14973.17	1066.480	6054.298
Probability	0.000000	0.000000	0.000000	0.000000
Sum	606.4434	109.7150	34789.11	13238.37
Sum Sq. Dev.	9886.497	1314.870	60522776	3446657.
Observations	144	144	144	144

Source: Author's computation using EViews 10 (2024)

The mean turnover is 4.24 with a standard deviation of 8.34, indicating a reasonable variation around the mean. Corporate environmental performance has a skewness value of 6.84 and a kurtosis of 51.23, pointing to a heavily skewed distribution with significant peaks. Similarly, community engagement and turnover exhibit positive skewness and high kurtosis values. The Jarque-Bera statistics for all variables have p-values of 0.0000, which strongly rejects the null hypothesis of normal distribution, indicating non-normality in all variables.

4.1.2 Correlation Analysis

Correlation analysis is a test used to assess the correlation relationship between the variables of the study. In the Correlation Analysis, the correlation coefficients and p-values among return on asset, corporate environmental performance, community engagement, and turnover are assessed. The null hypothesis assumes no correlation between the variables, and the decision rule is to reject the null hypothesis if the p-value significance is lower than the 5% level of significance.

Table 3: Correlation Analysis

Covariance Analysis: Ordinary
Date: 11/01/24 Time: 00:14
Sample: 2012 2023
Included observations: 143
Balanced sample (listwise missing value deletion)

Correlation Probability	ROA	CNC	CSR	REV
ROA	1.000000			

CNC	0.180173	1.000000		
	0.0313	-----		
CSR	0.065606	-0.082771	1.000000	
	0.4363	0.3257	-----	
REV	0.289485	0.444599	-0.194829	1.000000
	0.0005	0.0000	0.0197	-----

Source: Author's computation using EViews 10 (2024)

ROA shows a statistically significant positive correlation with corporate environmental performance with a coefficient of 0.18 and a p-value of 0.0313. Turnover had a coefficient of 0.29 and a probability value of 0.0005, suggesting a moderate association with these variables. However, CSR has a weak and statistically insignificant correlation with ROA given by the coefficient value of 0.065 and a p-value of 0.4363, indicating little to no linear relationship.

4.1.3 Variance Inflation Factor Test

The Variance Inflation Factor (VIF) Analysis tests for multicollinearity among CNC, CSR, REV, and ROA. High VIF values indicate multicollinearity, a condition where predictor variables are highly correlated,

potentially affecting the stability of regression coefficients. The null hypothesis states that there is no multicollinearity in the model. The decision rule states to reject the null hypothesis if the centered VIF values are more than 10.

Table 4: Variance Inflation Factors

Variance Inflation Factors
Date: 11/01/24 Time: 00:15
Sample: 2012 2023
Included observations: 113

Variable	Coefficient Variance	Uncentered VIF	Centered VIF
CNC	0.005598	1.267501	1.198491
CSR	1.31E-07	1.194901	1.042630
REV	2.45E-06	1.654634	1.233066
LROA	0.085263	4.869579	1.026299
C	0.355180	5.119011	NA

Source: Author's computation using EViews 10 (2024)

Here, all centered VIFs are below the threshold of 10, indicating an acceptable level of multicollinearity: CNC (1.20), CSR (1.04), REV (1.23), and LROA (1.03). The uncentered VIF for the constant term (C) is still lower than the value of 10, this does not affect the primary variables of interest. Thus, the null hypothesis of no multicollinearity cannot be rejected, implying that multicollinearity is not a concern in the model.

4.1.4 Breusch-Pagan-Godfrey Heteroskedasticity Test

The Breusch-Pagan-Godfrey Heteroskedasticity Test is used to evaluate whether the variance of residuals remains constant across observations; a condition known as homoscedasticity. In regression modeling, heteroskedasticity can invalidate statistical tests by causing inconsistent estimates of standard errors, leading to incorrect conclusions. Therefore, the test is used to detect whether the variances of residuals differ significantly, as the presence of heteroskedasticity could affect the stability and interpretability of the model, requiring adjustments to standard error estimates.

Table 5: Breusch-Pagan-Godfrey Heteroskedasticity Test

Heteroskedasticity Test: Breusch-Pagan-Godfrey

F-statistic	1.420739	Prob. F(4,108)	0.2154
Obs*R-squared	12.99587	Prob. Chi-Square(4)	0.1830
Scaled explained SS	42.81370	Prob. Chi-Square(4)	0.2789

Source: Author's computation using EViews 10 (2024)

To assess the presence of heteroskedasticity, a Breusch-Pagan-Godfrey Heteroskedasticity Test was conducted to test whether residual variances were consistent across observations, as per the null hypothesis of homoscedasticity. The test produced an F-statistic of 1.42 with an associated p-value of 0.2154, indicating insufficient evidence to reject the null hypothesis. This suggests that the model's residual variances are likely homoscedastic, meaning they do not vary significantly across observations. Additionally, the Obs*R-squared and Scaled Explained Sum of Squares tests yielded p-values of 0.1830 and 0.2789, respectively, further supporting the result of homoscedasticity. This finding implies stable variances across observations, thereby supporting the consistency of standard error estimates and reinforcing the model's reliability for inference.

4.1.5 Hausman Specification Test

The Hausman Specification Test assesses whether a random or fixed effects model is more appropriate, specifically testing if the model's random effects are correlated with the predictors. The null hypothesis states that the random effects model is appropriate. The decision rule states that the null hypothesis should be rejected if the probability value is less than 0.05.

Table 6: Hausman Specification Test

Correlated Random Effects - Hausman Test
Equation: EQ01
Test cross-section random effects

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	3.951629	4	0.4126

Source: Author's computation using EViews 10 (2024)

Here, a chi-square statistic of 3.95 and a p-value of 0.4126 suggest that the null hypothesis cannot be rejected, implying that a random effects model is preferable. This suggests that the random effects model is suitable. This means that the study will rely on random effect regression for testing the hypothesis.

4.1.6 Test of Hypothesis

The study tests its hypothesis using regression analysis. Regression analysis is a statistical method used to examine the relationship between a dependent variable and one or more independent variables. The null hypothesis in regression asserts no significant relationship between the independent variables and the dependent variable, meaning all coefficients are zero. If the p-value of a coefficient is below the 0.05 level of significance, the null hypothesis is rejected, indicating a significant effect.

Table 7: Random Effect Regression

Dependent Variable: ROA
Method: Panel EGLS (Cross-section random effects)
Date: 11/01/24 Time: 00:16
Sample: 2012 2023
Periods included: 12
Cross-sections included: 12
Total panel (balanced) observations: 144
Swamy and Arora estimator of component variances

Variable	Coefficient	Std. Error	t-Statistic	Prob.
CNC	0.051146	0.074820	0.683596	0.4957
CSR	-0.000589	0.000362	-1.628767	0.1063
REV	0.000181	0.001566	0.115772	0.9080
LROA	5.114287	0.291999	17.51476	0.0000
C	-1.432621	0.595970	-2.403847	0.0179

Effects Specification	S.D.	Rho
Cross-section random	0.485579	0.0417
Idiosyncratic random	2.327270	0.9583

Weighted Statistics

R-squared	0.749479	Mean dependent var	6.281791
Adjusted R-squared	0.740200	S.D. dependent var	4.511140
S.E. of regression	2.326720	Sum squared resid	584.6717
F-statistic	80.77537	Durbin-Watson stat	1.958813
Prob(F-statistic)	0.000000		

Unweighted Statistics

R-squared	0.768593	Mean dependent var	7.612773
Sum squared resid	606.4183	Durbin-Watson stat	1.924429

Source: Author's computation using EViews 10 (2024)

The coefficient for CNC (Decommissioning costs) was positive (0.0511) but not statistically significant (p = 0.4957), indicating no significant effect on ROA. CSR (community engagement) showed a minor negative relationship with ROA through a coefficient of -0.000589 but was also insignificant with a probability value of 0.1063, suggesting a minimal impact. Turnover (REV) demonstrated a negligible positive association with ROA, with a coefficient of 0.000181 and a high p-value of 0.9080, showing no significance. Logged ROA (LROA), however, had a strongly positive and highly significant effect on ROA with a coefficient of 5.1143, and p-value of 0.01, indicating that previous ROA values are predictive of current performance. The constant term (C) was significant (p = 0.0179), with a negative coefficient of -1.4326, which may imply baseline variations when other factors are zero.

In terms of model fit, the R-squared value for the weighted regression was 0.7495, with an adjusted R-squared of 0.7402, suggesting that around 74% of the variability in ROA is explained by the model. Additionally, the F-statistic (80.77537, p < 0.0001) indicates that the model is highly statistically significant overall. The Durbin-Watson statistic of 1.9588 points to minimal autocorrelation concerns in the residuals. The logged value of the dependent variable LROA was introduced into the model to strengthen the regression model and prevent the outliers from dominating the model.

V. DISCUSSION OF FINDINGS

This study attempts to assess the effect of corporate environmental performance and community engagements on the financial performance of sampled extractive industries firms and oil and gas firms in Nigeria. The study found that the return on assets in sample firms was not significantly affected by corporate environmental performance costs and community engagement costs. The findings of this study are in line with the findings of Lassala *et al* . (2021) who found no evidence of a significant effect of corporate environmental performance and sustainability costs on the financial performance of sample firms. The findings of this study are in contrast with the findings of Gangi *et al*,. (2024), Bumin and Ayrancı (2024), Suleiman *et al* . (2024), Rahi (2023), Ibrahim *et al* . (2023) and Arumona *et al* ., (2021) who found evidence of statistically significant effect of environmental sustainability and corporate environmental performance costs on the financial performance of sampled firms.

The findings of this study are in contrast with the findings of Santhanakrishnan *et al* . (2024), Padhi (2024), and Izevbekhai and Mansur (2024) who found that community engagement expenses were significant in affecting the financial performance of sample firms.

VI. CONCLUSION AND RECCOMENDATIONS

This study aims to assess the effect of environmental corporate environmental performance cost and community engagement on the financial performance of listed extractive industries and oil and gas firms in Nigeria. The study focused on corporate environmental performance costs and community engagement costs as measures of corporate environmental performance and community engagements. The study found that both proxies were not statistically significant in affecting the financial performance of sampled firms. The study concluded on that basis that corporate environmental performance and community engagements were not significant in affecting the financial performance of sample firms. In line it the above conclusions, the following recommendations were made:

i. There should be strategic effort to more prudently invest in corporate environmental performance and community engagements in listed extractive industries and oil and gas firms in Nigeria.

ii. Extractive industries and Oil and gas Firms should creatively optimise the implementation of environmental initiatives to improve their positive effects on the financial performance of sampled firms.

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