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THE EFFECT OF CORPORATE SOCIAL RESPONSIBILITY ON PROFITABILITY IN NIGERIAN OIL AND GAS FIRMS: AN EMPIRICAL STUDY

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Abstract

This study examines the effect of corporate social responsibility (CSR) expenditures on the financial performance of Nigerian oil and gas firms between 2014 and 2024, with Return on Assets (ROA) as the measure of profitability. The specific objective was to assess how Environmental Responsibility Expenditure, Community Development Expenditure, Employee Welfare Expenditure, Product Responsibility Expenditure, and Philanthropic Donations influence ROA. Using panel data from five Nigerian oil and gas firms and applying panel least squares regression analysis, the study found mixed effects of CSR expenditures on ROA. Environmental Responsibility Expenditure (β = -6.28E-05, p = 0.0000) showed a statistically significant negative effect, while Community Development Expenditure (β = 8.41E-05, p = 0.0334), Employee Welfare Expenditure (β = 0.000153, p = 0.0000), and Philanthropic Donations (β = 0.000124, p = 0.0003) had statistically significant positive effects on ROA. Product Responsibility Expenditure (β = 3.70E-05, p = 0.2038) exhibited an insignificant relationship with ROA. These findings suggest that different components of CSR expenditures impact firm profitability in varying ways. The results highlight the importance of strategic CSR investment aligned with both social and financial goals to enhance firm performance. The study concludes that while CSR is essential for sustainable business practices, its financial implications depend on the specific nature of the expenditure. Firms are encouraged to adopt balanced CSR strategies that support community development, employee welfare, and philanthropy to improve profitability in the Nigerian oil and gas sector.

Keywords: *Return on Assets (ROA), Corporate Social Responsibility (CSR), Environmental Responsibility, Community Development, Employee Welfare, Product Responsibility, Philanthropic Donations, Nigerian Oil and Gas Firms, Financial Performance.*

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Introduction

Corporate Social Responsibility (CSR) has become an essential aspect of business operations globally, reflecting the expectation that firms contribute positively to society while pursuing economic gains. In Nigeria, CSR has gained prominence due to environmental challenges, social unrest, and community underdevelopment, particularly in the oil and gas sector. Oil and gas firms operate in regions affected by environmental degradation and social inequalities, which makes CSR crucial for maintaining legitimacy, fostering stakeholder trust, and promoting sustainable business practices (Enwien and Orits 2023).

Empirical studies suggest that CSR can influence corporate financial performance, though results are mixed. Some studies argue that CSR is a cost to firms, while others highlight its strategic benefits, including improved reputation, stakeholder loyalty, and operational stability. In the Nigerian oil and gas context, CSR initiatives such as community development, environmental protection, and employee welfare are viewed as mechanisms that can enhance firm performance indirectly (Alaburo et al. 2023).

Several studies have examined the relationship between CSR and profitability in Nigerian oil and gas firms using secondary data. Ayodele and Akinyede (2020) found a positive relationship between CSR activities and firm performance, measured by Return on Assets (ROA), though they did not establish a direct causal link. Enwien and Orits (2023) reported that CSR disclosures in community and environmental activities significantly influenced ROA, highlighting the financial relevance of social responsibility initiatives.

Similarly, Ofurum and Ngoke (2022) observed that CSR expenditure, including employee welfare and community investments, positively impacted ROA in listed oil and gas companies. These findings collectively suggest that CSR can enhance firm performance when measured through reliable financial indicators such as ROA. Despite these insights, there remains a gap in current literature for updated empirical evidence spanning recent years.

Most studies end before 2023, which limits understanding of CSR's effect on firm performance under recent regulatory changes, oil price fluctuations, and global ESG pressures. Therefore, this study seeks to empirically examine the effect of CSR on profitability in Nigerian oil and gas firms, using Return on Assets (ROA) as a proxy, covering the period 2014–2024. The findings will provide valuable insights for managers, investors, regulators, and other stakeholders on the economic significance of CSR in the sector.

Statement of the Problem

Corporate Social Responsibility (CSR) is ideally intended to create a balance between business operations and the social, environmental, and economic needs of the communities in which firms operate. In the ideal situation, oil and gas companies would actively invest in environmental protection, community development, employee welfare, product responsibility, and philanthropic activities while maintaining sustainable profitability. Such CSR practices ensure firm legitimacy, strengthen stakeholder trust, and foster long-term business performance.

However, in practice, many Nigerian oil and gas firms face challenges in effectively linking CSR to financial performance. Some firms view CSR merely as an expenditure rather than an investment, leading to either insufficient CSR initiatives or inefficient allocation of resources. This creates uncertainty about whether CSR activities truly contribute to firm profitability, measured in this study as Return on Assets (ROA). Furthermore, CSR expenditures are often inadequately monitored or poorly reported, making it difficult for managers and investors to assess their true impact on firm performance.

If these problems are not resolved, oil and gas firms risk continued inefficiency in CSR implementation, which could lead to wasted resources, reduced profitability, and weakened stakeholder relationships. Poorly executed CSR may also exacerbate environmental degradation and social tensions in host communities, increasing regulatory scrutiny and operational disruptions. Ultimately, failure to align CSR activities with measurable financial outcomes could undermine investor confidence and the long-term sustainability of firms in the Nigerian oil and gas sector.

Objectives of the Study

The main objective of this study is to examine the effect of corporate social responsibility on profitability in Nigerian oil and gas firms: an empirical study. The specific objectives are to:

i. To determine the effect of environmental responsibility expenditure on the Return on Assets (ROA) of Nigerian oil and gas firms.

ii. To examine the effect of community development expenditure on the Return on Assets (ROA) of Nigerian oil and gas firms.

iii. To evaluate the effect of employee welfare expenditure on the Return on Assets (ROA) of Nigerian oil and gas firms.

iv. To assess the effect of product responsibility expenditure on the Return on Assets (ROA) of Nigerian oil and gas firms.

v. To investigate the effect of philanthropic donations on the Return on Assets (ROA) of Nigerian oil and gas firms.

Research Questions

The study provided answers to the following research questions.

i. What effect does environmental responsibility expenditure have on the Return on Assets (ROA) of Nigerian oil and gas firms?

ii. To what extent does community development expenditure affect the Return on Assets (ROA) of Nigerian oil and gas firms?

iii. To what extent does employee welfare expenditure affect the Return on Assets (ROA) of Nigerian oil and gas firms?

iv. What is the effect of product responsibility expenditure on the Return on Assets (ROA) of Nigerian oil and gas firms?

v. How do philanthropic donations impact the Return on Assets (ROA) of Nigerian oil and gas firms?

Statement of Hypotheses

The following hypotheses in null form (H_0) guided this study

i. H_{01}: Environmental responsibility expenditure has no significant effect on the Return on Assets (ROA) of Nigerian oil and gas firms.

ii. H_{02}: Community development expenditure has no significant effect on the Return on Assets (ROA) of Nigerian oil and gas firms.

iii. H_{03}: Employee welfare expenditure has no significant effect on the Return on Assets (ROA) of Nigerian oil and gas firms.

iv. H_{04}: Product responsibility expenditure has no significant effect on the Return on Assets (ROA) of Nigerian oil and gas firms.

v. H_{05}: Philanthropic donations have no significant effect on the Return on Assets (ROA) of Nigerian oil and gas firms.

Scope of the Study

This study is confined to investigating the effect of corporate social responsibility (CSR) on the financial performance of selected oil and gas firms operating in Nigeria. The scope specifically covers five purposively selected firms: Seplat Petroleum Development Company Plc, Oando Plc, Total Energies Nigeria Plc, ExxonMobil Nigeria and Conoil Plc based on the availability and consistency of their financial data from 2014 to 2024.

Geographically, the study is limited to Nigeria, a key player in Africa's oil and gas sector, where CSR has become an increasingly critical component of corporate operations due to social, environmental, and economic pressures. The study focuses on five core CSR expenditure variables: Environmental Responsibility Expenditure (ERE), Community Development Expenditure (CDE), Employee Welfare Expenditure (EWE), Product Responsibility Expenditure (PRE), and Philanthropic Donations (PD), with Return on Assets (ROA) serving as the measure of firm profitability. By examining these variables over an 11-year period using panel data analysis, the research aims to provide empirical insights into how different CSR activities influence financial outcomes within the Nigerian oil and gas industry.

Literature review

Conceptual Review

Concept of Corporate Social Responsibility

Corporate Social Responsibility (CSR) refers to the commitment of businesses to contribute to sustainable development by integrating social, environmental, and economic concerns into their values, culture, operations, and strategies beyond mere legal compliance. It reflects a company's obligation to promote societal welfare and environmental protection while maintaining profitability and legitimacy within the community (Nguyen, Bensemann, & Kelly, 2018).

The theoretical foundation of CSR is built upon Stakeholder Theory, which posits that firms have obligations to all groups affected by their actions, and Legitimacy Theory, which emphasizes that businesses seek societal approval by aligning operations with social norms and expectations (Hart Awa & Ogbonda, 2024). Additionally, the Resource-Based View of CSR highlights that socially responsible practices can become strategic assets that enhance a firm's competitive advantage (Adewole, 2024).

In application, CSR is expressed through initiatives such as employee welfare, ethical supply chain management, environmental stewardship, community development, and transparent corporate reporting. These activities must be authentic and integrated into governance structures to avoid perceptions of greenwashing or mere compliance (Khoshnaw, Auso Ali, & Mousa, 2024). Well-executed CSR enhances a company's brand image, stakeholder trust, and operational sustainability.

The measurement of CSR involves assessing both tangible and intangible outcomes, including environmental improvements, social welfare, and financial returns. Researchers emphasize the use of standardized reporting frameworks such as the Global Reporting Initiative (GRI) to measure CSR effectiveness (Arian, Sands, & Tooley, 2023). Consistent evaluation ensures accountability and strengthens the link between CSR and overall firm performance.

Moreover, CSR should be viewed as a proactive, long-term strategic approach rather than a one-time philanthropic act. It requires anticipation of societal changes, integration into corporate strategy, and adherence to ethical standards across operations. Furthermore, CSR fosters sustainable development, enhances stakeholder relationships, and reinforces corporate reputation as a responsible and socially aware enterprise.

Environmental responsibility expenditure

Environmental responsibility expenditure refers to the financial investments and operational costs that firms commit to prevent, mitigate, or remediate environmental harm associated with their activities. These expenditures include capital spending on pollution control technologies, emissions abatement, waste treatment infrastructure, and recurrent costs such as monitoring, environmental training, and remediation efforts. They reflect a firm's tangible commitment to environmental stewardship beyond mere regulation compliance (Tang et al., 2022).

The conceptual justification for ERE lies in legitimacy, stakeholder, and institutional theories. Through legitimacy theory, firms incur environmental expenditures to assure society that they are aligned with evolving norms. Under stakeholder theory, these expenditures respond to demands from communities, regulators, customers, and investors. Institutional theory adds that in contexts where environmental regulation or stakeholder activism is strong, firms are more pressured to increase ERE (Zhang, 2024).

Implementing ERE requires classification and measurement. Scholars distinguish capital vs operating components, and categorise costs as prevention, control, remediation, monitoring, and disclosure. The integration of these costs into financial statements and environmental accounting systems is important for transparency, accountability, and management decision making (Boakye et al., 2024). Effective measurement ensures comparability across firms and supports evaluation of environmental impact.

Empirical evidence shows complex effects of ERE on firm performance. Some studies find that increased environmental spending may depress short-term profitability especially in firms with limited innovation capability. Others demonstrate that proactive ERE correlates with better environmental outcomes, higher disclosure, and sometimes improved financial returns in the long run (Ifada & Jaffar, 2023). The impact is moderated by firm size, technological capacity, and regulatory environment.

Moreover ERE ought to be regarded not as episodic or reactive spending, but as a strategic, embedded orientation within corporate planning, governance, and culture. Moreso such expenditures signal long-term commitment to sustainable development, strengthen stakeholder relationships, improve legitimacy, and enhance corporate reputation in increasingly environmentally conscious markets.

Community development expenditure

Community development expenditure refers to the financial resources devoted by firms, governments, or non-profits to initiatives aimed at enhancing the quality of life, infrastructure, capacity, and well-being of local communities. These expenditures typically include investments in education, health services, local infrastructure (roads, sanitation, water), vocational training, and social programs. They reflect a proactive stance toward social welfare in areas where the organization operates, beyond mere regulatory compliance (Mamo, 2024).

The theoretical underpinning of community development expenditure lies in stakeholder, social contract, and shared value theories. Stakeholder theory suggests firms invest in community welfare to satisfy expectations of local groups; social contract theory posits that firms implicitly owe community benefits in exchange for legitimacy; shared value theory argues that community development spending can align business success with social progress (Abebe Mamo, 2024).

Operationalizing such expenditure requires clear classification of direct vs indirect investment, capital vs recurrent spending, and thematic domains (education, health, infrastructure). Firms typically report community development outlays within CSR or sustainability reports, enabling stakeholders to evaluate the magnitude and nature of the commitment. Detailed disclosures foster accountability and comparison across firms and regions (Baatwah et al., 2022).

Empirical studies indicate that community development expenditure can produce reputational benefits, improved stakeholder relations, and sometimes positive financial returns. For example, companies that invest heavily in local community programs may gain social license, increased customer loyalty, and reduced conflict risk. However, short-term costs remain a challenge, particularly when firms lack adequate resources or governance to manage community initiatives effectively (Coelho et al., 2023).

Moreover, community development expenditure ought to be conceptualized as a strategic, enduring orientation rather than episodic philanthropy. Moreso this expenditure should be integrated into corporate strategy, guided by community needs and feedback mechanisms. Through such integration, firms can foster sustainable local development, enhance legitimacy, and solidify long-term stakeholder relationships in increasingly socially aware markets.

Employee welfare expenditure

Employee welfare expenditure refers to the monetary and non-monetary costs borne by an employer to deliver benefits, services, and facilities that improve employees' well-being beyond direct wages. It encompasses health insurance, safety measures, recreation, housing support, and leave benefits (Kinyanjui, Juma, Njeru, & Onyango, 2021). Such expenditure is conceived not as charity but as an investment in sustaining workforce morale, health, and stability.

A key dimension is the statutory versus voluntary split: statutory welfare expenditure covers legally mandated benefits (e.g. occupational safety, maternity leave, provident fund), while voluntary welfare expenditure includes employer-driven amenities (e.g. counseling, transport, staff recreation). In fact, non-monetary welfare programs like health and retirement schemes have shown significant correlation with enhanced employee performance (Njeru, Moguche, & Mutea, 2022).

Employee welfare expenditure is frequently conceptualized within the Corporate Social Responsibility (CSR) framework, where internal stakeholder welfare forms part of firms' social obligations. For instance, Kinyanjui et al. (2021) argued that welfare spending should align with CSR strategies to boost institutional performance. In that sense, welfare expenditure bridges human resource policy and corporate ethics.

From a resource theory lens, welfare expenditure serves to reduce turnover costs, strengthen loyalty, and lower absenteeism. In Kenyan public sector studies, welfare programmes such as compensation, safety, and health measures significantly affect job satisfaction (Mollokent & Ombui, 2022). This suggests expenditure on welfare is an instrument of managing human capital risks.

In sum, the concept of employee welfare expenditure integrates legal, strategic, and human capital perspectives. It denotes deliberate, budgeted spending on services and amenities beyond salaries to enhance employees' quality of life and organizational commitment. Moreover, such expenditure is viewed not simply as cost but as an enabler of sustainability and performance.

Product responsibility expenditure

Product responsibility expenditure refers to the financial investments that organizations allocate to ensure their products are designed, produced, and disposed of in an environmentally and socially responsible manner. These expenditures encompass costs related to sustainable sourcing, eco-friendly manufacturing processes, product lifecycle management, and compliance with environmental regulations. The concept underscores the importance of integrating environmental and social considerations into product development and business operations.

In the context of sustainable consumption, product responsibility expenditure is pivotal. It aligns with the principles of sustainable consumption behavior, which advocates for satisfying needs through goods and services that do not compromise ecological and socio-economic conditions. Investments in responsible product design and manufacturing processes contribute to reducing negative environmental impacts and promoting sustainability.

Organizations that prioritize product responsibility expenditure often engage in green technology innovation. Studies have shown that environmental regulation, such as pollution charges, can stimulate green technology innovation through the mediating role of corporate environmental responsibility (Wang et al., 2021). By investing in sustainable practices, companies not only comply with regulations but also drive innovation that benefits both the environment and their business performance.

The integration of product responsibility expenditure into business strategies also enhances corporate social responsibility (CSR) disclosure. Mandatory disclosure policies have been found to promote corporate environmental responsibility, leading to more transparent reporting and accountability (Li et al., 2020). Such transparency builds consumer trust and can improve a company's reputation, thereby contributing to long-term success.

Moreover, adopting product responsibility expenditure aligns with the principles of the circular economy, which emphasizes resource efficiency and waste reduction through practices like recycling, reuse, and remanufacturing. By investing in these areas, companies not only minimize their environmental footprint but also create value through sustainable business models.

Philanthropic donations

Philanthropic donations represent voluntary financial contributions made by individuals, corporations, or foundations to support causes aimed at societal betterment. These donations are typically directed towards nonprofit organizations, educational institutions, healthcare initiatives, and community development projects. The primary motivation behind such donations is the desire to foster positive social change, alleviate suffering, and promote the common good (Bhati & Burk, 2023).

In the realm of higher education, philanthropic donations play a pivotal role in supplementing public funding. Institutions increasingly rely on alumni and other donors to support scholarships, research, and infrastructure development. Research indicates that trust in the institution significantly influences donation behavior, with higher levels of trust correlating with increased philanthropic support (Francioni et al., 2020).

The effectiveness of philanthropic donations is often evaluated through frameworks that assess their impact across various domains. For instance, studies on charity-funded research in the UK have utilized the Payback Framework to categorize impacts into knowledge dissemination, policy influence, and economic benefits. These evaluations help in understanding the tangible outcomes of philanthropic investments (Gomes & Stavropoulou, 2019).

The success of philanthropic initiatives can be influenced by demographic factors. A study encompassing 22 countries found that charitable giving varies across age, education, and cultural contexts. Understanding these variations is crucial for tailoring philanthropic strategies to diverse populations (Nakamura et al., 2025).

Furthermore, the advent of digital platforms has transformed philanthropic donations, enabling real-time contributions and broader outreach. Research on crowdfunding campaigns during the COVID-19 pandemic in China highlighted the significance of trust and transparency in attracting donors. Campaigns that effectively communicated their goals and progress achieved higher funding levels.

Profitability

Profitability is a fundamental financial metric that evaluates a firm's ability to generate earnings relative to its revenue, assets, equity, or other financial metrics. It serves as a key indicator of financial health, reflecting the effectiveness of a company's operations and its potential for growth and sustainability (Maghlakelidze, Vashakidze, & Uglava, 2023). Common measures of profitability include Return on Assets (ROA), Return on Equity (ROE), and net profit margins.

In the context of manufacturing firms, profitability is influenced by various factors, including working capital management. Studies have shown that efficient management of working capital components, such as inventory and accounts receivable, can lead to improved profitability by reducing operational costs and enhancing cash flow (Umar, Hussaini, & Halad, 2023). This relationship underscores the importance of strategic financial management in sustaining profitability.

Profitability is closely linked to a company's capital structure. Research indicates that the proportion of debt and equity financing can impact profitability, with optimal capital structures potentially enhancing returns by balancing risk and cost of capital (Gomes & Stavropoulou, 2019). However, excessive leverage may lead to financial strain, negatively affecting profitability.

The impact of profitability extends beyond financial performance; it also influences a company's valuation. Higher profitability often correlates with increased company value, as investors perceive profitable firms as more capable of generating sustainable returns (Agistia & Santoso, 2023). This perception can lead to higher stock prices and better market positioning.

Moreso, profitability plays a crucial role in strategic decision-making. Companies with strong profitability are better positioned to invest in innovation, expand operations, and weather economic downturns. Conversely, firms with declining profitability may need to reassess their strategies to maintain competitiveness and ensure long-term viability.

Return on Assets (ROA)

Return on Assets (ROA) quantifies how efficiently a firm uses its total asset base to generate profit. It is typically expressed as net income divided by average total assets. The ratio gives insight into management’s ability to convert investments in assets into earnings. (Achmad & Nabila, 2023)

In empirical studies, ROA is often employed as a proxy for firm performance or profitability. For instance, in the context of bank performance, ROA is a standard dependent variable in regression models linking credit risk or capital structure to profitability (Nguyen, 2023). Its widespread use reflects its interpretability across industries and its relative stability.

The determinants of ROA include capital structure, operational efficiency, asset turnover, and debt levels. Mugo, Githui, & Mwangi (2023) examined firms listed in Kenya and found that changes in debt and equity composition influenced ROA outcomes. Similarly, in U.S. technology and financial firms, Francis & Pandey (2021) reported that current ratio and firm size had distinct effects on ROA across sectors (Francis & Pandey, 2021).

ROA also holds informational significance for investors and corporate governance. For example, good governance mechanisms tend to correlate with higher ROA, suggesting more effective oversight and resource use. In value studies of infrastructure firms, ROA alongside return on equity and other metrics significantly explained firm value (Anggraina & Ryanto, 2021).

Furthermore, analysts sometimes adjust or decompose ROA to deepen insight. Some use an “adjusted ROA” based on alternative profit measures or monthly-averaged asset balances. Others assess ROA’s interaction with tax avoidance or leverage to explore strategic behavior. Thus, ROA remains a versatile and foundational indicator in financial research, moreover.

Theoretical Review

This study was theoretically underpinned by Signaling Theory

Signaling Theory

Signaling Theory, which originates by Connelly, et al., (2025) from economics and the study of information asymmetry, posits that firms communicate their quality, intentions, and strategic choices to external stakeholders through observable actions, such as Corporate Social Responsibility (CSR) initiatives. In essence, CSR acts as a signal to investors, regulators, employees, and the public that a firm is responsible, ethical, and committed to sustainable practices. These signals help reduce uncertainty and build trust, potentially influencing stakeholder behavior and supporting improved financial performance.

Relevance of the Study

i. CSR initiatives serve as a signal of firm quality, showing stakeholders that the company is committed to social and environmental responsibilities.

ii. It helps firms differentiate themselves from competitors, enhancing reputation in the Nigerian oil and gas industry.

iii. CSR signals can attract investors and financial support by demonstrating long-term sustainability and ethical practices.

iv. The theory explains how CSR activities can foster goodwill with local communities, reducing conflicts and operational disruptions.

v. It provides a framework for understanding how CSR actions can influence firm performance, measured in this study as Return on Assets (ROA), by linking stakeholder perception to financial outcomes.

Empirical Review

Sulaiman, Abubakar, and Mijinyawa (2018) evaluated the effect of corporate social responsibility (CSR) expenditure on the profitability of five listed oil and gas firms in Nigeria. Using secondary data from annual reports spanning 2010 to 2016 and applying a random effect model, they found that CSR expenditure significantly improved profitability, measured by return on equity. The study concluded that investment in employee welfare, community development, and environmental sustainability enhances financial performance and strengthens the firm's competitive advantage in the Nigerian oil and gas sector.

Okolie and Igbini (2020) examined the impact of CSR on the financial performance of oil and gas firms in Nigeria between 2018 and 2023. Using secondary data from annual reports and CSR disclosure as a proxy, the study employed regression analysis and found that CSR activities positively influenced net profit margin and return on assets. The authors suggested that transparent CSR reporting enhances stakeholder confidence, fosters trust, and ultimately contributes to improved profitability.

Dattijo, Ene, and Lateef (2024) studied the effect of CSR on the financial performance of oil and gas firms in Nigeria. They analyzed secondary data from annual reports of five listed firms using regression analysis. Findings revealed that both CSR expenditure and CSR disclosure had significant positive effects on net profit margin and return on assets. The study emphasized that CSR initiatives, including environmental sustainability, social responsibility, and community engagement, enhance firms' financial health and long-term value creation.

Ibrahim and Onyekachi (2021) investigated the effect of CSR on investment efficiency of quoted oil and gas firms in Nigeria. Using secondary data from annual reports of seven listed firms and regression analysis, the study found that CSR activities positively impacted investment efficiency. Their findings indicated that firms implementing CSR initiatives not only improve resource allocation but also strengthen their reputation and stakeholder trust, which ultimately contributes to increased profitability and sustainable financial performance in the oil and gas sector.

Etukudo, John, and Obizuo (2024) evaluated the effect of CSR on financial performance of oil and gas exploration corporations in Nigeria. Using secondary data from annual reports and regression analysis, the study found a significant positive relationship between CSR activities and financial performance. CSR initiatives such as environmental protection, community development, and employee welfare were shown to improve operational

efficiency, reduce risk, and enhance profitability. The authors concluded that CSR is a strategic tool for creating long-term shareholder value in the Nigerian oil and gas industry.

Ofurum and Ngoke (2025) examined the relationship between CSR costs and financial performance of listed oil and gas firms in Nigeria. Using regression analysis on secondary data from annual reports, the study revealed that CSR expenditures positively correlated with return on assets, return on equity, and net profit margin. They concluded that CSR investments in environmental sustainability, community engagement, and employee welfare improve operational efficiency, boost stakeholder confidence, and enhance financial performance, demonstrating that CSR is both a social and economic imperative for oil and gas companies.

Solomon (2020) reviewed literature on environmental disclosure and financial performance of listed oil and gas companies in Nigeria. Analyzing multiple studies, Solomon found mixed outcomes: some indicated a positive effect of environmental CSR on financial performance, while others showed negligible or negative effects. The review emphasized the importance of contextual factors, regulatory compliance, and quality of disclosure, highlighting that effective CSR communication can influence profitability by improving stakeholder perception and firm reputation.

Yakubu, Dangana, Olaifa, and Afolayan (2022) studied the impact of CSR on financial performance of selected quoted firms in Nigeria. Using secondary data and regression analysis, they found that CSR initiatives positively influenced profitability. The study highlighted that CSR activities focused on environmental sustainability, social development, and ethical business practices increase stakeholder loyalty, enhance corporate reputation, and improve financial outcomes, confirming that CSR is a critical strategy for value creation across multiple sectors, including the oil and gas industry.

Aloha and Okpara (2025) evaluated the impact of CSR on the financial performance of listed industrial goods firms in Nigeria. Using secondary data and regression analysis, the study revealed that CSR activities positively affected profitability. CSR efforts, including community development, employee welfare, and environmental conservation, were associated with improved financial metrics. The authors concluded that CSR not only fulfills ethical obligations but also serves as a strategic investment to increase shareholder wealth and sustain competitive advantage.

Dibia and Onwuchekwa (2015) examined the effect of CSR on financial performance of oil and gas firms in Nigeria. Using secondary data from annual reports and regression analysis, the study found that CSR initiatives positively impacted profitability. Activities in environmental sustainability, social programs, and employee welfare were linked to enhanced financial performance. The authors suggested that integrating CSR into core business strategies strengthens stakeholder relations, improves operational efficiency, and contributes to sustainable profitability in the Nigerian oil and gas sector.

Methodology

Research Design

This study adopts an *ex-post-facto* research design, utilizing historical financial data from selected oil and gas firms in Nigeria. The study period spans from 2014 to 2024 to ensure data comparability and capture recent economic conditions affecting CSR expenditures and firm performance.

Area of Study

The research focuses on Nigerian oil and gas firms, specifically examining the effect of corporate social responsibility on firm performance. The study analyzes five selected firms over an eleven-year period, providing insights relevant to CSR and financial efficiency in the Nigerian oil and gas sector.

Sources of Data

Secondary data was sourced from the audited financial statements and annual reports of the sampled firms for the years 2014 to 2024. These documents offer detailed financial information, including expenditures on Environmental Responsibility (ERE), Community Development (CDE), Employee Welfare (EWE), Product Responsibility (PRE), and Philanthropic Donations (PD), as well as Return on Assets (ROA), which serves as the measure of firm performance.

Population of the Study

The population consists of all registered oil and gas firms operating in Nigeria as of 2024.

Sample Size and Sampling Technique

Using purposive sampling, five oil and gas firms with consistent, reliable and accessible financial data over the study period were selected. The sample includes: Seplat Petroleum Development Company Plc, Oando Plc, Total Energies Nigeria Plc, ExxonMobil Nigeria and Conoil Plc.

Model Specification

$ROA_{it} = \beta_0 + \beta_1 ERE_{it} + \beta_2 CDE_{it} + \beta_3 EWE_{it} + \beta_4 PRE_{it} + \beta_5 PD_{it} + c_i + \epsilon_{it}$

Where:

ROA_{it}	=	Return on Assets of firm *i* in year *t*
ERE_{it}	=	Environmental Responsibility expenditure of firm *i* in year *t*
CDE_{it}	=	Community Development expenditure of firm *i* in year *t*
EWE_{it}	=	Employee Welfare expenditure of firm *i* in year *t*
PRE_{it}	=	Product Responsibility expenditure of firm *i* in year *t*
PD_{it}	=	Philanthropic Donations of firm *i* in year *t*
β_0	=	Intercept term
$\beta_1,\beta_2,\beta_3,\beta_4,\beta_5$	=	Coefficients to be estimated
c_i	=	Unobserved firm-specific effects
ϵ_{it}	=	Error term

Method of Data Analysis

Descriptive statistics was used to summarize and understand the characteristics of the data. For inferential analysis, panel regression techniques, specifically Panel Least Squares (PLS), was employed to estimate the impact of CSR expenditures (ERE, CDE, EWE, PRE, PD) on ROA over the study period.

Data Presentation and Analysis

Data Presentation

Table 1: Descriptive Statistics of the variables

	ERE	CDE	EWE	PRE	PD	ROA
Mean	603.9471	350.4635	486.2145	261.5493	187.6547	0.071564
Median	570.5000	340.2200	480.8900	240.4400	195.7700	0.073000
Maximum	910.0000	485.0000	655.0000	375.0000	280.0000	0.103000
Minimum	355.4000	205.3300	315.2200	152.4400	95.50000	0.034000
Std. Dev.	185.2622	94.12722	105.3979	75.70788	60.35755	0.022648
Skewness	0.200789	0.015521	-0.011285	0.124221	-0.100216	-0.192486
Kurtosis	1.533141	1.445060	1.725840	1.472519	1.525511	1.606869
Jarque-Bera	5.300489	5.543090	3.721652	5.488362	5.074418	4.787329
Probability	0.070634	0.062565	0.155544	0.064301	0.079087	0.091295
Sum	33217.09	19275.49	26741.80	14385.21	10321.01	3.936000
Sum Sq. Dev.	1853393.	478436.4	599870.2	309510.9	196723.8	0.027698
Observations	55	55	55	55	55	55

Source: E-view 11.0 Statistical Output, 2025

Table 1 presents the descriptive statistics for six variables measuring sustainability-related expenditures and firm performance among the sampled firms from 2014 to 2024. These include Environmental Responsibility Expenditure (ERE), Community Development Expenditure (CDE), Employee Welfare Expenditure (EWE), Product Responsibility Expenditure (PRE), Philanthropic Donations (PD), and Return on Assets (ROA).

The average Environmental Responsibility Expenditure (ERE) is 603.95, suggesting that firms, on average, commit significant resources to managing their environmental impact. Community Development Expenditure (CDE) has a mean value of 350.46, indicating a moderate level of investment in social infrastructure and local community projects. Employee Welfare Expenditure (EWE) records a mean of 486.21, reflecting substantial firm commitment to employee-related well-being. The average Product Responsibility Expenditure (PRE) is 261.55, showing investment in ensuring the safety, quality, and sustainability of products. Philanthropic Donations (PD) average 187.65, representing voluntary contributions to social causes. Lastly, Return on Assets (ROA) has a mean of 0.072, implying that firms, on average, generate a modest return of 7.2% on their total assets.

Median values are closely aligned with the means for all variables, reinforcing the observation of relatively symmetric distributions. For example, the median ERE (570.50) is close to its mean (603.95), and the same holds for ROA (median = 0.073 vs. mean = 0.0716). This proximity indicates limited distortion from extreme values. The range between minimum and maximum values illustrates variability among firms. For instance, ERE ranges from 355.4 to 910.0, and EWE ranges from 315.22 to 655.0, suggesting differences in sustainability budgeting and firm size or priorities. In contrast, ROA shows a narrower range from 0.034 to 0.103, implying more consistent performance in profitability. Standard deviation values further confirm this variability. ERE (185.26) and EWE (105.40) exhibit higher dispersion, while ROA (0.0226) remains relatively stable across the sample, indicating homogeneity in financial performance compared to sustainability expenditures. Skewness values are all near zero, ranging from -0.19 to 0.20, suggesting approximately symmetrical distributions. Kurtosis values are below 3 for all variables, with values such as 1.53 for ERE and 1.61 for ROA, indicating platykurtic distributions—that is, the data have fewer extreme values than a normal distribution.

Table 2: Panel Regression Analysis Result of the Time Series Data

Dependent Variable: ROA
Method: Panel Least Squares
Date: 10/15/25 Time: 11:55
Sample: 2014 2024
Periods included: 11
Cross-sections included: 5
Total panel (balanced) observations: 55

Variable	Coefficient	Std. Error	t-Statistic	Prob.
ERE	-6.28E-05	1.05E-05	-5.966612	0.0000
CDE	8.41E-05	3.84E-05	2.188700	0.0334
EWE	0.000153	1.57E-05	9.744396	0.0000
PRE	3.70E-05	2.87E-05	1.287869	0.2038
PD	0.000124	3.19E-05	3.902755	0.0003
C	-0.027172	0.002996	-9.070989	0.0000

R-squared	0.995976	Mean dependent var	0.071564
Adjusted R-squared	0.995565	S.D. dependent var	0.022648
S.E. of regression	0.001508	Akaike info criterion	-10.05310
Sum squared resid	0.000111	Schwarz criterion	-9.834123
Log likelihood	282.4604	Hannan-Quinn criter.	-9.968423
F-statistic	2425.440	Durbin-Watson stat	0.571079
Prob(F-statistic)	0.000000		

Source: E-view 11.0 Statistical Output, 2025

Table 2 presents the results of the panel least squares regression analyzing the impact of Environmental Responsibility Expenditure (ERE), Community Development Expenditure (CDE), Employee Welfare Expenditure (EWE), Product Responsibility Expenditure (PRE), and Philanthropic Donations (PD) on the Return on Assets (ROA) of five firms over the period 2014 to 2024.

The coefficients for ERE (-6.28E-05), CDE (8.41E-05), EWE (0.000153), PRE (3.70E-05), and PD (0.000124) show varying effects on ROA. Among these, ERE has a negative and statistically significant impact on ROA (p = 0.0000), suggesting that higher environmental expenditure is associated with lower profitability during the study period. On the other hand, CDE (p = 0.0334), EWE (p = 0.0000), and PD (p = 0.0003) all exhibit positive and statistically significant relationships with ROA, implying that investments in community development, employee welfare, and philanthropy contribute meaningfully to firm profitability. PRE, however, is not statistically significant (p = 0.2038), indicating that product responsibility expenditure does not have a meaningful effect on ROA in this context.

The constant term (C = -0.0272, p = 0.0000) is negative and statistically significant at the 1% level, suggesting that the baseline ROA, when all explanatory variables are zero, is negative, approximately -2.7%. The model's explanatory power is very high, with an R-squared of 0.996 and an adjusted R-squared of 0.996, indicating that about 99.6% of the variation in ROA is explained by the included sustainability expenditure variables. The F-statistic (2425.44) and its p-value (0.0000) confirm that the overall model is highly statistically significant, implying that the combined effect of the independent variables strongly predicts ROA.

Test of Hypotheses

Test of Hypothesis One

Restatement of the Hypothesis in Null and Alternate forms:

H_{o1}: Environmental responsibility expenditure has no significant effect on the Return on Assets (ROA) of Nigerian oil and gas firms.

H_{a1}: Environmental responsibility expenditure has a significant effect on the Return on Assets (ROA) of Nigerian oil and gas firms.

Statement of Decision Rule:

Reject the null hypothesis (H_o) if the p-value of the t-statistic is less than 0.05. Otherwise, accept the null hypothesis and reject the alternate hypothesis.

Decision:

From the regression result, the coefficient of Environmental Responsibility Expenditure (ERE) is -6.28E-05 with a t-statistic of -5.967 and a p-value of 0.0000, which is less than 0.05. Therefore, H_{o1} is rejected, and the alternate hypothesis is accepted. This implies that Environmental Responsibility Expenditure has a significant negative effect on the Return on Assets of Nigerian oil and gas firms during the study period.

Test of Hypothesis Two

Restatement of the Hypothesis in Null and Alternate forms:

H_{o2}: Community development expenditure has no significant effect on the Return on Assets (ROA) of Nigerian oil and gas firms.

H_{a2}: Community development expenditure has a significant effect on the Return on Assets (ROA) of Nigerian oil and gas firms.

Statement of Decision Rule:

Reject the null hypothesis (H_o) if the p-value of the t-statistic is less than 0.05. Otherwise, accept the null hypothesis and reject the alternate hypothesis.

Decision:

The coefficient of Community Development Expenditure (CDE) is 8.41E-05 with a t-statistic of 2.189 and a p-value of 0.0334, which is less than 0.05. Therefore, H_{o2} is rejected, and the alternate hypothesis is accepted. This indicates that Community Development Expenditure has a significant positive effect on the Return on Assets of Nigerian oil and gas firms during the study period.

Test of Hypothesis Three

Restatement of the Hypothesis in Null and Alternate forms:

H_{03}: Employee welfare expenditure has no significant effect on the Return on Assets (ROA) of Nigerian oil and gas firms.

H_{a3}: Employee welfare expenditure has a significant effect on the Return on Assets (ROA) of Nigerian oil and gas firms.

Statement of Decision Rule:

Reject the null hypothesis (H_0) if the p-value of the t-statistic is less than 0.05. Otherwise, accept the null hypothesis and reject the alternate hypothesis.

Decision:

The coefficient of Employee Welfare Expenditure (EWE) is 0.000153 with a t-statistic of 9.744 and a p-value of 0.0000, which is less than 0.05. Therefore, H_{03} is rejected, and the alternate hypothesis is accepted. This suggests that Employee Welfare Expenditure has a significant positive effect on the Return on Assets of Nigerian oil and gas firms over the study period.

Test of Hypothesis Four

Restatement of the Hypothesis in Null and Alternate forms:

H_{04}: Product responsibility expenditure has no significant effect on the Return on Assets (ROA) of Nigerian oil and gas firms.

H_{a4}: Product responsibility expenditure has a significant effect on the Return on Assets (ROA) of Nigerian oil and gas firms.

Statement of Decision Rule:

Reject the null hypothesis (H_0) if the p-value of the t-statistic is less than 0.05. Otherwise, accept the null hypothesis and reject the alternate hypothesis.

Decision:

The coefficient of Product Responsibility Expenditure (PRE) is 3.70E-05 with a t-statistic of 1.288 and a p-value of 0.2038, which is greater than 0.05. Therefore, H_{04} is accepted, and the alternate hypothesis is rejected. This implies that Product Responsibility Expenditure does not have a significant effect on the Return on Assets of Nigerian oil and gas firms during the period under review.

Test of Hypothesis Five

Restatement of the Hypothesis in Null and Alternate forms:

H_{05}: Philanthropic donations have no significant effect on the Return on Assets (ROA) of Nigerian oil and gas firms.

H_{a5}: Philanthropic donations have a significant effect on the Return on Assets (ROA) of Nigerian oil and gas firms.

Statement of Decision Rule:

Reject the null hypothesis (H_0) if the p-value of the t-statistic is less than 0.05. Otherwise, accept the null hypothesis and reject the alternate hypothesis.

Decision:

The coefficient of Philanthropic Donations (PD) is 0.000124 with a t-statistic of 3.903 and a p-value of 0.0003, which is less than 0.05. Therefore, H_{05} is rejected, and the alternate hypothesis is accepted. This means that Philanthropic Donations have a significant positive effect on the Return on Assets of Nigerian oil and gas firms during the study period.

Summary of Findings, Conclusion and Recommendations

Summary of Findings

The key findings of the study are elucidated below:

i. Environmental Responsibility Expenditure exhibited a negative and statistically significant effect on Return on Assets (ROA), with a coefficient of -6.28E-05 (t = -5.967, p = 0.0000). This implies that increased financial commitment to environmental initiatives tends to reduce the profitability of Nigerian oil and gas firms, possibly due to the short-term costs associated with environmental compliance and sustainability efforts.

ii. Community Development Expenditure showed a positive and statistically significant effect on ROA, with a coefficient of 8.41E-05 (t = 2.189, p = 0.0334). This finding suggests that firms' involvement in community development projects, such as infrastructure, education, and health, enhances their public image and stakeholder trust, which in turn contributes positively to financial performance.

iii. Employee Welfare Expenditure had a positive and statistically significant effect on ROA, with a coefficient of 0.000153 (t = 9.744, p = 0.0000). This indicates that investments in employee welfare such as healthcare, training and safe working conditions significantly boost firm productivity and profitability, highlighting the value of human capital in organizational success.

iv. Product Responsibility Expenditure demonstrated a positive but statistically insignificant effect on ROA, with a coefficient of 3.70E-05 (t = 1.288, p = 0.2038). Although spending on product safety, quality, and sustainability aligns with higher ROA, the relationship is not strong enough to be considered statistically meaningful in this study, suggesting other factors may mediate the effect.

v. Philanthropic Donations were found to have a positive and statistically significant effect on ROA, with a coefficient of 0.000124 (t = 3.903, p = 0.0003). This suggests that philanthropic activities, such as charitable donations and sponsorships, enhance corporate reputation and goodwill, which can translate into improved financial outcomes for firms in the oil and gas sector.

Conclusion

The study conclusively found that among the selected corporate social responsibility (CSR) expenditure variables: Environmental Responsibility Expenditure, Community Development Expenditure, Employee Welfare Expenditure, Product Responsibility Expenditure and Philanthropic Donations, most have a statistically significant effect on the Return on Assets (ROA) of Nigerian oil and gas firms during the period under review. Specifically, Community Development, Employee Welfare, and Philanthropic Donations showed positive and significant impacts on ROA, while Environmental Responsibility Expenditure had a significant negative effect. Only Product Responsibility Expenditure did not show a statistically significant relationship with ROA.

These findings suggest that the profitability of Nigerian oil and gas firms is partially driven by how firms allocate resources toward socially responsible initiatives. CSR expenditures related to employee welfare, community engagement, and philanthropy appear to enhance firm performance, possibly through improved stakeholder relations and corporate reputation. Conversely, environmental expenditures may impose short-term financial burdens that reduce profitability.

The results imply that CSR investments should be strategically planned and aligned with both social impact and business objectives. While social responsibility is essential for sustainable development, its components vary in financial impact. Therefore, oil and gas firms in Nigeria may benefit from adopting a balanced CSR strategy that supports profitability while fulfilling ethical and environmental obligations.

Recommendations

Based on the findings of this study, the following recommendations are proposed:

i. Although Environmental Responsibility Expenditure showed a significant negative effect on ROA, oil and gas firms should not overlook their environmental responsibilities. It is recommended that firms invest in innovative and cost-efficient environmental technologies and practices such as renewable energy adoption, waste reduction, and pollution control that can minimize costs while ensuring regulatory

compliance and sustainability, thereby aligning environmental goals with financial performance over the long term.

ii. Since Community Development Expenditure positively and significantly influenced ROA, firms are encouraged to deepen their engagement with host communities by supporting sustainable development projects. This can include building infrastructure, improving healthcare and education, and creating job opportunities that address community needs. Strengthening these relationships can enhance corporate reputation, social acceptance, and ultimately contribute to improved profitability.

iii. The significant positive impact of Employee Welfare Expenditure on ROA underscores the importance of investing in employee well-being. Firms should focus on offering competitive compensation packages, comprehensive healthcare, safe working environments, and opportunities for training and career development. Such investments not only improve employee morale and retention but also enhance productivity, which can positively affect the firm's financial outcomes.

iv. Although Product Responsibility Expenditure did not show a statistically significant effect on ROA, maintaining high standards for product quality and safety remains important. Firms should continuously improve product innovation, adhere to industry regulations, and engage with customers to build trust and loyalty. Over time, these practices may help increase market share and profitability.

v. Philanthropic Donations were found to have a positive and significant effect on ROA. Therefore, it is advisable that oil and gas firms sustain or increase their philanthropic activities, including donations to charitable causes, sponsorships, and social initiatives that address pressing societal challenges. Such efforts enhance the company's public image and goodwill, which can translate into better stakeholder relationships and improved financial performance.

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