

ENVIRONMENTAL DEGRADATION COST AND FINANCIAL PERFORMANCE OF OIL AND GAS COMPANIES IN NIGERIA

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ABSTRACT

The study investigated the relationship between the cost of environmental degradation and the financial performance of oil and gas companies in Nigeria. Specific objectives of the study included the impact of EPRC on ROE, ROA, and the impact of ECC on ROE and ROA. The research design used was the Ex-post Facto design. Data used, were drawn from the Nigerian Stock Exchange website and the Petroleum Resources Department (DPR) from 2009-2018. The sample size used by the five (5) listed oil and gas producing companies on the NSE from 2009 -2018. The Cost of Environmental Impact Improvement (EPRC) and Cost of Environmental Conservation (ECC) were the defining proxies for independent variables, while restorations in Equity (ROE) and asset returns (ROA) were the proven varied proxies. SPSS Version Twenty-two (22) Social Sciences Software Statistics Package using regression analysis using standard square back data analysis. Descriptive variables have been subjected to diagnostic tests (Durbin Watson) for data validity and regression compared to financial performance fluctuations. The findings revealed that the data were valid and a small standard deviation of square reversal was fairly accurate in defining all dependent variables. The findings indicated that EPRC is negatively related to ROE and has a negative insignificant relationship with ROA. Although, conservation costs have a positive non-significant relationship with ROE and ROA. The study concluded that EPRC has a negative relationship with ROE but has a negative non-essential relationship with ROA. This may be due to disregard for environmental laws, thus, stopping allocating sufficient resources to maintain environmental standards. This may be due to the inability of the state environmental team to enforce a policy on redress by oil and gas companies following environmental laws that specify the environmental standards required to be maintained to avoid health risks in Nigeria. The Environmental Conservation Cost (ECC) has a positive non-critical relationship with ROE and ROA. This may be due to the small share of conservation. The study recommended, among other things, that the government should announce effective policy frameworks that will effectively and efficiently monitor the performance of companies in the oil and gas sector to ensure that the environmental costs of protecting or conserving the environment are taken seriously, thus maintaining environmental quality. The Nigerian oil industry also protects citizens from deadly diseases and boosted investors' confidence in oil and gas operations, in particular, in the Niger Delta.

INTRODUCTION

Much of Nigeria's environmental deterioration have been blamed on Illegal refining activities from oil refining, particularly in the Niger Delta region. When they heat the stolen crude oil to purify it, they damage the earth, water, and air. Their actions exacerbated the already deteriorating environment-polluted scenario as well as their self-destruction. Because of the severe negative impacts that oil refining has, an Environmental Impact Assessment (EIA) has been established. Their emissions may contain more criterion pollutants than those produced by a typical refinery. According to Asimiea and Omokhua (2015), illegal refinery activities had a significant influence on biodiversity, forest aesthetics, plant regeneration and destruction of wildlife habitat, interruption of the water cycle, and loss of medicinal plant species. The continuous injustice to the poorest community who do not profit from the oil wealth, as well as the failure of the oil and gas firms operating in the area to cease and/or clean up the contaminated environment, have prompted this illegal action. Joint Task Force sometimes clamps down on these illegal refinery operators but end up worsening the

environmental pollution. Instead of providing jobs for the operators, vocational training is organized to educate them on the environmental impact of their illegal activities, The loss of crude oil stored in oil pipelines is one of the challenges affecting the oil and gas industry's financial performance in Nigeria. Due to the nature of the oil and gas activities and their illegal activities, the operators have driven away and their facilities are set on fire with the crude and already refined products, rather than providing jobs for them and organizing vocational training to educate them on the environmental impact of their illegal activities (Asimiea & Omokhua, 2015). This differs from the existing literature cited in this study, which focused on the macro study of Nigeria's oil and gas business.

As a result, the researchers used environmental pollution (EP) and environmental impact assessment (EIA) as proxies for the independent variable (environmental degradation), return on equity (ROE), return on assets (ROA), and earnings per share (EPS) as proxies for the dependent variable (environmental degradation) (financial performance). The state of the world environment, as well as its impact on humankind in society, has heightened public concern about company operations and performance. Companies are now expected to demonstrate their understanding of their operations' influence on the environment and society as a whole. The increasing expansion of corporate activities has once again necessitated the disclosure of economic obligations by taking into account social interests and expenditures in economic activity. However, the primary goal of this research is to look at the link between environmental degradation (ED) and the financial performance of Nigeria's listed oil and gas business.

This study differs from previous research in that it focused solely on air pollution, land pollution, and sea pollution, as well as their impact assessment figures, which culminated in conservation and environmental remediation costs, to determine the relationship between environmental degradation and financial performance. Over 50,000 people die every day from water-borne diseases, with around 4 million children under the age of five dying each year from these diseases in underdeveloped nations (Nwidu et al. 2008). The health of a community's residents is dependent on the quality and amount of water available. Water contamination has a direct link to civilization, industrialisation, and people's way of living (Goel, 2006). The local economy of the people suffers significantly due to pollution. Oil and gas activities in the area have badly damaged freshwater supplies and fish populations. Oil and gas operations discharge a large number of dangerous contaminants into bodies of water. When these pollutants are prevalent, they have negative consequences for public and environmental health. The main goal of this research is to look into the relationship between oil and gas sector conservation and remediation expenses and financial performance from 2009 to 2018, utilizing five oil and gas businesses listed on the Nigerian Stock Exchange.

Statement of Problem

As a consequence of oil and gas companies' exploration and exploitation operations, notably in the Niger Delta area, oil leakage, air pollution, water pollution, and land degradation occur in Nigeria as a result of refining crude oil and vandalizing pipelines. These harm agricultural production and agro-allied products. The preceding has been seen as a major source of concern for the oil and gas sector as well as the communities that host them. Unfortunately, the costs of averting numerous threats have grown to be prohibitively expensive, affecting the oil and gas firms' future financial performance in Nigeria. Furthermore, Nigeria's ineffective environmental laws have become a cause of concern for the country's poor environmental performance, which translates into bad financial performance for oil and gas businesses. Therefore, the study intends to focus on the environmental conservation and remediation cost and their effect on the financial performance of oil and gas companies in Nigeria.

Many countries are concerned about the poor quality of impact assessment information based on circumstances; this reflects issues with institutional arrangements, inadequate levels of commitment

on the part of proponents, or challenges with the type, scope, and quality of impact assessment training and capacity building, or aspects of all of these. To improve the quality of environmental impact assessments, substantial change in practice often entails breaking down established professional and bureaucratic attitudes, which can be difficult to do without a comprehensive overhaul of institutional procedures. The country's initiatives to speed up decision-making may impair environmental protection requirements, such as impact assessments, which will influence the financial performance of oil and gas businesses.

Environmental disclosures are quantified in reports, and that is a method that ends in extra environmental and economic performance (Baroto, 2013). The extraction of oil, on the other hand, continues to leave a narrative of woe and sorrow in the lives and livelihoods of the people of the Niger Delta., that is because of the environmental damage and devastation due to oil exploration, as an example, on December 21, 2011, Shell Nigeria declared the greatest oil spillage within the Niger Delta vicinity in a decade. Approximately 40,000 barrels of crude oil were released in a single day. For more than five decades, a series of similar oil disasters have wreaked devastation on the ecosystem of the Niger Delta. The Niger Delta is the delta of the Niger River in Nigeria, which sits directly on the Atlantic Ocean's Gulf of Guinea. it is more or less bounded by way of Nigeria's South-South states. As a result, the examination looked into the hyperlink between environmental degradation and the oil and gas industry's economic fulfilment in Nigeria.

Conceptual Framework on Environmental Cost Accounting and Financial Performance of Listed Oil and Gas Companies in Nigeria

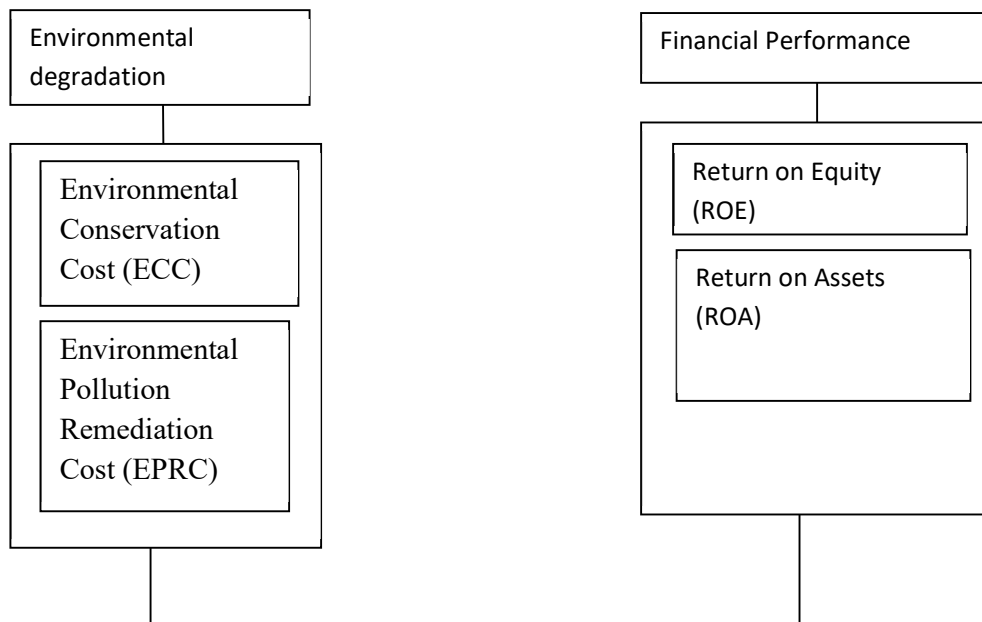


Figure 1.1 Conceptual Frameworks on Environmental Cost Accounting and Financial Performance of Listed Oil and Gas Companies in Nigeria

Source: Author's Observation/Modified by Saliu, O.P. (2017).

Aims and objectives of the study

The general objective of the study is to investigate the relationship between the environmental degradation and financial performance of listed oil and gas companies in Nigeria. The specific objectives are to:

1. Investigate the relationship between environmental conservation cost (ECC) and return on equity (ROE) of listed oil and gas companies in Nigeria.
2. Investigate the relationship between environmental conservation (ECC) and return on assets (ROA) of listed oil and gas companies in Nigeria.
3. Ascertain the relationship between environmental pollution remediation cost (EPRC) and return on equity (ROE) of listed oil and gas companies in Nigeria
4. Determine the relationship between environmental pollution remediation cost (EPRC) and return on asset (ROA) of listed oil and gas companies in Nigeria.

Research Questions

1. What is the relationship between ECC and ROE of listed oil and gas companies in Nigeria?
2. What is the relationship between ECC and ROA of listed oil and gas companies in Nigeria?
3. What is the relationship between EPRC and ROE of listed oil and gas companies in Nigeria?
4. What is the relationship between EPRC and ROA of listed oil and gas companies in Nigeria?

Research Hypotheses

1. ECC has no significant relationship with the ROE of listed oil and gas manufacturing companies in Nigeria.
2. ECC has no significant relationship with the ROA of listed oil and gas manufacturing companies in Nigeria.
3. EPRC has no significant relationship with the ROE of listed oil and gas companies in Nigeria?
4. EPRC has no significant relationship with the ROA of listed oil and gas companies in Nigeria?

LITERATURE REVIEW

Conceptual Review (Independent Variable)

a. Environmental Pollution Remediation

It has become obvious that ecosystem degradation, pollution, and hastened destruction, as well as the depletion of nonrenewable environment biodiversity, have a big influence on business financial performance. According to Danso and Adomako (2014), companies seeking maximum profit can cause significant social harm because their exploration and exploitation activities harm the environment; thus, there is a need for a meeting point between the corporate goal of profit maximization and the need for environmental pollution remediation. The environmental cost has become a concern and focus of nations and responsible company managements in this regard (Van-Ewijk & Stegemann, 2016). Creators have done a variety of studies on environmental cleanup costs and corporate success, with diverse results.

Amahalu et al. (2018); Okafor (2018); Li, Zheng et al. (2017) found a positive association between environmental remediation cost and financial performance, but Bachmann and Ingenhoff (2016); Fosu et al. (2016) found a negative relationship. When it comes to pollution control, energy emissions and physical waste are frequently mentioned (Tate et al., 2010). Excess in any dimension can be seen as a sign of inefficient operations as well as being environmentally irresponsible (Bansal & McKnight, 2009). Within internal operations, a process-based pollution prevention approach will strive to reduce emissions and waste levels. Pollutants cleanup procedures are frequently adapted to address the most prevalent types of pollution within a specific industry.

Because of the perishability of the goods and the resource-intensive production methods that are inherent in the food sector, process-based pollution cleanup practices are particularly essential. Because energy and waste management are major challenges in the food sector (Maloni & Brown, 2006; Pullman et al., 2009), energy and waste reduction are relevant pollution control techniques in this study's context. According to the NRBV, pollution control can lead to better environmental performance and competitive advantage. Several studies have revealed evidence of a beneficial relationship between internal environmental behaviours and environmental performance (Montabon

et al., 2007; Pullman et al., 2009; Yang et al., 2010; Graham & Potter., 2015). While these studies look at a wide range of environmental behaviours, the findings suggest that the positive connections between internal practices and environmental performance should apply to pollution prevention internal practices as well.

b. Environmental Conservation

Conservation of the surroundings has ended up one of the maximum vital issues to deal with in the combat against weather trade and worldwide warming. Environmental conservation is a practice that prepares the manner for people, groups, and governments to protect the surroundings and herbal resources. In today's global, operating for environmental conservation has become inextricably related. The critical necessity to protect the environment from further deterioration is listed thus: (i) To eliminate pollution in the air, water, and land; (ii) To assist in the conservation of natural resources for future generations; (iii) To assure biodiversity protection; and (iv) To implement sustainable development (v) to bring the environment back into balance (vi) To protect our planet from the devastating effects of global warming. Overpopulation, hydrological challenges, ozone depletion, global warming, deforestation, desertification, and pollution are just a few of the concerns that represent a severe risk to human existence. It is foolish to expect positive progress unless environmental conservation becomes an effective mass movement, especially in the age of digital communication, which can bring about a revolution to save our world from destruction. The cost of environmental conservation was examined to determine its impact on the financial performance of Nigerian oil and gas businesses (Ifureze et al. 2013).

Dependent Variable

i. Return on Equity (ROE)

It determines the return on the investment of the company's owners (preference and equity shareholders). In other words, it denotes the return of funds to the owner. Return on shareholders' equity is another term for financial performance ratios based on shareholders' equity (Khan & Jain, 2005). Additionally, the relationship between net profit after taxes and total shareholders' equity on an average basis was established. This ratio demonstrates how profitably the business has utilised the capital provided by the owners. According to popular belief, ineffective resource management might stymie future firm growth. Although preference shareholders are also owners of the company, the real owners of a company are regular shareholders who carry all of the risks and participate in decision-making.

The profitability after taxes before the preferred dividend is divided by the entire shareholders' equity in this ratio. Shareholders' equity refers to (a) equity share capital, (b) share premium, and (c) reserves and surplus less cumulative losses. It is also known as net worth.

Therefore, return on total shareholders' equity =
$$\frac{\text{Net Profit after taxes}}{\text{Total shareholders' Equity}} = \frac{\text{PAT}}{\text{TSE}}$$

Where PAT = Profit after taxes

TSE = Total shareholders' equity

ii. Return on Assets

The return on assets indicates how effectively management utilizes its assets to produce profits. It demonstrates what a corporation can accomplish with the assets it has. In general, enterprises, banks, financial institutions, and other stakeholders utilize it to assess performance (Rohit, 2014). Profit to asset ratio is another name for return on assets. The returns on assets represent the firm's profitability position concerning the assets employed in the operation. This statistic investigates the relationship between a company's net profit and its assets. It is also referred to as the profit-to-assets ratio. Total assets, fixed assets, and tangible assets are examples of assets, and the type to

be utilized depends on the calculation's purpose. It is proved that the basis of computation undervalues the value of return on total assets because interest paid to creditors is not included.

$$\text{Return on Assets} = \frac{\text{Net Profit After Taxes}}{\text{Total Assets}} = \frac{\text{NPAT}}{\text{TA}}$$

Where NPAT = Net Profit after Taxes
TA = Total Assets

THEORETICAL FRAMEWORK

The study is anchored on the Legitimacy theory.

Legitimacy Theory

Consistent with Bassey et al. (2013), this theory is terrific for assuming that corporation operations are proper and ideal inside some socially built system of values and norms. In other words, if a company wants to be regarded legitimate in society, it must follow a few socially acceptable rules. Establishing legitimacy, keeping legitimacy, extending legitimacy, and defending legitimacy are the 4 levels of legitimacy outlined utilizing Bassey et al (2013). The legitimacy theory is essential for enterprise survival due to the fact agencies that don't operate inside socially acceptable barriers may additionally face steady grievance from the authorities, network corporations, and environmental activists.

The relevance of this theory to the study is that it encourages and maintains oil and gas companies to follow environmental laws to maintain environmental standards by conserving and remediating pollution, thereby creating a healthy economic business environment and maintaining a peaceful and cordial relationship between the government, community groups, and environmental activists.

Empirical Review

Ifureze et al. (2013) investigated the effect of environmental prices on business enterprise performance through the usage of three indicators: network improvement costs, waste management prices, and worker fitness and protection charges. Sustainable commercial enterprise practices have been determined to be especially related to corporate overall performance, leading to the realization that sustainability might be a strategy for company warfare decision, as evidenced by the discount of fines, penalties, and compensations paid to grease company host groups.

As a result, they entreated a nicely articulated environmental costing system to offer a battle-loose company environment, which people require for optimum productivity. One of the number one factors determining enterprise overall performance in Nigeria, in step with another take a look at, is how organizations approach the surroundings (Adediran & Alade 2013). Their studies found that environmental accounting has a robust terrible hyperlink with returns on capital hired and profits in line with the share of businesses, although it has a positive courting with internet earnings margin and dividend per proportion. As a result, obligatory environmental reporting and the awarding of tax credit to groups that comply with environmental guidelines had been counselled as ways to improve environmental duty and firm performance. The major purpose of this exploration study, conducted by Bassey et al (2013), was to probe the influence of environmental account and reporting on directorial performance of canvas and gas enterprises in Nigeria's Niger Delta area using Pearson's product-moment correlation analysis. They discovered that environmentally friendly companies will expose significant environmental-affiliated information in fiscal reports, and they thus recommended that canvas and gas companies borrow a harmonious approach to reporting and telling environmental matters for performance control and dimension. They also urged the publication of accounting standards both locally and internationally, which will be evaluated regularly to maintain dynamism and conformity with environmental and situational requirements.

Mohammad et al. (2013), with a sample size of 59 firms investigated the impact of environmental accounting adoption, performance, and information disclosure on company value in Indonesia. All

explanatory factors had a substantial influence on a company's valuation, according to the study's findings. Norhasimah et al. investigated the influence of environmental disclosure on financial performance in Malaysia (2015). The data was acquired by content analysis of selected enterprises' financial reports, 100 firms in Malaysia formed the sample size, the data was gathered through content analysis of selected enterprises' financial reports. They discovered a mixed result in terms of the impact of environmental disclosure on Malaysian firms' financial performance, and thus recommended that regulators (i.e. accounting bodies) facilitate environmental reports to ensure the physical environment's sustainability, currently, there is no statutory obligation to the matter.

METHODOLOGY

Ten (10) listed oil and gas businesses on the Nigerian Stock Exchange (NSE) to date formed the population of the study, and five oil and gas companies were chosen utilizing purposive choosing and convenience sample strategies to achieve the study's goal. The research design was ex-post facto and cross-sectional time-series data from the Department of Petroleum Resources (DPR) report on environmental costs (Upstream), and NSE from 2009-2018. The Ordinary Least Square Regression was used for the empirical analysis by the use of the Statistical Package for Social Science (SPSS) version 22.

DATA ANALYSIS/RESULTS

Test of Null Hypotheses (HO₁), (HO₂), (HO₃) and (HO₄)

Regression

Table 1 Variables Entered/Removed^a

Model	Variables Entered	Variables Removed	Method
1	ECC,EPRC		Entered

a. Dependent Variable: ROE

b. All requested Variables Entered

Table 2 Model Summary^b

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin Watson
1	.126 ^a	.016	-.026	.74050	1.841

a. Predictors: (Constant), ECC, EPRC

b. Dependent Variable: ROE

Table 3 ANOVA^a

Model	Sum of Squares	Df	Mean Square	F	Sig.
1 Regression	.416	2			
Residual	25.772	47	.208	.380	.686 ^b
Total	26.188	49	.548		

a. Dependent Variable: ROE

b. Predictor: (Constant), ECC, EPRC

Table 4 Coefficients^a

Model	Understandized Coefficients		Standardized Coefficient	t	Sig.
	Understandized	Std Error Coefficient	Beta		
1 (Constant)	.101	.213		.473	.638
EPRC	-4.458E-9	.000	-.011	-.069	.945
ECC	7.615E-10	.000	.130	.821	.406

a. Dependent Variable: ROE

Source: SPSS Version 22 Print Out

Decision Rule

Accept alternate hypothesis (HO₂), if the p-value is lesser than 0.05 level of significance, reject null hypotheses otherwise accept (HO₁) and reject (HO₂)

Table 4 above indicated the ordinary least square regression output of the two predictor variables of the two hypotheses stated in models 1 and 2. From the summarized results of the empirical analysis table, The result showed that EPRC and ECC, that EPRC has a negative insignificant relationship with ROE, and ECC has a positive insignificant relationship with ROE, this is because the p-value of EPRC and ECC are greater than the 0.05 level of significance (0.945 and 0.406 > 0.05), therefore, we reject the alternate hypothesis ((HO₂), and accept the null hypothesis (HO₁) that stated that both have no significant relationships with ROE of listed oil and gas manufacturing companies in Nigeria. The diagnostic test of Durbin Watson (1.841) confirms that there is no autocorrelation in the data which means that the data were qualified and suited for the empirical analysis, and confirms that the result is not spurious.

Regression

Table 5 Variables Entered/Removed^a

Model	Variables Entered	Variables Removed	Method
1	ECC,EPRC		Entered

a. Dependent Variable: ROA

b. All requested Variables Entered

Table 6 Model Summary^b

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin Watson
1	.156 ^a	.024	-.017	1.96103	2.126

a. Predictors: (Constant), ECC, EPRC

b. Dependent Variable: ROA

Table 7 ANOVA^a

Model	Sum of Squares	Df	Mean Square	F	Sig.
1 Regression	4.512	2	2.256	.587	.560 ^b
Residual	180.745	47	3.846		
Total	185.257	49			

a. Dependent Variable: ROA

b. Predictor: (Constant), ECC, EPRC

Table 8 Coefficients^a

Model	Understandized Coefficients		Standardized Coefficient	t	Sig.
	Understandized	Std Error Coefficient			
1 (Constant)	.510	.565		.902	.372
EPRC	1.546E-7	.000	.143	.903	.371
ECC	-2.259E-9	.000	.145	-.916	.364

a. Dependent Variable: ROA

Source: SPSS Version 22 Print Out

Decision Rule

Accept alternate hypothesis (H_{O2}), if the p-value is lesser than 0.05 level of significance, reject null hypotheses otherwise accept (H_{O1}) and reject (H_{O2})

Table 8 above indicated the ordinary least square regression output of the two predictor variables of the two hypotheses stated in models 3 and 4. The results of the empirical analysis table, the result showed that EPRC and ECC, have a positive insignificant relationship with ROA, and this is because the p-value of EPRC and ECC are greater than the 0.05 level of significance (0.371 and $0.364 > 0.05$), therefore, we reject the alternate hypothesis (H_{O2}), and accept the null hypothesis (H_{O1}) that stated that both have no significant relationships with ROA of listed oil and gas manufacturing companies in Nigeria. The diagnostic test of Durbin Watson (2.126) means that there is no autocorrelation in the data which means that the data were qualified and suited for the empirical analysis, and which confirms that the result is not spurious or fake.

DISCUSSION OF FINDINGS

In Nigeria, the study looked at the link between EDC and the Financial Performance of Listed Oil and Gas Manufacturing Companies. The results of the study empirical analysis revealed that EPRC has a negative insignificant relationship with ROE but a positive insignificant relationship with ROA, implying that the managers of the listed oil and gas manufacturing companies took environmental pollution remediation very seriously, which is why the environment in the oil-rich Niger Delta region has been devastated, despite the huge monetary investment. Furthermore, it implies that there was an increase in environmental pollution remediation, but something along the way hampered the efficient use of the business' total asset, and it is not unrelated to the diversion of funds intended for environmental pollution remediation and environmental conservation, as a result of Nigeria's chronic oil industry corruption. Furthermore, ECC has a positive insignificant relationship with ROE and ROA, implying that there was an arrangement for environmental conservation to maintain the environmental standard, but the cost to implement the conservation was low or diverted to satisfy the managers' selfish utilities, allowing environmental conservation to remain low and thus have no impact on the oil and gas company's profitability.

CONCLUSIONS

The hosting communities and other important stakeholders are unaffected by the ongoing financial misappropriation in the Nigerian oil sector, particularly in environmental pollution remediation and environmental conservation, and this is the reason why oil and gas companies continue to grow, even at the expense of the hosting communities in Nigeria. EPRC shows a negative insignificant association with ROE, but a positive insignificant link with ROA. This could be owing to a lack of attention to environmental rules, failing to provide sufficient resources to maintain environmental standards. ECC shows a marginally favourable connection with ROE and ROA. This could be owing to a lack of funding for environmental protection. EPRC shows a negative insignificant association with ROE, but a positive insignificant link with ROA. This could be owing to the government's inability to strictly enforce environmental pollution remediation by oil and gas corporations following

environmental regulations that outline the environmental standards that must be met to avoid health risks in Nigeria.

RECOMMENDATIONS

Based on the research findings, the various recommendations are raised:

1. Government should promulgate policy frameworks that will be effective and efficient in monitoring the operations of oil and gas companies in ensuring that the environmental costs to protect or conserve the environment is paid serious attention.
2. EPRC, especially, should be enforced and boosted to prevent an insignificant relationship with oil and gas financial performance in Nigeria for the aim of sustaining the environmental standards.
3. Considering the Niger Delta oil-rich zone, environmental degradation, the government should put more effort in effectively implementing the various environmental legislations to make the oil and gas companies comply with the necessary legislation to avoid an unnecessary outbreak of transferable deadly diseases in the country by conducting environmental pollution remediation and environmental conservation.

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