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INFLUENCE OF ENVIRONMENTAL COSTS ON FINANCIAL PERFORMANCE OF OIL AND GAS FIRMS IN NIGERIA

# Influence of Environmental Costs on Financial Performance of Oil and Gas Firms in Nigeria

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#### **Abstract**

**Research Objectives:** This work empirically assesses the influence of Environmental Costs on financial performance of listed oil and gas firms' in Nigeria. Specifically, the objectives of the study includes to: examine the effect of the corporate social responsibility cost on earning per share of oil and gas firms in Nigeria, determine the influence of employee health and safety cost on earning per share of oil and gas firms in Nigeria and ascertain the influence of environmental law compliance and penalty on earning per share of oil and gas firms in Nigeria.

**Methodology:** To achieve this objective, the study made use of financial reports of oil and gas companies quoted in the Nigeria Stock Exchange market from years 2012-2022. The research design used is *Ex Post Facto* design and data for the study were obtained from the published annual financial reports of five selected oil and gas firms spanning from 2012-2022. In order to determine the effect of environmental costs on firms performance, some key proxy variables were used in the study, namely Donations and charitable contributions, Employee welfare benefit and Environmental laws compliance and penalty; firms' performance is however represented by Earnings per Share. Three hypotheses were formulated to guide the investigation and the statistical test of parameter estimates was conducted using multiple regression models.

**Findings:** The findings generally indicate that Donations and charitable contributions, Employee welfare benefit and Environmental laws compliance and penalty have significantly influenced firms' performance.

**Conclusion:** The implication based on the findings is that the environmental costs have positively influenced the oil and gas firms' financial performance over the years.

**Recommendations:** The study however suggests that firms should disclose more of this information in their annual reports in order to legitimize their operations by making public knowledge about her commitment of business to sustainable economic development, the local communities and working with employees.

**Key words:** Earnings per share, Environmental cost, Financial performance.

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## 1. Introduction

The paramount importance of environmental cost in the oil and gas firms has become the concern and focus of the nations and business earlier in the 1990s and the reasons for this were varied emanating from both within and outside of the firm and particularly at the global level (Okoye and Ngwakwe, 2004). A lot of government enactments, laws and regulations on environmental protection have been made in several nations of the world. According to Nagle (1994), the United States of America, Canada, Norway, the United Kingdom and the Netherlands have led in the pursuit of degradation and pollution prevention, control and the need for environmental safety. Some developing countries like Nigeria, Zimbabwe, Namibia, Philippines and Indonesia have led in championing policies to address the need for accounting and accountability for environmental cost management.

In the light of the awakening to environmental protection, various laws and regulations such as the environmental impact assessment Act, 1992 and the Department of Petroleum Resources (DPR), Environmental Guidelines and Standards for the Petroleum Industry in Nigeria (EGASPIN: 2002) were enacted. These require corporate management to consider the environmental implications of all internal decisions for their management. Furthermore, all organizations monitored by environmental policy agencies in Nigeria are expected to demonstrate much consideration in decision making.

Environmentalists agree that it could be more cost efficient and beneficial for firms to acquire pollution prevention or clean technology than those of pollution cleanup. It is also observed that in environmental regulations, there is a shift from the 'command and control' approach to market-driven forms in which pollution prevention alternatives are determining the appropriate pollution prevention approach may lead to additional decisions to be taken by management. Such decisions may include selecting capital expenditures, and in the opinion of Shield, Beloff and Heller (1996), expenditures such "as a market for emissions" allowance development, may require companies to determine whether it is more cost beneficial to buy or sell these allowances, giving the cost of avoiding the covered emissions'. In cognizance of this, the study sought to identify the various environmental costs that affect the financial performance of oil and gas firms in Nigeria.

## Statement of the problem

1 Environmental accounting has no accounting standard on how to treat or report accounting costs and expense, capitalization of cost. Identification of environmental liabilities and measurement of its liabilities. Some guidelines regarding these issues have been issued by many organizations such as International Chamber of Commerce, Japanese Industry Association, the Chemical Manufacturing Association, Intergovernmental working group of

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experts on intimation standards of accounting and reporting. As regards environmental reporting, different organizations have also issued guidelines of New Economic regulation (NER) enacted May 15, 2001, Environmental matters 2002, National Pollutant Inventory (NPI). But these guidelines are only advisory in nature and not mandatory.

- 2 Since the current requirement for reporting on Environmental issues is voluntary, it is observed from most financial statements of corporate organizations that it has engendered disclosures of information which totally exclude environmental issues. At best where reported, are grossly inadequate. Environmental disclosure has become critically important to informed public and financial stakeholders. Also, pertinent is the difficulty of evaluating environmental remediation for environmental degradation where environmental costs do exist.
- Most often, the costs that lead to changes in the environment, which affect people adversely and cause damages to the environment are not taken into consideration before profits are determined. The result of this, in most cases is reporting of wrong and excessive profits which will also mislead the decision makers.
- 4 Currently, the unfavourable environmental effect on economic development has become worrisome. The collective ecological footprint of the planet's population is unsustainable and the current trends of growth and environmental degradation suggest we are going to encounter more problems in the near future. Doorasan (2015).

# Objectives of the study

ISSN: 2251-032X

The broad objective of this study will be to ascertain the influence of environmental costs on the financial performance of quoted oil and gas firms in Nigeria. To achieve this broad objective, the specific objectives are to:

- 1. Examine the influence of Donations and Charitable Contributions (DCC) on Earning per share (EPS) of quoted oil and gas firms in Nigeria.
- 2. Determine the influence of Employee Welfare Benefit (EWB) on Earning per share (EPS) of quoted oil and gas firms in Nigeria.
- 3. Ascertain the influence of Environmental Laws Compliance and Penalty (ELCP) on Earning per share (EPS) of quoted oil and gas firms in Nigeria.

## 2. Literature Review

**Environmental Cost:** Shield, Beloff & Heller (1996), defined environmental costs as costs which have been incurred in order to reduce or eliminate releases of hazardous substances and all other costs associated with corporate practices aimed at reducing environmental impacts.

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How a firm defines an environmental cost depends on how the information is to be utilized. Accordingly, it may not be clear what costs are environmental or not as some may fall into gray areas. That means that some costs may be classified as partly environmental and partly non-environmental (Fagg, Smith ,Weitz & Warren, 1993). Identifying environmental costs has resulted in applicable terminologies such as Full costs, Total Costs, True costs, Life cycle costs and other descriptive costs, all in an attempt to emphasize the inadequacy of conventional approach because they have not accorded recognition to environmental costs.

# **Donations and charitable contributions (DCC)**

The current globalization trends and the growing demand from stakeholders towards firms to adopt CSR practices have encouraged the involvement of firms in CSR practice (Uwuigbe, 2011). CSR practices have emerged as an important issue in firms activities. It is a general statement indicating a firm's obligation to utilize its economic resources in its business activities to provide and contribute to its internal and external stakeholders (Uwuigbe, 2011).

CSR may be defined as "the commitment of business to contribute to sustainable economic development, working with employees, the families, the local community and society at large to improve their quality of life" (World Business Council for Sustainable Development, 2004). Donations and charitable contributions are however measured using Total donations and charitable contributions made by a firm within the periods under review adopted from the study of Shehu (2014).

# Employee welfare benefit (EWB)

These are costs which the oil and gas firms insure while trying to motivate their employees for increase in production level and for risk the employee faces while working with them. It may come in different forms like benefit schemes, share based compensation, profit sharing and bonus plans etc.

Employee welfare benefits are however measured using total benefits paid to workers in oil and gas firms for the period under review adopted from the study of Armaya'u (2011).

## **Environmental laws compliance and penalty (ELCP)**

These are costs resulting from activities to determine if products, processes and other activities within the company are in compliance with appropriate environmental standards.

Hence, Environmental losses according to Bebbington & Gray (1999) include; fines, penalties and damages arising from non-compliance with environmental laws.

Environmental laws compliance and penalty is however measured using total cost of complying with environmental laws and non compliance penalty adopted from the study of Okafor (2018).

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## **Financial Performance:**

This is used to measure firms overall financial sound over a period of time and can be used to compare similar firms across the same industry. Financial performance can be measured in various ways such as Earnings per share (EPS), Return on capital employed (ROCE), Return on assets (ROA) and Return on equity (ROE).

## **Earnings per share (EPS):**

Earnings per share (EPS) represents the portion of a company's earnings, net of taxes and preferred stock dividends, that is allocated to each share of common stock. The figure can be calculated simply by dividing net income earned in a given reporting period by the total number of shares outstanding during the same term. Because the number of shares outstanding can fluctuate, a weighted average is typically used. (Enekwe, Nweze & Agu,2015).

# **Empirical Review**

Ruslaina, Shariful and Wan (2010) examined the relationship between environmental disclosure and financial performance of firms listed on the Malaysia, Thailand and Singapore stock Exchange. Financial performance was proxied by return on total assets. The data for the study were collected from annual reports and accounts of 108 randomly selected listed companies in Malaysia (56) Thailand (37) and Singapore (15). Regression analysis was conducted to analyse the data. The findings suggest that financial performance of the companies have no significant relationship with environmental disclosure.

Armaya (2011), carried out a research on environmental responsibility and performance of quoted oil companies in Nigeria. Correlation research design was adopted using multiple regressions as a tool of analysis for the study. The result reveals that environmental responsibility has a significant impact on the performance of quoted oil companies in Nigeria.

Akabom (2012) studied the Environmental friendly policies and their financial effects on corporate performance of selected oil and gas companies in the Niger Delta region of Nigeria. The study was aimed at investigating if companies operating in the region practice environmental accounting to the extent of inclusion of environmental friendly policies and if so, how this affects the profitability of these companies. The data collected were analyzed using a simple ordinary least square regression method. The finding revealed that the cost of ensuring environmental friendly policies as well as firm competitiveness have a significant relationship with the firm's profitability. It concluded that the related cost of environmental protection and management positively influences a firm's profitability.

Daniel (2013) carried out a study on the effect of Environmental regulations on financial performance of manufacturing companies in Tanzania. The study used regression analysis with a

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sample of five selected listed manufacturing companies. The finding shows that Environmental compliance has no significant effect on the financial performance of listed financial companies in Tanzania.

Ifurueze, Lydon and Bingilar (2013) assessed the effect of the environmental cost on the corporate performance of the oil companies in the Niger Delta Region of Nigeria. Twelve oil and gas companies were sampled and the secondary data (return on equity, the community development cost, the waste management cost and the employee health and safety cost) were obtained and analyzed. In order to test the relevant hypotheses of the study, the multiple regression technique was employed. The findings of the study suggest that sustainable business practices and corporate performance are significantly correlated.

Arong, Ezugwu & Egbere (2014) conducted a research on environmental cost management and profitability of oil sector in Nigeria from 2004 through 2013. Multiple regression analytical was employed and the result revealed that there exist a significant relationship between influence of environmental cost management and the profitability of oil sector in Nigeria.

Ijeoma (2015) investigated the environmental practices of Nigeria's firms so as to ascertain if companies in Nigeria were environmentally friendly. The primary data were obtained through a questionnaire and the Mann-Whitney U-test was used in analyzing the data. The results showed that environmental cost accounting positively influenced the level of profitability among manufacturing firms in Nigeria.

Uwaoma & Ordu (2016) conducted a study on Environmental reporting in the oil and gas industry in Nigeria. They combined both primary and secondary data and at the end they found out that reporting format needs to be consistent and followed in order to ensure transparency in reporting company operation.

Mohammed (2018), conducted a study on Mandatory social and environmental disclosure; A performance evaluation of listed Nigerian oil and gas companies pre- and post-mandatory disclosure requirements. Regression analysis was employed and the study found out that corporate size is the only variable found significant in explaining social disclosure.

## **Theoretical Framework**

This study examined the theoretical background of environment accounting based on the social theories of accounting. The social theories of environmental accounting discussed in this study include, Stakeholders theory, legitimacy theory, Polluters pays principle theory

# **Stakeholders Theory**

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This study is anchored on the stakeholder theory which was propounded in 1984 by Freeman because the theory seeks to achieve societal and environmental equity while in pursuit of economic gain. Freeman defines stakeholders as any groups of individuals who can affect or are affected by the acceptability of the organization's objective. Previous social and environmental accounting research which utilized these theories indicate that Organizations respond to the expectations of stakeholders groups specifically and generally to those of the broader community in which they operate, through the provision of social and environmental information within annual reports.

# 3. Methodology

# **Research Design**

The ex-post facto research design was adopted by the study. The data already exists and the researcher made no attempt to manipulate it. The data were collected from a cross section of firms for many years. The sample size is Five (5) oil and gas firms. The study used all the FIVE quoted firms in the oil and gas sector of the Nigeria stock Exchange. The firms are listed on appendix 1.

The study used secondary data that were collected from oil and gas firms in the stock exchange between 2012 and 2022 financial years which are IFRS based. The data used were collected from published financial statements of the listed firms intended to use and the Nigeria stock Exchange fact-book (for confirmation of information in the annual report). The study relies on data from such official sources.

The variable and their proxy were operationalised as follows. Below are the dependent and independent variables and their proxy.

VARIABLE	PROXY
FINANCIAL PERFORMANCE	EARNINGS PER SHARE
ENVIRONMENTAL COST	1. DONATIONS AND CHARITABLE CONTRIBUTIONS
	2. EMPLOYEE WELFARE BENEFIT
	3ENVIRONMENTAL LAWS COMPLIANCE AND
PENALTY	

**Model Specification** 

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In examining the influence of environmental costs on the financial performance of the Nigerian economy, the researcher used multiple regression. The model specification thus specified as follows:

EPS =  $\beta_{0+}$   $\beta_1$  DCC +  $\beta_2$  EWB +  $\beta_3$  ELCP +  $\mu$ 

Where

EPS = Earnings per share

DCC = Donations and charitable contributions

EWB = Employee welfare benefit

ELCP = Environmental laws compliance and penalty

# 4. Data Presentation, Analysis and Interpretation

## **Data Analysis**

The method of data analysis used for this study was the descriptive statistics and multiple regression analysis. The regression analysis was applied to measure the influence of Environmental costs (DCC, EWB and ELCP) on financial performance (EPS). The independent variables are DCC, EWB and ELCP while the dependent variable is EPS which are all assessed between 2012 to 2022.

The data generated for the study were analyzed using Multiple Regression operated with SPSS version 20. Thus helped in predicting the influence of explanatory variables (DCC, EWB and ELCP) on the dependent variable (EPS). Durbin Watson Statistics was used for the test of autocorrelation of the regressors.

## Descriptive Statistics of our variables in a common sample (2012-2022 data).

	N	Mean	Std.Deviation			
EPS	50	4.4662	9.76108			
DCC	50	72766.4600	87910.09516 1995120.02805			
EWB	50	1251424.8200				
ELCP	50	330093.4400	1068551.94110			
Valid N (listwise)	50					

**Source:** Author's SPSS output 2023.

## **Model Summary**

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I	Mo	R	R	Adjusted	Std. Error	Change Statistics				Durbin-W		
	del		Square	R Square	of the Estimate	R Square Change	F Chang e	df1	df2	Sig. Change	F	atson
I	1	.588ª	.345	.303	0.15202	.345	8.084	3	46	.000		1.439

a. Predictors: (Constant), ELCP, EWB, DCC

b. Dependent Variable: EPS

The descriptive statistics of all the variables used in the study. It shows that during the period of the study the EPS, DCC, EWB and ELCP have a mean of 4.4662, 72766.4600, 1251424.8200 and 330093.4400 respectively. EWB has the highest standard deviation of 1,995,120 signifying its low contribution to the quoted oil and gas firm's financial performance model which can be confirm by significant value of t- statistics in the coefficient table, while DCC has the lowest standard deviation 87910.09516 which indicates it's higher significant to the model of the study. This can be confirmed by the value of the mean with EWB having highest mean and DCC with lowest mean.

The regression results between Earning per share, Donation and charitable contributions, Employee welfare benefit and Environmental laws compliance and penalty. From the model summary table, the following information can be distilled. The R value of .588 shows that, there is a strong relationship between (DCC, EWB and ELCP) and EPS at 58.8%. Also the R<sup>2</sup> stood at 0.345. The R<sup>2</sup> otherwise known as the coefficient of determination shows the percentage of the total variation of the dependent variable (EPS) that can be explained by the independent or explanatory variables (DCC, EWB and ELCP). Thus the R<sup>2</sup> value of 0.345 indicates that 34.5% of the variation in the EPS of listed oil and gas firms can be explained by a variation in the independent variables: (DCC, EWB and ELCP) while the remaining 65.5% could be accounted by other variables not included in this model.

The adjusted R<sup>2</sup> of 0.303 indicates that if the entire population is considered for this study, the result will deviate from it by only 0.042 (i.e. 0.345- 0.303). This result shows that there is a deviation of the sample examined from the total population by 4.2%. The table further shows the significant change of 0.000 with a variation of change at 8.084% indicating that the set of independent variables were as a whole contributing to the variance in the independent variable by that margin.

# **Discussion of Findings**

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The research focuses on Influence of Environmental costs on financial performance of oil and gas firms in Nigeria from 2012 to 2022.

The finding of this research is that Environmental costs of oil and gas firms have a positive influence on their financial performance for the period under study. This is in agreement with the work of Armaya (2011). Who found Environmental responsibility of Nigerian quoted oil marketing companies has a positive impact on their performance.

Firstly, Donations and charitable contributions as one of the indicators of Environmental costs shows 1.6% statistical significance on financial performance of quoted oil and gas firms in Nigeria. This implies that a firm has paid some cost and it has impacted on their financial performance. This observation is in agreement with the findings of Shehu (2014) who noted that Donations and charitable contributions ensures firms performance. This is contrary to the priori expectations of Okafor (2018) on the nexus between environmental disclosures and liquidity of manufacturing firms in Nigeria who found insignificant effect between environmental costs and manufacturing firms performance.

Secondly, Employee welfare benefit as one of the indicators of Environmental costs shows 0.0% statistical significance on financial performance of quoted oil and gas firms in Nigeria. This implies that the firm has not paid some cost and it has impacted on their performance. This is not in agreement with the priori expectations of Makori and Jagongo (2013) whose study argues that environmental costs have no significant association with firms performance. This also agrees with the findings of Ezejiofor, Racheal and Chigbo (2016) who are of the opinion that environmental cost has a significant impact on corporate firms' revenue. This also agrees with the study of Freeze, Lydon and Bingilar (2013) who noted that Employee welfare benefit ensures firms performance.

Thirdly, Environmental laws compliance and penalty as one of the indicators of Environmental costs shows 0.02% statistical significance on financial performance of quoted oil and gas firms in Nigeria. This implies that a firm has paid some cost and it has impacted on their performance

This agrees with the status quo of Ijeoma (2015) who opines that Environmental cost accounting positively influenced the level of profitability among manufacturing firms in Nigeria

This is also in agreement with the priori expectations of Ngwakwe (2018) on the nexus between environmental costs of manufacturing firms in Nigeria who found environmental costs significantly associated with manufacturing firms' performance. This is also in tandem with the priori expectations of Namakonzi and Inanga (2014) who conclude that environmental laws compliance and penalty has influenced firms' performance positively over the year

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The finding on coefficient of environmental cost obtained is also in conformity with the provision of EAG (2005) and Spiceland, Sepe and Tomassini (2004) who in their work found out there exists a negative relationship between environmental conservative cost and profitability of Nigerian oil and gas companies. This also agrees with the findings of Eyre (1982), Uwaigbe & Ajayi (2011) and Beredugo & Mefor (2012). The results of Belkaoui and Kirkpik (1989) tend to be more intriguing. They showed a significantly pairwise correlation, yet an insignificant negative regression coefficient for return on assets and corporate environmental disclosure.

The result of the R<sup>2</sup> shows that 34.5% of the variation in the dependent variable is explained by the line of best fit that is highly fitted. The DW statistics indicates that there is possible presence of autocorrelation in the model. The F-stat indicates that the overall regression is statistically significant. This implies that the variables included in the model taken together as a group best explain the relationship between the dependent and independent variable.

## 5. Conclusion and Recommendations

## Conclusion

This study notes that among the three categories of Environmental Costs that were examined, DCC has the highest influence on firms' performance followed by EWB and ELCP

The study has developed a model fit on environmental costs using (DCC, EWB & ELCP) that DCC, EWBMD and ELCP have a joint effect on firms' performance as measured by Earnings Per Share(EPS). Based on this, the study concludes that environmental costs have a significant influence on firms' financial performance.

## Recommendations

In line with the findings and conclusions of this study, it is recommended that;

- 1. The management of oil and gas companies should increase their charitable contributions to the community they are operating in. This will go a long way in improving a peaceful environment and performance in general.
- 2. The management of oil and gas companies should improve their participation in Employee welfare benefits so as to affect the community better which will in turn improve the performance of their respective companies and the employee performance.
- 3. The study suggests that Regulatory authorities such as NNPC and DPR should ensure participation and in compliance with the principles of sustainable development that underpins the concept of environmental responsibility by all the oil and gas firms in Nigeria.

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