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Title

ENVIRONMENTAL COST AND FIRM PERFORMANCE: EVIDENCE FROM QUOTED OIL COMPANIES IN NIGERIA

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ABSTRACT:

Multinational oil companies in Nigeria extract a large amount of the world's energy and claim to be discharging the environmental costs by incurring cost of bringing back the degregated environment to its formal state. These costs are accounted for using conventional accounting treatment. While on the other hand, the oil producing communities are claiming a total neglect by the oil companies in discharging their environmental costs. Therefore, the study examines the effect of environmental expenditure on the performance of quoted Nigerian oil companies. Correlational research design is adopted using multiple regression as tool of analysis for the data collected from all the quoted oil companies in Nigeria. The result reveals that environmental expenditure has significant effect on the performance of quoted oil companies in Nigeria. It is therefore recommended among others that the management of oil companies in Nigeria should increase spending on environmental issues in their host community in other to improve their performance.

Introduction:

In recent years, environmental pollution becomes so acute and the stakeholders' awareness to the issue becomes so serious that environmental accounting has become a strong branch of accounting. Still, attention towards the style and recognition of environmental accounting is not a generalized one. Legal authorities, standard setting bodies and other regulators cannot come to a consensus regarding the conceptual framework of environmental accounting and its disclosure. Thus, such disclosure is not mandatory rather voluntary that has no specific style or format. With the passage of time, more guidelines are coming in customized format that may lead us to reach a common format for recognizing environmental related costs and reported thereof through financial statements. Still, such disclosure is guided by the social responsibility and commitment on the part of the entities that work as strong agents for polluting the environment. The increase in global environmental awareness and the campaign for sustainable economic development is redirecting the attention of firms towards environmental sensitivity. The quest for sustainability has caused an emergence of many global institutions enunciating varying norms that guide human interaction with the environment. These standards are influencing business corporations to understand that their strategic position in society has the

power to influence behaviour and alter the state of physical, social and economic environment. Hence many companies especially oil companies in developing countries such as Nigeria behaves in a manner that suggests they can achieve corporate goal even if environmental and social responsibility are trampled upon.

Oil Pollution from spills, oil well blow-outs, oil ballast discharges and improper disposal of drilling mud from petroleum prospecting and other production waste have resulted in environmental degradation problems such as the loss of the aesthetic values of natural beaches due to unsightly oil slicks; damage to marine wildlife, modification of the ecosystem through species elimination and the delay in biota (fauna and flora) succession, and decrease in fishery resources. It is against this background that number of companies and other organizations are solidifying their environmental approach and developing business activities that take the environment into consideration as environmental conservation efforts continues to increase. Efforts made in environmental accounting comprise a part of these environmentally conscious business activities. Environmental costs are not only used by companies or other organisations internally, but are also made public through disclosure in environmental reports.

The real and intangible costs associated with air and water pollution and land and ecosystem degradation and destruction, have been or will have to be borne by society (Marsh and Grossa, 1996). Environmental costs has been described by Graff et al. (1998) as impacts incurred by society, an organization or individual resulting from entities that affect environmental quality. They are any cost, direct or less tangible, with short or long-term financial consequences for the firm. These include costs for handling, treatment and disposal of waste and emissions, remediation and compensation costs related to environmental damage; and any control related regulatory compliance costs; such as equipment depreciation, operating materials, water and energy, internal personnel, external services, fees, taxes and permits, fines, insurance and remediation and compensation. Environmental protection agency in US viewed environmental costs as including also cost of complying with environmental laws. They especially stated that it includes cost of environmental remediation, pollution control equipment and non-compliance penalty. In addition, according to Abubakar (2010), based on what is known of environmental degradation, environmental cost could then be said to include cost of preventing degradation, cost of bringing the environment to its formal state, cost of making persons prevent degradation

or cost of making them bring depleted environment to normal state or a combination of the above. Profit determination requires the non-torching of reserves with recurrent cost. More often than not, the cost of changes to the environment, discontent to people as a result of the damages are either not considered at all or wrongly measured. The consequence of this, in most cases, is reporting of wrong and usually excessive profits. Environmental cost accounting is that which goes beyond the conventional cost determination concepts, by including environmental implication of production in total cost of production determination. It is 'an integrative approach which examines the interrelationship between accounting, the environment and management information; decision making and accountability' (Environmental Protection Agency, 1995). With proper environmental consideration, as advocated by proponents of environment cost accounting, 'improved environmental performance and significant benefit to human health as well as improved business performance will be the result.

The reporting of environmental accounting information as one of the key elements in an environmental report enables those parties utilizing this information to get an understanding of the company's stance on environmental conservation and how it specifically deals with environmental issues. Thus, environmental costs accounting should generate benefits, so as to be a sustainable business practice. A corporation should not continue a policy that generates negative cash flow (Tsoutsoura, 2004). Therefore, environmental costs accounting should have bottom line benefits in order to be sustainable. This paper therefore, contributes from an African countries perspective to the global literature on environmental costs accounting in annual reports and also to provide a basis for corporate investment decision making as well as determining the effect of environmental expenditure on the performance of oil companies in Nigeria.

The current global corporate move, towards environmental costs accounting makes it necessary for Nigerian companies to join the cue. However, could these companies, in such a challenging business environment, continue with environmental costs accounting, when there might not be a favourable economic return? It is important to consider, if environmental accounting practices generate benefits to sustain the venture. That is to say, whether environmental accounting practices, improves firms' performance. Prior studies of environmental accounting disclosures or reporting in Nigeria have been exploratory and descriptive and have mainly focused on discussing the environmental phenomenon from

qualitative perspective (not empirical), without examining its economic and or financial implication, thus there is a gap between these studies on environmental accounting disclosure and the effect of such disclosures on firm's performance in Nigeria. The problem this study addresses therefore is to empirically ascertain, if environmental costs of Nigerian oil companies has any effect on their performance. The paper examines the effect of environmental costs on the performance of quoted Nigerian oil companies. In view of this objective, it is hypothesizes that environmental costs has no significant effect on performance of quoted oil companies in Nigeria.

This paper focuses on Nigeria Oil and Gas companies which are recognized as causing heavy degradation on the environment. For emphasis, the problem is that the Nigerian business environment has yet to recognize and design environmental accounting for environmental information and issues of raw materials, energy consumption and use of natural resources which have systematically depleted the environment but rather depend on the conventional accounting methods. This makes for relevance of this study.

Literature Review:

Prior studies both within and outside Nigeria such as Orlitzky, (2001), Roman, Hayibor, and Agle, (1999), Ruf, Muralidhar, Brown, Janney, Paul, (2001), Simpson and Kohers, (2002), Tsoutsoura, (2004) and Waddock and Graves, (1997) found mixed results in documenting an association between environmental expenditure and firms' Performance. Various authors, accounting associations and researchers have addressed the environmental expenditure issues and concluded (based on different objectives) that environmental expenditure accounting and disclosures are important to both internal and external users (Gamble et al, 1996). Some of the objectives that formed the basis of their investigation include: the usefulness of environmental or social disclosures to investors (Buzby and Falk, 1979; Rockness and Williams, 1988; Longstreth and Rosenbloom, 1973; Gray et al, 1995; Deegan and Rankin 1997; and O'Donovan, 2002) and the results produced are mixed; the quality of environmental disclosures (United Nations 1992; Gamble et al, 1996; and Gray, 2000) revealing poor and inconsistent information; the relationship between stock price movement and environmental related information (Shane and Spicer, 1983; Freedman and Jaggi, 1986; and Konar and Cohen, 1997) revealed some association in some of the studies but none in others; studies by (Rockness, 1985; Milne. and Adler, 1999)

on reliability of social and environmental disclosures in annual accounts have not found them as reliable measures of firm performance. A number of studies have been undertaken in different countries to examine corporate environmental performance from different perspectives. As observed by (Guthrie and Parker, 1989; Hogner, 1982; and Tinker and Neimark, 1987) a number of researchers have noted a substantial increase in environmental disclosures in annual reports in the last four decades.

Owolabi (2006) investigated the extent of incorporation of environmental costs into oil and gas accounting in Nigeria. Based on response from stakeholders, his study revealed a high level of awareness of environmental issues and a positive attitude towards environmental cost and liability. Osemene (2007) studied some financial and environmental accounting issues relating to the hazards caused by oil and gas activities in Nigeria. The study revealed that financial and environmental accounting issues still pose serious challenges. Problems of underreporting charges and inability to apportion costs to each of the environmental factors were identified by her. The theoretical perspectives provided by (Gray et al 1995a, 1995b) for discussing environmental disclosure are: decision-usefulness studies, economics-based theories such as Positive Accounting Theory and political economy theories. The political economy theories such as stakeholder and legitimacy theories are more useful than economics-based theories because their focus is beyond shareholders' wealth maximization.

Several researchers have examined the association between corporate environmental performance and economic performance (Spicer, 1978; Chen and Metcalf, 1980; Jaggi and Freedman, 1992). The results of these studies are inconclusive. Their findings indicate that the association in the short run is expected to be negative, but that it is likely to be positive in the long run. Overall, results strongly suggest that environmental disclosure is multi-dimensional and is driven by complementary forces (Cormier et al, 2005). Clause and Rikhardsson, studied the effect of environmental investment on investment decisions. The results suggest that environmental information disclosure influences investment allocation decisions. This finding would imply that companies that are apathetic to their environmental costs might experience eventual crashes on their stock price if their investors are rational in considering the future value of the firm based on its present state of environmental costs. Enahoro (2009) concluded that environmental expenditures are not charged independently of other expenditures; there is no cost

accounting system for tracking of externality costs; environmental accounting disclosure does not take the same pattern among companies in Nigeria and that environmental expenditure does not impact on company performance in Nigeria.

Gaps exist between perception of environmental issues and actual performance. For example, the existence of gaps between perception of managers and accounting professionals of environmental issues and management; and actual firms' performance as reported by (Jaggi and Zhao, 1996; Owolabi, 2001) and this could be mainly attributed to the perceived cost and liabilities of environmental preservation. . Beside the gaps, no previous research has investigated the relationship between environmental accounting disclosure and corporate financial performance within the Nigerian oil sector, this research is therefore a humble attempt to fill this gap. Arguably, legitimacy theory is the more probable explanation for the increase in environmental disclosures since the early 1980s (O'Donovan, 2002). Other researchers that have agreed to the dominance of Legitimacy theory as a more profound explanation to corporate social and environmental reporting include (O'Donovan, 1999; Walden and Schwartz, 1997; Gray et al, 1995a; Hooghienstra, 2000; and Wilmshurst and Frost, 2000). Other theories that provide a sound theoretical foundation to substantiate the value of social and environmental accounting research, and by extension their disclosure include Stakeholder theory (Guthrie and Parker, 1990; Roberts, 1992; Gray et al, 1995a; and Roberts and Mahoney, 2004); Institutional theory (Cormier et al, 2005; Meyer and Rowan, 1977) and Resource Dependence Theory (Pfeffer and Salancik, 1978, 2003) Legitimacy theory (Lindblom, 1994; Suchman, 1995) is value system centered. A dichotomy exists between the value system of organisations and those of the society. Legitimacy exists at the organizational level when there is congruence between organization and societal value system. Institutional theory, unlike legitimacy theory specifies how societal expectations are met and gained by institutionalizing norms and rules. Some code of behaviour to earn, nurture and maintain societal expectations; and thus create a positive organization-society interface.

Resource dependence theory concerns itself with the strategy organisations adopt in drawing resources from the environment. This position is imperative because organisations are interdependent with selves and the environment. The resolution by organisations of different and conflicting expectations of different stakeholders is what stakeholder theory engages in. This is

more necessary because of divergent effects different stakeholders have on organisations. Cost Benefit Analysis (CBA) is a technique to identify all costs as compared to all benefits which result from particular courses of action. Many are of the opinion that Cost Benefit Analysis model is more broadly applicable to all environmental resources and environmental decisions. For instance in protecting endangered species, it will be required to provide estimates of all costs and the benefits to be derived in carrying out the actions of preserving the endangered species.

Methodology:

The study covers a period of twelve years (1999-2010) utilizing secondary data only. Data is collected from financial statement of all quoted oil companies listed in the Nigerian Stock Exchange. The Nigerian oil sector was selected because it is characterized by a lot of environmental issues; also most of the firms in this sector are multinationals and have long embedded themselves in environmental accounting practices. The data is analyzed using multiple regression. The study employs three independent variables namely: Cost of Environmental Remediation and Pollution Control, Cost of Environmental Laws Compliance and Penalty, Donations and Charitable Contributions (DCC) representing the environmental costs and return on asset (ROA) as proxy of firms' performance.

Model Specification and Variables Measurement:

The model uses a single dependent variable represented by ROA and three independent variables; Cost of Environmental Remediation and Pollution Control (ERPC), Cost of Environmental Laws Compliance and Penalty (ELCP), Donations and Charitable Contributions (DCC) [ROA=f(ERPC+ELCP+DCC)]. The model employs a linear regression equation to test the hypothesis of the study.

$ROA = \beta 0+\beta_1 X_1+\beta_2 X_2+\beta_3 X_3 +e$

Where:

ROA = Return on Asset

β_0 = Intercept

β_{1-3} = Coefficient of the independent variables

X_1 = ERPC (Measured by Total Cost of Environmental Remediation and Pollution Control)

X_2=ELCP (Measured by Total Cost of Complying with Environmental Laws and non Compliance Penalty)

X_3 = DCC (Measured by Total Donations and Charitable Contributions)

e = Residual or error term

Results and Discussion:

The results are presented in three sections. Section one present some basic statistics from the sample of Quoted oil companies used in the study. Section two present the regression results

Basic Sample Statistics

The sample descriptive statistic is first presented in table 1, the correlation matrix is presented in table 2, while the tolerance and variable inflation factor are presented in table 3.

Table 1 Sample Descriptive Statistics (1998-2009 data)

Variable	Mean	Std.Dev	Tolerance	VIF
ERPC	6.2083	7633.16	0.646	1.549
ELCP	3.1108	73267.2	0.834	1.199
DCC	4.4417	1164.20	0.744	1.344

Source: Regression Result Using SPSS

Table 1 indicate that, on average, during the period of the study the Environmental Remediation and Pollution Control, Environmental Laws Compliance and Penalty and Donations and Charitable Contributions have a mean of 6.21, 3.11 and 4.44 respectively. Environmental Remediation and Pollution Control has the highest standard deviation of 7633.16 signifying its low contribution to the Quoted oil companies' performance model which can be confirm by significant value of t- statistics in the coefficient table, while Donations and Charitable

Contributions has the lowest standard deviation which indicates its higher significant to the model of the study. This can be confirmed by the values of the mean which Environmental Remediation and Pollution Control having highest mean and DCC with lowest mean.

The tolerance value and the variance inflation factor (VIF) are two advanced measures of assessing multicollinearity between the independent valuables of the study. From table 4.2, the variance inflation factors were consistently Smaller than ten indicating complete absence of multicollinearity (eg Neter et al ; 1996 and Cassey, et al; 1999). This shows the appropriateness of fitting the model of the study with the three independent variables. In addition, the tolerance values are consistently smaller than 1.00 thus further substantiates the fact that there is complete absence of multicollinearity between independent variables (Tobachmel and fidell, 1996).

Correlation Matrix

The correlation matrix is used to determine the relationship between the dependent and independent variable of the study.

Table 2 Correlation Matrix for the sample Observed

Variable	ROA	ERPC	ELCP	DCC
ROA	1.000			
ERPC	0.76	1.000		
ELCP	0.88	0.04	1.000	
DCC	0.75	0.05	0.02	1.000

Source: Regression Result Using SPSS

Table 2 indicates that there is a positive relationship between Return on Asset and Environmental Remediation and Pollution Control, Environmental Laws Compliance and Penalty and Donations and Charitable Contributions. This implies that environmental costs proxies are contributing positively to the performance of Nigerian Quoted oil marketing companies. The correlations between the independent variables are all not significant. This implies that there is no colinearity between the independent variables which signifies the fitness of the model.

Environmental Costs and Return on Asset of Quoted Oil Companies in Nigeria:

The results of OLS in relation to the effect of environmental costs on the performance of Nigerian Quoted oil companies are discussed. The study used three environmental costs proxies; Environmental Remediation and Pollution Control, Environmental Laws Compliance and Penalty and Donations and Charitable Contributions. The study also utilises Return on Asset measured by net profit as a percentage of net assets value as proxy of performance.

The regression results are presented in table 3 below.

Table 3: Environmental Costs and Performance of Quoted Oil Companies in Nigeria.

Environmental costs	Performance
Variables	ROA
Intercept	6.658 (0.000)
ERPC	0.004 (1.902)
ELCP	0.028 (2.677)
DCC	0.001 (4.884)
R	0.90
R^2	0.81
Adj. R^2	0.74
F. Sig.	0.003
Durbin Watson	2.40

Source: Regression Result Using SPSS

The estimated relationship for the model is

ROA =-6.658 + 1.902(ERPC) + 2.677(ELCP) + 4.884(DCC)

The model indicates that all the 3 proxies of environmental costs have significant effect on Quoted oil companies' performance as measure by ROA. Thus, ERPC and DCC are all significant at 1% level of significance on performance, while ELCP is significant at 5% level of significance. The implication of these results is that the higher the Nigerian oil companies spent money for handling, treatment and disposal of waste and emissions, remediation and compensation related to environmental damage; and any control related regulatory compliance

costs; such as equipment depreciation, operating materials, water and energy, internal personnel, external services, fees, taxes and permits, fines, insurance and remediation and compensation, the higher their performance will be. The Durbin – Watson Statistic of 2.40 indicates absence of serial correlation.

The results therefore, provide the basis for rejecting the hypothesis that environmental cost has no significant effect on the performance of Nigerian Quoted Oil companies. Finally, the combined effect of the proxies of environmental expenditure on the performance of Nigerian Quoted Oil Companies is indicated in the model summary of the regression result. The combined relationship between the dependent and independent variables of the study is 90% which implies strong positive relationship and statistically significant at 5% level. While the coefficient of determination R^2 of 0.81 shows that environmental costs in Nigerian quoted oil companies occupies 81% of their performance and the remaining 19% is covered by other factors.

However, it is discovers that a significant size of the upstream sector (not downstream) of the oil and gas sector integrate environmental cost consideration in capital projects and investments in the companies. This is also noted in a few multinational companies engaged in manufacturing. Two main internal barriers which affect the ability of the company to collect environmental cost information are the absence of classification of costs on environmental bases. Skills in the principles and practice of environmental cost and management accounting have not yet attained prescribed standards in Nigeria. Therefore, a suggested base and design in this study that qualitative disclosure must be accompanied by the same type of precise and clear financial information that is useful to reconstruct the economic consequences deriving from environmental problems.' In the same thought, it is considered that although environmental information could be published in other company forms such as in social reports, press releases, company websites, among others, but it is only in the corporate annual reports can make these information be accepted as authentic, acceptable and justifiable. This therefore is expected to enhance the practice of environmental cost accounting in Nigerian oil and gas sector.

Conclusion:

In line with the findings of this study, it is concluded that spending on environmental activities improves the performance of quoted oil companies in Nigeria. What to be done

therefore is for the management of oil companies to increase their participation in environmental issues to their host communities so as to affect them better which will in turn improve performance of their respective companies and the employee performance.

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