SUSTAINABILITY REPORTING AND FINANCIAL PERFORMANCE OF MULTINATIONAL OIL AND GAS FIRMS IN NIGERIA: THE PARADOX OF ENVIRONMENTAL COST

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Abstract

The paper aims to examine the effect of environmental cost on the profitability of multinational oil and gas companies in Nigeria. The paper used panel data which were sourced from the annual reports and accounts of the selected quoted oil and gas companies, consisting of 6 (major multinational) Oil and Gas firms over 15 years (2004-2018). Panel regression models were employed in determining the effects of the variables under study. The findings of the study suggested that a percent (1%) increase in environmental activities resulted in 0.013 (1.3%) increase in Return on Asset (ROA). Indicating that environmental activities have a Positive and significant effect on ROA at 5% level of significance. The implication of this finding is that organizations that invest in sustainability activities would have significant competitive advantages. This is consistent with the existing of literature on sustainability reporting and financial performance. The study, therefore, recommends that since sustainability is profitable, oil and gas firms should invest more in environmental activities to enhanced growth and success.

Keywords: Environmental Cost, Oil and gas, Return on Asset, Profitability, Sustainability Reporting.

1. Introduction

The sensitive nature of the operations of oil and gas companies brought about the need for global ecological awareness and this has pushed the movement for sustainability reporting. Sustainability reporting is an essential tool for consolidating, managing, and publishing economic, social, and environmental issues, thus minimizing environmental pollutions. However, access to economic, environmental, and social information is internationally acknowledged as a civic right. It holds that stakeholders shall have access to organizational sustainability activities (Abdulsalam, & Babangida, 2020). Nigerian's decision regarding sustainability reporting activities has substantial ramifications for the rest of the African countries. This is justifiable considering the vital role Nigeria plays in the economic development and political stability of the continent. Contrarily, sustainability

reporting is still voluntary in Nigeria and it has received limited attention. The need to make progress in environmental protection and development induced the executive, the legislative, and the judicial agencies in Nigeria to pass the bill on the establishment of National Environmental Standards and Regulations Enforcement Agencies (NESREA) Act 2007, presently known as Cap N164 LFN, 2010. The NESREA Act requires Nigerian companies to carry out their organizational activities in line and conformity with the requirements of the United Nation Sustainable Development Goals (as encapsulated in NESREA, Sec.8). The agency is responsible for environmental protection and sustainable development of the Nigerian natural resources and further enforces all laws, guidelines, policies, and standards on the environment (NESREA, Sec.2).

Environmental sustainability is what many sustainability advocates have historically focused on. Carter and Easton, (2011) affirmed that environmental issues have been the leading focus of research over the past 20 years and are becoming the main concern of many organizations in today's world (Chaabane, 2011; Kuik *et al.,* 2011; Abdulsalam *et al.,* 2020). There exist mixed findings (positive, negative, or inexistent) that need further clarification between environmental cost disclosure and financial performance of firms in Nigeria, particularly in the study area which prior studies have ignored. This study therefore, argues that the mixed findings may partly be attributable to the selection of variables. Thus, this prompted this research at this time and in the study area to revisit the phenomenon and change the narratives. In order to overcome the perceived deficiency of the previous studies, this research, therefore, considered introduction of additional variables such as environmental protection cost, environmental ramification cost and environmental redemption and prevention cost on financial performance of multinational oil and gas companies in Nigeria, which constitutes the literature gap filled by the study.

It is against this backdrop, therefore, this study evaluated the effect of sustainability activities (been proxied by an environmental group of indicators) on the financial performance of multinational oil and gas companies in Nigeria.

The nature of oil and gas operations involves many potential positive and negative environmental effects, particularly during exploration and production, including land clearance, oil spills, and natural gas emissions (Frynas, 2009). The exploration, production, and marketing activities of multinational oil and gas companies are largely associated with environmental threats, causing loss of habitats for aquatic and terrestrial animals ranging from environmental degradation, oil spillage, soil, air, and water pollution. This has resulted in seeking to mitigate the adverse impacts of the oil company's activities as well as to address the potential risks associated with

environmental change. Studies by Nwaiwu and Oduka (2018), Wright and Noe (2006), and Shehu (2014) opined that environmental activities have often been viewed to be expensive to undertake. As such, companies are defied from adopting sustainability practices. The cost of adopting sustainability practices might be the reason attributable to poor compliance (Xiaohu, *et al.,* 2012; Laurence, Micheal & Jeremy, 2015). Furthermore, Hong and Modi (2011), Norhasimah *et al.*, 2016) revealed that, the more investments in sustainability practices, the less the profits and the more it erodes the competitiveness of the organization. Thus, there is a gap between the studies on sustainability disclosure and the effect of sustainability cost on a firm's financial performance in Nigeria. The previous studies reviewed shows the existence of literature gap, time gap, and methodological weaknesses. Most of these studies used either simple regression, content analysis, or binary logistic regression method as their statistical tools. The few studies on oil and gas companies largely concentrated on oil marketing companies in Nigeria. Based on the affirmation, the question raised which provided guide for the study is that does environmental cost have any significant effect on the Return on Assets of multi-national oil and gas companies in Nigeria?

Given the foregoing, this study therefore seeks to provide empirical evidence and provide further insight on the effects of sustainability reporting activities (proxied EPC (Environment Protection Cost), EIC (Environmental Implementation Cost), and ERPC (Environmental Remediation and Pollution Control Cost) on financial performance (Return on Asset) of the multinational oil and gas companies in Nigeria.

2. Literature Review

2.1 Conceptual Framework

The need for sustainability arose from the wasteful nature of nature. Some consequences of population growth are consumerism and the endless search for resources to satisfy the needs of a growing population is largely associated with environmental threats. Environments were being destructed in search of resources for industrial production. The results of this destruction are depletion of freshwater supplies, deterioration of natural resources, ozone layer depletion, energy use, pesticides, toxic chemicals, nuclear power, and urban growth (Babangida, 2019; Gopalakrishnan, *et. al* 2012). The consequences of global warming include flooding, drought, and famine, amongst others, which will lead to scarcity of food and disruption of economic activities.

Sustainability reporting is defined by GRI-G4 (Global Reporting Initiatives, 2017), as a tool of assessing and disclosing organizational long and short-term economic, social and environmental performance, which propel accountability and

transparency to various stakeholders and supports the company in managing its operations in a more environmentally friendly manner. Sustainability reporting is a strategy that encourages management to incorporate the economic, social, and environmental issues in the organizational vision and mission statement. Sustainability reporting has deeply put its roots into corporate social responsibility, corporate governance, green and environmental accounting, ethics, human resource, and other related concepts. In the same vein, Orazalin, *et al.* (2019), Shafat, and Nasir, (2018) stated that companies that proactively address environmental and social concerns, in return, will yield organizational economic advantages over and above their competitors. Sustainability reporting enhanced and propelled a conducive working environment that would ultimately increase health and safety and further boost the morale of employees, which eventually increases productivity. An increase in productivity will reduce cost, increase sales turnover and profitability.

2.1.2 Corporate Social Responsibility and Oil Companies in Nigeria

The nature of industry determines sustainability concerns by multifarious stakeholders. The alarming issues (the effect of industrial activities on the economy, social, and environment) are greatly varied between industries, sectors, and even countries. However, most of the positive and negative issues related to industry's activities are quite similar in most countries. Mainly, due to current globalization and of course, the oil and gas sector is not an exception. For example, Nigeria is quite different from Saudi Arabia (political, social, cultural, economic, and legal differences) but has in common, environmental, social, and health concerns as a result of oil and gas exploration, production, and marketing. Examples of such issues are oil spills, the social impact of the industry on local communities, and macroeconomics difficulties created by the inflow of oil revenues (Ado, et al., 2016; Aggaarwal, 2013; and Bartels et al., 2016).

Crude oil and natural gas are the raw materials of the petroleum industry. Petroleum is the second largest consumable resources in the world – second only to water (Momin, 2013). Oil and gas are part of people's daily activities that will be hard to stop appreciating their global significance (Abdulsalam, *et al.,* 2020). Currently, oil and gas are among the most important resources in the world, since oil is a commodity that is closely interwoven with national strategies and global politics and power (Acti, *et al.,* 2013; and Beredugo & Sunny, 2014). Oil is a massive generator of wealth for individuals, companies, and the entire nation. Out of the top twenty companies in the Fortune 500, seven are oil companies (Buccina, *et al.,* 2013). The oil sector has been among the leading industries in championing sustainability development. This is at least partly due to the highly visible adverse effects of day-to-day operations such as oil spills and the resulting protests by civil society groups and indigenous people.

2.1.3 Environmental Issues in Sustainability Activities

Environmental issues are a critical component of sustainability activities and have been calling attention to climate change, global warming, and rising energy prices. Environmental sustainability relates to preserving natural resources, such as minerals and the atmosphere amongst others. It is the protection of raw materials needed to satisfy human needs. A man should not create more waste than the environment can accommodate and that, human consumption should recognize and emphasize the methods of sustainable development. The concept of environment is considered differently among people depending on either their profession or how they use it (Redclift, 1987). Here are scholars who defined the concept as a natural environment or environmental capital that is stock of natural assets and services such as, soil, atmosphere, forest, water, oceans, biomass, minerals, fossil energy, and wetlands (Goodland, 1995). To some, the environment includes every element of the world around us, such as food, buildings, local street traffic, public places, cities, and towns (Wheeler, 2004). While other researchers opined that, the environment is the core value of nature.

2.2 Empirical Review

Several studies were conducted on the impact of environmental cost on the profitability of oil and gas companies in Nigeria. However, there are inconsistencies in the findings. The inconclusiveness of the findings in the literature triggered this study.

Felix and Idowu (2021) in a study titled Sustainability Reporting and Firm Performance: Empirical evidence from listed Manufacturing Firms in South Africa. The study examined sustainability reporting and firms' performance in South Africa. Data were collected from 10 listed manufacturing firms in South Africa from 2008 - 2017. The data was analyze using multiple regression. The findings of the research suggest that corporate environmental disclosure have positive significant relationship with firm performance while employee disclosure (ED) has insignificant association with firm performance. The study recommends incorporating sustainability reporting in the firms' financial statement trigger financial performance through increase in sales revenue resulting from the increase in competitive advantage.

Girón et al. (2020). In a study titled Sustainability Reporting and Firms' Economic Performance: Evidence from Asia and Africa with the objective to investigate the factors that influence the adoption of new sustainability reporting practices and external assurance. Data were sourced from the Sustainability Disclosure Database and the Orbis database, and then subject it to statistical analysis through regression.

The sustainability reporting has direct link with firms' performance.
Nwaiwu and Oluka (2018), examined the impact of environmental cost disclosure on the financial performance of quoted oil and gas companies in Nigeria. Time-series data were collected from the annual reports and economic review of the central bank of Nigeria. Pearson product-moment coefficient of correlation and multiple linear regression techniques was used for the analysis. The random effects result indicated that ROA is not significantly affected by the environmental cost disclosure. The fixed effects result shows that environmental cost disclosure has significant effect on firms' financial performance, and it is capable of affecting the future earnings (ROA) of the listed oil and gas companies. The study further found that environmental cost disclosure does not significantly affect the return on capital employed (ROCE) as observed in the overall models. Environmental cost disclosure enhances the earnings per shares (EPS) of the oil and gas companies. The study recommends that environmental reporting should ensure proper corporate environmental stewardship of organizational activities. There is a need for proper charging and allocation, distinguishing between environmental costs and other costs will lead to proper cost allocation and will help to develop sustainability indicators. Measuring environmental costs is said to develop an accounting system. There are also the needs for more data other than the conventional accounting data, such as pollution and greenhouse depletion. The environmental regulatory authority should be more committed to ensuring that environmental cost components are individually and separately disclosed for efficient reporting.

In similar vein, Danniel and Ambrose (2013), investigated the relationship between environmental accounting and the profitability of selected firms in India. Data were sourced from audited accounts and reports of 14 quoted companies in the Bombay Stock Exchange (India). Multiple regression analysis was used in analysing the data. The result showed that Environmental Accounting is negative but exert a significant impact on Return on Capital Employed (ROCE) and Earnings per Share (EPS) of the selected companies. More so, environmental accounting exerts a positive and statistically significant impact on net profit margin and dividend per share. The study recommended that government should give a tax credit to organisations that comply with its environmental laws. Furthermore environmental reporting should be made compulsory in India to improve the performance of organisations and the nation as a whole.

Ying, Ronggui and Tao (2019), examined the relationships among Environmental Practice implementation and performance outcomes (drivers) in the Chinese construction industries. The study adopted structural equation modelling to test the hypothesised relationship. The study found that project team knowledge and skills

would propel environmental practice implementation. Successful environmental practice implementation can promote environmental and organisational performance. The finding further revealed that government principles are not part and parcel of the environmental practice implementation motivators. Environmental regulations are not adequate in China to effectively fold among the critical drivers because China is experiencing rapid economic development. The study recommended the Chinese government to parade its Arsenal towards formulating adequate and rigorous green laws, regulations, standards, and guidelines that can probably and protect the environment.

Asaolu, *et al.* (2011), evaluated the assessment of sustainability reporting in the Nigerian Oil and Gas sector. Content analysis was used to analyse the data obtained from the annual reports of selected oil companies to identify the extent of their compliance with global best practices in reporting financial and none-financial activities. Data were sourced through content analysis of annual reports (global and local), stand-alone sustainability reporting and other triple line-reporting publications of six major multinational companies operating in the Nigerian oil sector. The study finds an arbitrary and incompatible sustainability reporting indicators among all the sampled companies and therefore recommends the introduction of a sustainability reporting framework in line with global best practices in the Nigerian Oil and Gas sector.

Schneider, *et al.* (2014), evaluated the development of sustainability *practices* and progress toward sustainable development in the United State oil and gas sector. Data was sourced from published accounts and reports of ten (10) major oil companies. The study finds that the oil sector is making continues progress towards environmental, health, safety, social and economic effort, but yet the level of sustainability performance and disclosure varies from one company to another. Even though issues do remain, but the analysis of the company's mission and vision statement proved its commitment towards disclosure, eliminating or reducing associated risks (environment, health, and safety).

The empirical studied reviewed shows the existence of literature gap, time gap, geographical gap, theoretical gap and as well methodological weaknesses, as most of these studies used either simple regression, content analysis, or binary logistic regression method to examine sustainability disclosure and reporting. Besides, Most of the previous studies concentrated on oil marketing companies around the world, but this study explores multinational firms playing a major role in the Nigerian oil and gas sector. The paper covers a period of fifteen years. Panel regression analysis was also introduced.

2.3 Theoretical Framework

The stakeholder theory, Freeman (1984) has anchored this study. The proponent of this theory advocate that business entity's survival depend on its ability to satisfied a diverse stakeholders need in the society and in return stimulate firms' performance. There are various stakeholders, for example the Government, Employees, Customers, Suppliers, etc. with varying needs.

3. Data

This paper adopted a longitudinal research design, panel data were sourced from the accounts of selected (6) multinational oil and gas companies in Nigeria. The selection of these companies was based on the firm size, firm age, and the availability of data for the periods 2004 through 2018 financial years. The data were subjected to pre and post estimation tests, such as the poolability test, Langragian Multiplier test, autocorrelation test, and Heteroscedasticity in the estimation process. The pooled results were used for the evaluation of the individual statistical significance test (t-test) and overall statistical significance test (F-test). Descriptive and inferential analyses were also conducted to examine the effects of the variables under study.

3.1 Model Specification

Sustainability reporting and financial performance of multinational oil and gas firms in Nigeria: the paradox of environmental cost. Environmental Costs served as an independent variable while financial performance was the dependent variable of the study.

3.2 Panel Models

Sustainability Reporting is measured by four proxies: Environment Protection Cost (EPC), Environmental Redemption Cost (ERC), Environmental Implementation Cost (EIC), and Environmental Ramification Cost (ER PC). While financial performance is proxy by Return on Asset (ROA). The study used STATA version 15 in carrying out the statistical analysis.

$$y_{it} = \alpha + \beta_1 x_{1it} + \beta_2 x_{2it} + \beta_3 x_{3it} + \beta_4 x_{4it} + u_{it};\ \ i = 1, 2, \ldots N.;\ T, -- (1)$$

Where *i* represents individual firms 1……..6 at time *T*. α_0 represent$_s$ the intercept term, $\beta_1 \ldots \ldots \ldots . \beta_n$ are the model parameters to be estimated, y_{it} represents the dependent variables, and stands for financial performance measure by ROA. x_1…….x_4 represents independent variables representing environmental cost, measured by Environment Protection Cost (EPC), Environmental Redemption Cost (ERC), Environmental Implementation Cost (EIC), and Environmental Ramification Cost (ERFC). In this respect, McGuire et al., (1980) suggested the use of accounting ratios especially ROA rather than market or risk ratios, for financial performance

variables, deeming them better predictors.

1. Data Analysis and Discussions of Findings

4.1 Descriptive Statistics

Descriptive statistics was introduced to satisfy the assumptions made by the individual tests. It comprises of measures of central tendency, comprising mean, range of scores, standard deviation, Skewness and kurtosis, and measures of dispersion (the spread of the distribution), of both the dependent and independent variables. The descriptive statistics analyse the basic features of the sample companies and provides a basic insight into the nature of the data upon which analysis is done. *Table 4.1 shows* a summary of the descriptive statistics of the dependent and independent variables used in this study.

Table 1: Summary of Descriptive Statistics

Variables	ROA	ERPC	EPC	ERC	EIC
Mean	9.86961	3.94000	2.530000	7.52163	6.43953
Median	12.20643	5.30000	4.500000	6.60327	1.15660
Maximum	19.36980	4.96000	8.540000	8.03145	5.07010
Minimum	0.034053	3.00005	3.630000	6.345960	1.04150
Std. Dev.	1.90815	1.19021	0.110000	0.690104	1.01467
Skewness	0.482713	1.57144	0.331140	1.459438	1.39912
Kurtosis	8.62904	11.2667	5.031886	3.823015	1.45927
Jarque-Bera	507.5608	49135.82	22.83586	7.608431	5.93507
Probability	0.000000	0.000000	0.000011	0.022277	0.00433
Observations	90	90	90	90	90

Source: Authors' Computation (2020).

Based on the descriptive values in Table 1 it is clear that the distribution can be considered as normal and the data set satisfies the requirement for normal distribution. That the sample was drawn from a population that is normally distributed. This is because the highest and lowest values of mean of the dependent and independent variables stood at 9.86961 and 2.530000, this implies that variables with low mean scores do not affect environmental disclosure as much as those variables with high mean scores and vice-versa. Kurtosis is also applied in testing the normality of the distributed data. The descriptive statistics Table shows the highest and the lowest values in respect of Kurtosis which stood at 11.2667 and 1.45927. This also signified that the data is normally distributed. The data is normally distributed because the values of the Kurtosis is greater than 0.30. Another reason is, the dependent variable "ROA" have a Mean and Median values of 9.86961 and

12.20643. The deviation from the mean value is 1.90815. This suggested that the variables are normally distributed since there is no wide gap between the mean and standard deviation.

ERPC have a mean of 3.94000 which means that oil companies have an average mean disclosed to the extent of 3.94000 while the median is 5.30000. The deviation from the average mean is 1.19021 which means that the data were normally distributed since there is no wide gap between the mean and the deviation from the average mean. The skewness and kurtosis stood at 1.57144 and 11.2667. The EPC and ERC have a mean average of 2.530000 and 7.52163. While the median stood at 4.500000 and 6.60327. The deviation from the mean is 0.110000 and 0.690104 which is closely netted. This signified that a single shock produces a positive effect on the ROA of the targeted companies.

Table 4.1: Panel Results for Environmental Cost

Independent Variables	Pooled OLS	Random Effects	Fixed Effects	RE Models with Robust Error Term
Constant	36.1217	25.69178	26.41335	17.28891
EPC:				
Coefficient	.049183***	.042327**	-.049183***	.012808**
t-value	3.09	1.79	3.09	1.74
p-value	0.003	0.073	0.003	0.082
ERC:				
Coefficient	.0001102	.0001102	-.012808**	.0001102
t-value	0.02	0.02	-1.74	0.02
p-value	0.983	0.983	0.082	0.984
EIC:				
Coefficient	.0388474	.0388474	.0985743**	.0688474**
t-value	1.48	1.48	2.56	2.87
p-value	0.142	0.142	0.010	0.021
ERPC				
Coefficient	.7599341***	.7599341***	1.178381***	.7599341***
t-value	2.87	2.87	3.08	2.87
p-value	0.005	0.005	0.002	0.005

Poolability Test F= 3568.60 (0.0000)

Heteroscedasticity Test Chi= 816.53 (0.0000)

Langragian Multiplier Test Chi= 120.39 (0.0000)

Hausman Test Chi= 0.58 (0.9650)

Autocorrelation Test F= 0.842 (0.4010)

No. of Obs.	90	90	90	90
R^2	0.9687	0.4094	0.5766	0.3858
Adj-R^2	0.9652	0.1036	0.4891	0.1576
F-Statistics	275.17	13.86	39.35	249.55
Prob.	0.0000	0.0000	0.0000	0.0000

Source: Authors' Computation (2020)

(*=10% level of significance, **= 5% level of significance, ***= 1% level of significance).

The model reaches statistical significance (Sig. equals 0.0000; this implies that p is less than 0.05). The appropriateness of the result of the Pool OLS model with specific firm effects was tested by the Poolability test. The null hypothesis of this test is, there is zero firm effect. Therefore a significant F-value indicates the rejection of Pool OLS and prefers a fixed-effects model or random-effects model. Due to the inability of pooled OLS to account for within-effects and omitted variable bias, it is necessary to adopt Panel fixed effects and random-effects models. The Hausman specification test was used as prescribed in Clark and Linzer (2012), to choose between FE Model and RE model. Based on the Hausman test, the Random Effects model result is more reliable than the fixed effects model as the P-value of the test is insignificant (P equals 0.4569) at the 5% level. The study used the Langragian Multiplier test, Heteroscedasticity test, and Serial Correlation Test in an attempt to test the validity of results and their appropriateness for policy implementation. For the estimation, the paper used random-effects models with a robust error term that control the presence of Heteroskedasticity.

EPC (Environment Protection Cost), EIC (Environmental Implementation Cost), and ERPC (Environmental Remediation and Pollution Control Cost) exert a positive and statistically significant impact on the performance (ROA) of the simple companies at 5% and 1% level of significance. These results indicated that managers give priority to achieving NESREA requirements (protecting the environment) than considering

the larger society (sustainability activities). This is because deviation from the requirements of NESREA is punishable under the establishment act, 2007. Practically, in a real business situation, the result is plausible; the performance of firms depends heavily on the conducive environment from where they operate and firms with greater financial strength contribute significantly in terms of environmental issues. The result is in agreement with the findings of Makori and Jagongo (2013) and Asuquo, *et al.*, (2018).

The findings of the paper revealed that environmental activities are profitable. Based on the Random Effects model results. Therefore, this study concludes that sustainability reporting proxy by environmental cost exerts a significant impact on the financial performance of multinational oil and gas companies in Nigeria. Thus, the statistics hold that companies that provide better sustainability activities measured by environmental issues achieved the best results in terms of ROA. This is consistent with the findings of Joshi and Li (2016); Natalia (2017); XiaoHui et al., (2012); and Schneider et al., (2013); Rodriguez-Fernandez (2015); Frynas (2009); Nwaiwu and Oluka (2018); Ortas *et al.*, (2014) and Uwalomwa *et al.*, (2018).

5. Conclusion and Recommendations

The paper, therefore, concluded that multinational oil and gas companies are expected to demonstrate much consideration in decision making regarding environmental protection and pollution prevention. The findings of the study suggest that implementing sustainability reporting by oil and gas companies in Nigeria is beneficial for the companies in terms to mitigate environmental cost. Organizations that engaged on environmental protection and development have positive competitive advantages. Impliedly, a percent (1%) increase in environmental activities would resulted in 0.013 (1.3%) increase in ROA (Return on Asset) This is in consistent with the existing literature on environmental accounting in particular and sustainability reporting in general. Based on the findings, the study recommends oil firms to priorities environmental pollution and prevention measures. Furthermore, organizations are enjoined to acquire modern technology and implement new oil and gas production method that prevent environmental degradation.

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