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Environmental Disclosure and Profitability: Evidence from Oil and Gas Firms Listed in Nigeria

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Abstract:

The oil and gas industry of the Nigerian have caused several avoidable environmental degradations to the host communities of the operating firms with the outfits having little or no attention to contributing or incurring much costs to the conservation of these environments for future uses. This study evaluates the relationship between environmental cost disclosure and profitability (performances) of firms in oil and gas industry in Nigeria. Time series data were collected from published annual reports of ten sampled companies for ten years (2010-2019) based on data availability. Ex post facto design was used. Environmental costs were represented in terms of waste management cost, pollution control cost, fines and litigation cost and community development cost while return on assets, ROA, was used as proxy to firm profitability. Pearson product moment coefficient of correlation and multiple regression analysis were used to analyze the data. Econometric result reveals that environmental cost has no significant effect on the performance of oil and gas firms in Nigeria.

Keywords: Environmental disclosure, profitability, oil and gas, Nigeria, polluter pays principle

1. Introduction

The Nigerian productive environment has been grossly neglected leading to numerous negative effects on the existence of human beings – diseases, deaths, global warming etc. This, alongside the increase in the attention to environmental issues has led to drastic measures to sustain the environment and make it habitable by human and other natural creatures. From the international realm, there have been various United Nations conferences on the Environmental Development (Rio Earth Summit of 1992) on climate change.

Emeka-Nwokeji & Okeke (2019) observed that sustainable development is the most important issue facing society today. That it has been observed that some company's activities are devastating the natural environment which might not only prevent future generations from meeting their own needs but also lead to end of these resources.

In Nigeria, the impacts of environmental degradation mostly emanate from the oil and gas industry of the manufacturing sector. This has also led to the enactment of various regulatory statutes such as Environmental Impact Assessment Act of 1992; Harmful Waste (Special Criminal Provisions etc.) Act of 1988 and Environmental Guidelines and Standards for the Petroleum Industry in Nigeria (EGASPN) 2002.

In view of these, the growing awareness on the need 'to meeting the needs of the present generation without compromising the ability of future generations to meet their own needs' (WCED,1987). These needs have been captured in the principle of the 'Triple Bottom Impact' of Economic, Social and Environmental impacts (Elkington, 1998) and involves incurring series of costs on the part of the stakeholders engaged in economic activities in the environment especially the oil and gas exploration companies. This is environmental cost. These costs are in many forms such as staff training, waste management, gas flaring, biodiversity etc. GRI (2013)

The trends of current financial reporting the world over involve incorporating the costs incurred in the firm's contributions towards sustaining the environment. 'Users of accounting information use these to measure the quality of the firm's corporate governance and strategic management towards sustaining the future'. (Isa 2014). These information are seen in notes to the account of annual reports of companies. Ifurueze, Lydon and Bingila (2013) justify incurring environmental cost as a provision of framework to environmental responsibility and corporate financial performance thus, comparing the costs with performance.

Therefore, this paper makes an inquiry into the impacts of disclosing environmental costs of Waste Management, Pollution Control Costs, Fines and Litigation Costs for violation of environmental laws and Community Development Cost

on the performance of firms in oil and gas industry measured by Return on Assets. Specifically, the research tries to ascertain whether or not

- Waste management cost significantly affects firm's performance.
- Pollution control cost significantly impacts on firm's performance.
- Cost of fines and litigation significantly affects performances of firms.
- Community development costs significantly impacts on firm's performances.

The assertion of this paper in their null form is that disclosure of waste management cost, pollution control cost, fines and litigations cost and community development costs do not significantly affect firm performance. This paper extends extant literature to oil and gas sector in Nigeria economy and using quantitative and qualitative environmental disclosures which previous Nigerian researchers have overlooked. Data were extracted from annual reports of selected ten firms from 2010 to 2019 through content analysis. Multiple regression analysis was employed as statistical tool of analysis.

The remainder of this paper is organized as follows. Section 2 presents a review of related literature. Section 3 describes sources and method of collecting data, how the dependent and independent variables were measured and the empirical methods used to test the hypotheses. Section 4 considers the results. Section 5 concludes the study

2. Review of Related Literature

2.1. Environmental Disclosure

In the face of multiple environmental problems, responsible organizations operating in the environment tend to incur reasonable costs geared towards sustaining the continuity of the resources of the environment needed by future generations. These costs have been yardsticks for performance evaluation over corporate responsibility and now duty bound to be incorporated in the company's annual reports. This is the thrust of Environmental Management System (EMS) Standard, which according to Hart and Ahuya (1996) is a good framework to model and environmental assessment.

2.2. Firm Performance

The productivity and result of firms' economic activities over a given period is measured in terms of the components of its financial reports anchored on results and determinants of results. Profitability ratios are used to measure results (profits) by ways of Return on Capital Employed, Return on Equity, Net profit Margin, Return on Assets, Gross Profit Margin etc. while, determinants such as share value performance can be measured in terms of Earnings Per Share, Dividend Yield and Price/Earnings ratios. This research uses Return of Assets.

2.3. Environmental Theories

2.3.1. Stakeholders Theory

The production and economic environment have a lot of stakeholders who derive economic gains from it. They have demanded and used natural resources from the environment. In return, the outfits should treat and manage the environment very well so that the resources would not be used up. This is one of the cardinals focuses of stakeholders' theory. This research adopts the stakeholders' theory as a useful framework because; it explains how firms handle the other stakeholders to their activities and the environment.

2.3.2. Legitimacy Theory

The legitimacy theory posits on the fact that there exists a social contract between the operating corporate organization and the external environment in which it operates. Thus, for the environment to continue to exist and perform its own roles (approval, resources, growth etc.) to the firm, the firm has to perform its own side of the contract by incurring reasonable costs towards sustaining the environment. This research uses legitimacy in its framework.

2.3.3. Polluter Pays Principles (PPP) Theory

This principle simply bends operators towards bearing the responsibilities of their actions. Polluting firms should be held responsible for the effects of their activities on the environment and be made to pay for them. This work incorporates PPP theory in its framework.

2.4. Prior Empirical Studies

Prior studies on this subject in oil and gas sector of Nigeria are not many. Ngwakwe (2008) establishes a possible relationship between sustainable business practice and firm performance. Using a field survey methodology, a sample of sixty manufacturing companies in Nigeria was studied. An investigation was undertaken into the possible relationship between firm performance and three selected indicators of sustainable business practice: employee health and safety (EHS), waste management (WM), and community development (CD). This study revealed that the sustainable practices of the firms are significantly related with firm performance. The paper concludes that, within the Nigerian setting at least, sustainability affects corporate performance.

In a study of Gas Flaring and its implications for Environmental Accounting in Nigeria, Ayoola (2011) using a sample of 10 companies in the Nigerian petroleum industry found out that lack of standardized requirement for disclosure, political will for legislation, enforcement and the allocation of environmental costs are issues plaguing environmental accounting. The study used Environmental Policies, Objectives and Target; Emission Information; Negative

Information; and Environmental Audit. Time series data were collected from annual financial reports and economic review of Central Bank of Nigeria; Pearson product moment coefficient of correlation and multiple linear regression analysis with the aid of statistical package for social sciences (SPSS) version 22 were used to analyze the data. The econometric results reviewed adequate disclosure on environmental cost, compliance to corporate environmental regulations have positive significant effect on financial performance measures. Thus, the study recommended regulatory enforcement for adequate environmental cost disclosure and proper reporting for independent variables compared along their degree of variation.

In a study conducted by Bassey, Effiok, and Eton, (2013) that examines the impact of environmental accounting and reporting an organizational performance with particular reference to oil and gas companies operating in the Niger Delta Region of Nigeria. The study was conducted using the Pearson's product moment correlation co-efficient. The elements were selected by means of random and stratified sampling technique. Data were gathered from primary and secondary sources. Data collected were presented using tables and analyzed using the Pearson's product moment co relational analysis. It was found from the study that environmental cost has satisfied relationship with firm's profitability. It was concluded that environmentally friendly firms will significantly disclose environmental related information in financial statements and reports. The study recommended that firms should adopt a uniform method of reporting and disclosed environmental issues for the purpose of control and measurement of performance and that accounting standards should be published locally and internationally and reviewed continually to ensure dynamism and compliance to meet environmental and situational needs.

Ifurueze, Lydon and Bingilar (2013) studying the impact of environmental cost on corporate performance: a study of Nigeria, used Community Development Cost (CDC), Waste Management Cost (WMC) and Employee Health and Safety Cost (EHSC) for independent variables and Return on Total Assets (ROTA) for dependent variable. Multiple regression analysis was used to evaluate data obtained from 12 sampled oil companies for a period of 12 years and observed that sustainable business practices significantly positively related with corporate performance.

Arong, Ezugwu and Egbere (2014) in a study of environmental cost management and profitability of oil sector in Nigeria in 70 sampled oil companies, using Value of Flared Quantity of Gas (VQGF), Value of Quantity of Gas Utilized (VQGU) and Value of Quantity of Oil Spilled (VQOS) for independent variables and Value of Profit of Gas Produced (PROF) for dependent variable. Multiple regression analytical technique revealed a significant relationship between influence of environmental cost management and the profitability of oil sector in Nigeria.

In studying corporate environmental disclosures and market value of quoted companies in Nigeria, Akinlo and Iredele (2014) using Tobins Q to analyze data, observed that energy policy, impact on biodiversity, award received for installing environmental management system (used for environmental sustainability proxies) have positive impact on market value while environmental pollution and control policy, waste management cost and cost of compliance with environmental laws have negative impact on market value.

Shehu (2014) examines the effect of environmental expenditure on the performance of quoted Nigerian oil companies, within a period of twelve years (1999-2010) using selected firm financial statement of all quoted oil companies listed on the Nigerian Stock Exchange. The data was analyzed using multiple regression, employing 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). They observed that environmental expenditure has significant effect on the performance of quoted oil companies in Nigeria. They therefore recommended among other things that oil companies in Nigeria should increase expenditure on environmental matters in their host communities in order to improve their performance.

Lyndon & Sunday (2018) in studying the environmental responsibility reporting and financial performance of quoted oil and gas companies in Nigeria used secondary data obtained from the annual reports of 13 oil and gas companies quoted on the floor of the Nigeria Stock Exchange (NSE) for the years 2012- 2017. The variables of the study are ENVI (used to represent environmental responsibility reporting), the dependent variable; and return on capital employed (ROCE), and assets turnover (ATOV) as the independent variables as well as proxy for financial performance. The study adopted the ordinary least square (OLS) regression method as the basic technique of data analysis. The study found significant positive relationship between financial performance and environmental responsibility reporting in the oil and gas sector of Nigeria.

Umoren, Akpan & Okafor (2018) in trying to examine the nature of relationship existing between environmental accounting reporting and Oil companies' performance in Nigeria, used eleven (11) quoted oil companies randomly selected from the Nigerian Stock Exchange. The secondary data used were from the audited financial statements (2014-2016) of the Oil companies. Environmental accounting reporting was measured by the costs of air pollution, water pollution, land degradation, staff welfare, community welfare, and litigations. The performance of the Oil companies was measured using return on capital employed (ROCE); net profit margin (NPM), dividend per share (DPS) and earnings per share (EPS). The statistics used in testing the hypothesis was multiple linear regression. The results of the analysis showed insignificant relationships between environmental accounting reporting and performance variables, that is, return on capital employed ($P = 0.175$), net profit margin ($P = 0.95$), earnings per share ($P = 0.423$), and dividend per share ($P = 0.542$).

Nwaiwu, and Oluka, (2018) in studying environmental cost disclosure and financial performance of oil and gas in Nigeria used time series data collected from annual financial reporting and economic review of Central Bank of Nigeria; Pearson product moment coefficient of correlation and multiple linear regression analysis with the aid of special package for social sciences (SPSS) version 22 was used to analyze the data. The econometric results reviewed adequate disclosure on environmental cost, compliance to corporate environmental regulations have positive significant effect on financial performance measures. Thus, the study recommended regulatory enforcement for adequate environmental cost disclosure

and proper reporting. Management of oil and gas companies in Nigeria should develop a well-articulated environmental costing system in order to guarantee a conflict free corporate atmosphere for improved corporate performance.

In a research on the impact of environmental and social disclosure on the financial performance of quoted oil and gas companies in Nigeria, Oti, and Mbu-Ogar, (2018) used time series data for five years which were collected and analyzed using the ordinary least square regression technique. Results from the statistical analysis revealed that disclosure on employee health and safety and community development do not significantly affect financial performance while disclosure on waste management had a positive and significant effect on firm's financial performance. The work recommended that oil and gas companies should constantly review their waste management strategy and employ bespoke technology in waste management to mitigate their impact on the environment. Furthermore, Oil and gas companies should improve on employee health and safety as part of their mission and vision statement for enhanced firm value. Companies should also ensure sustained development of their host communities to avoid hostility by stakeholder groups which will have negative effect on its operations and in turn affects performance.

3. Methodology

This study adopted ex post facto research design. The existing data of corporate environmental disclosures (explanatory variables) were extracted from the annual reports of the selected companies through content analysis using dummy variables of '1' and '0' to assign quantitative values to all qualitative specific disclosures in addition to quantitative specific environmental disclosure. On the other hand, data for the firm performance (dependent variables) were gathered from Machame RATIOS, a database maintained by Talk Data Associates (www.machameRATIOS.com). The data was analysed using pooled ordinary least square regression with the aid of the Statistical Package for Social Sciences (SPSS) software. Before analyzing the pooled data, some preliminary statistics such as descriptive statistics, normality, correlation and two post-regression diagnostic test (multicollinearity and heteroscedasticity) were also conducted to confirm assumptions of regression. The population of the study is made up of all 13 oil and gas companies quoted on the Nigerian Stock Exchange (NSE, 2019). However, for the purpose of sampling, 10 out of the 13 companies from the oil and gas sector were chosen based on the consistent availability of data on the variables for the years under review (from 2010-2019).

3.1. Variables and Measurement

3.1.1. Independent Variables (X)

The independent variables as denoted by X are made up of four components of waste management cost, energy cost, fines and litigation cost for noncompliance with environmental laws and community development costs. Thus

X_1 =Waste Management Cost disclosure (WMCOST)

X_2 = Pollution Control Cost (PUCCOST)

X_3 = Fines and Litigation for non- Compliance's disclosure (FLCOST)

X_4 = Community Development Cost (CDC)

3.1.2. Dependent Variable (Y)

The dependent variable as denoted by Y refers to proxy or measurement of firm performance. This is given as;

ROA=Return on Assets

where:

ROA has been calculated as:
$$\frac{\text{Profit after Tax}}{\text{Total Assets}}$$

In line with the Global Reporting Index (GRI) guidelines, as used in previous studies (Uwuigbe, (1999), Ong, Teh and Ang (2014), Akanno, Radda and Uzodinma (2015) and Akinlo and Iredele (2014), a check list was developed comprising of four (4) themes, Waste Management Cost (WMCOST), Pollution Control Cost (PUCCOST), Fines on Litigation on Environmental Laws (FLCOST), and Community Development Cost (CDC). The scoring method employed for the study states that: If an item is disclosed, '1' is assigned and if not disclosed, '0' is assigned. When the level of indicator disclosed is quantitative, 3 is assigned and 2 if the level is qualitative.

Therefore, the value of either WMCOST, FLCOST, PUCCOST or CDC index is total level of disclosure divided by total occurrence. A firm could score a minimum of 0 point and maximum of 5 points.

3.2. Model Specification

In order to empirically analyze the relationship between environmental cost and firm performance, a multiple regression analysis model of Emeka-Nwokeji & Okeke (2019), and Oti & Mbu-Ogar (2018) were adapted for the study

$$Y = b_0 + b_1X_1 + b_2X_2 + b_3X_3 + b_4X_4 + e \dots (i)$$

Where:

Y = the dependent variable which describes firm performance.

X = the independent variables which describe components of environmental disclosure.

b_0 = a constant and intercept of the regression.

b_1, b_2, b_3, b_4 = the coefficients of the regression while

e = the error term capturing other variables not included in the model.

Thus, the econometric model of the current study is:

$$ROA = b_0 + b_1 \text{ WMCOST} + b_2 \text{ PUCCOST} + b_3 \text{ FLCOST} + b_4 \text{ CDC} + e \dots (ii)$$

4. Empirical Analysis

4.1. Descriptive Statistics

The descriptive statistics result reveals the characteristics of the data. It shows features like mean for each of the variables, their maximum values, minimum values, standard deviation and the jarque-bera normality test.

	ROA	WMCOST	FLCOST	CDC	PUCCOST
Mean	0.315360	0.134110	0.039730	0.347320	0.191020
Maximum	1.230000	0.189000	0.182000	0.909000	1.230000
Minimum	0.040000	0.070000	0.006000	0.090000	0.040000
Std. Dev.	0.251030	0.030659	0.031535	0.130688	0.193452
Jarque-Bera	70.16594	0.809024	286.2912	56.85474	1426.371
Probability	0.000000	0.667302	0.000000	0.000000	0.000000
Observations	100	100	100	100	100

Table 1: Descriptive Statistics

Source: Researcher's (2020)

The result provided some insight into the nature of the data collected from the selected oil and gas firms that were used in the study. Firstly, it was observed from the result that within the period under review, the sampled firms have return on assets mean value of 0.3154. The mean value reveals that the firms over the period of study performed well in terms of return on assets. The maximum value of return on assets is 1.2300. The minimum value was 0.0400. These indicate that the companies used in the study perform better when using return on assets measures. The study also observed from the result the large difference between the maximum value and the mean value, and between the minimum value and the mean value indicates that only few of the firms perform highly (above the average) within the period under review. Secondly, it was observed that on the average over the period, the selected firms incurred, waste management cost of 0.1341, maximum and minimum value of 0.1890 and 0.07000 respectively, the large difference between the maximum and minimum values of waste management cost reveals that few of the selected firms spend below the average cost of 0.1341. Fine and litigation cost has a mean value of 0.0397, maximum value of 0.1820 and minimum value of 0.0060; the large difference between the mean and minimum shows that most firms spend little on Fine and litigation cost. Community development cost has a mean value of 0.3473, maximum value of 0.9090 and minimum value of 0.0900. The small difference between the mean value and the minimum shows that only few firms spend highly on community development cost. The table shows that pollution control cost has a mean value of 0.1910, maximum value of 1.2300 and minimum value of 0.0400. The mean reveals that oil and gas firms spend a similar amount on pollution control while only few spend highly in controlling pollution within the period under review.

Lastly, the Jarque –bera (JB) which tests for normality of the data or the existence of outlier shows that all the variables are normally distributed at 1% level of significance except waste management cost which was normally distributed at 5% level. This means that there is no variable with outlier that may likely distort our conclusion; hence the result is reliable for drawing generalization.

4.2. Correlation Analysis

In examining the relationship among the variables, the study employed the Pearson correlation analysis (all at 5%) and the results are presented in Table 2.

	ROA	WMCOST	FLCOST	PUCCOST	CDC
ROA	1.000000				
WMCOST	-0.131919	1.000000			
FLCOST	0.113520	-0.025023	1.000000		
PUCCOST	0.605428	-0.098088	0.021375	1.000000	
CDC	0.050314	-0.047696	-0.117523	0.052623	1.000000

Table 2: Pearson Correlation Matrix

Source: Researcher's Summary (2020) of E-View 8

The findings from the correlation analysis, shows that Waste management cost has a negative relationship with return on assets. This indicates that the more oil and gas companies disclose their wastes management costs, the less their performance tend to be in terms of return on assets. Waste management cost is negatively related with fine and litigation cost, pollution control cost and community development cost. Community development cost disclosure and pollution control cost disclosure are positively related with return on assets. This positive relationship shows that community development cost and pollution control cost directly influence the level of performance of oil and gas firms. Fine and litigation cost has negative relationship with community development cost, this indicates that the more an oil and gas firm discloses its community development costs, the lesser they tend to disclose its fine and litigation cost. In checking for multi-co linearity the study noticed that no two explanatory variables were perfectly correlated. This indicates the absence of multi-collinearity problem in the model used for the analysis and also justifies the use of the ordinary least square.

4.3. Regression Analysis

4.3.1. Hausman Effect Analysis

In order to test for the homogenous nature of the firms used for the study and to ascertain the effect that plays dominant role on the data, the study adopted the correlated effects test. Hausmann Test was used to determine between fixed (time) and random (cross sectional) effect, which plays more on the data collected from the firms used in the study.

Hausmann Test Decision rule

- H_0 – random effect is more preferable to fixed effect
- H_1 – fixed effect is more preferable to random effect

When chi-square probability value is less than 10 – reject H_0 and accept H_1

When chi-square probability value is greater than 10 – accept H_0 and reject H_1 .

Correlated Random Effects - Hausmann Test Equation: Untitled Test cross-section random effects			
Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
ROA	4.837967	4	0.3043

Table 3: Summary of Hausmann Test for the Dependent Variable's Model

The Hausmann Test result for Return on Assets shows a Chi- Sq statistic value of 4.838, Chi-Sq. d.f. value of 4 and Probability value of 0.3043. The probability value of 0.3043 is above 10% level of significance. Based on the result, the study rejects the alternate hypothesis which states that fixed effect is preferable to random effect and accepts the null hypothesis which states that random effect is preferable to fixed effect. The random effect adjusted regression result for the model is presented in Table 4below.

4.3.2. Hypotheses Testing

To examine the effect of environmental sustainability cost disclosure on performance of oil and gas firms, the study used the multiple regression analysis. The result obtained is given in Table 4below.

Dependent Variable	Coefficient	Std. Error	t-stat.	Prob.
ROA				
WMCOST	-0.637037	0.572917	-1.111920	0.2693
PUCCOST	0.707941	0.097286	7.276882	0.0000
FLCOST	0.081145	0.612375	0.132509	0.8949
CDC	0.160660	0.148186	1.084172	0.2813

Table 4: Multiple Regression Analysis

Cross sectional: $R^2 = 0.585$; Adjusted $R^2 = 0.522$; F-value = 9.325; Prob. (F-stat.) 0.000; Durbin Watson Stat. =1.726.
Source: Researchers Summary of OLS regression Analysis from E-view 8

5. Discussion of Result

On the cross-sectional joint effect of all independent variables on the dependent variable and its statistical significance the study observed from the result of Return on Assets (model ii), the R. sq value of 58.49% and R-sq (adj) 52.22% indicates that all the environmental disclosure variables used, jointly explain about 52.22% of the variation in return on assets of oil and gas firms. Thus about 52.22% of the performance of oil and gas firms can be attributable to the environmental sustainability cost. The F-statistics value of 9.325 and its probability value of 0.000 shows that return on assets model used is appropriate and statistically significant. The Durbin Watson statistics result was 1.726 indicates the absence of autocorrelation in our model hence the model used is appropriate for the study.

Having found the absence of autocorrelation in each of the models used in hypothesis (i-iv) formulated, and thus justifying the use of the models, the result of hypothesis tested are analyzed thus:

- Hypotheses 1: Waste management cost has no significant effect on firm performance.

The analysis result of return on assets model shows coefficient value of -0.637, and a P-value of 0.269. The analysis indicates that waste management cost disclosure negatively affects the performance of oil and gas firm via return on assets. This result reveals that #1.00 increase in waste management cost will lead to about #0.64 decrease in return on assets of oil and gas companies in Nigeria. The probability value reveals that the effect of waste management cost on return on assets is statistically insignificant. Based on this result, the study accepts the null hypothesis and rejects the alternate hypothesis, it therefore concludes that, waste management cost has no significant effect on performance of firms quoted oil and gas companies in Nigeria. This is in line with the findings of Ngwakwe (2018), Umoren, Akpan and Okafor (2018) and Oti & Mbu-Ogar (2018) and contrary to those of Ifurueze et al (2013); and Nwaiwu & Oluka (2018). The finding is also in line with the assumptions of legitimacy theory which believes that environmental practices such as incurring

costs to curb or remedy environmental disasters help a firm in gaining social legitimacy and then attracts increased patronage and revenue. It also partly moves in tandem with the PPP theory which believes that every polluting firm must pay for the harms they caused the environment.

- Hypotheses 2: Pollution control cost has no significant effect on firm performance.

The results show that return on asset model shows a coefficient value of 0.708, and a P-value of 0.000. The positive coefficient value indicates that pollution control cost positively affects the performance of firms in the oil and gas sector. This implies that a #1.00 increase in pollution control cost will result in #0.71 increase in return on assets and a #0.08. The probability value reveals that pollution control cost has insignificant effect on return on assets. Based on this result, the study accepts the alternative hypothesis and rejects null the hypothesis. It therefore concludes that, pollution control cost has significant effect on performance of firms quoted oil and gas sector of the Nigeria Stock Exchange. This is in line with the findings of Nwaiwu & Oluka (2018) and Ifurueze et al (2013) and contrary to that of Oti & Mbu-Ogar (2018). It also affirms the PPP theory which simply underlies that every polluting firm must replenish the losses and harms they caused the environment.

- Hypotheses 3: Fine and litigation cost has no significant effect on firm performance.

The result of return on assets model shows it has coefficient value of 0.081, and a p-value of 0.895. The positive coefficient value indicates that Fine and litigation cost has positive effect on performance of oil and gas firms when measured using return on assets. This indicates that for every #1.00 extra cost incurred on fines and litigation cost, a #0.81 increase in return on assets will be recorded. The probability value reveals that fine and litigation cost has insignificant effect on performance leading to accepting null hypothesis and rejecting alternative hypothesis and thus concluding that litigation cost has no significant effect on the performance of oil and gas companies quoted in the Nigeria Stock Exchange. This finding is in line with that of the results of Umoren, Akpan and Okafor (2018) and contrary to the findings of Nwaiwu & Oluka (2018). The finding is partly in line with the assumptions of legitimacy theory which believes that obeying environmental laws leading to low incurring of fines and litigation costs help a firm in gaining social legitimacy and then attracts increased patronage and revenue.

- Hypothesis 4: Community development cost has no significant effect on firm performance.

The analysis result of return on assets model shows a coefficient value of 0.1607, and a P-value of 0.281. This indicates that community development cost positively affects the return on assets of oil and gas firm. The positive effect indicates that an increase in community development cost will lead to an increase in the performance when measured using return on assets. The probability value reveals that community development cost has insignificant effect on return on assets. Based on this result, the study accepts the null hypothesis and rejects the alternative hypothesis. The study therefore concludes that, community development cost has no significant effect on performance of firms quoted under the oil and gas sector of the Nigeria Stock Exchange. This is in line with the findings of Ngwakwe (2008) and contrary to the results Bassey, Effiok and Etton (2013) and Ifurueze et al (2013). It also confirms the stakeholder's theory which sees the environment as a part of the business interests. That the firm should strive to protect the environment and preserve its human and material resources. Thus, costs incurred in development projects in the community where the firm exists will definitely increase its ROA

6. Conclusion and Recommendation

Generally, the research concludes that environmental cost disclosure has no significant effect on the performances of oil and gas firms listed in the Nigerian stock exchange.

Based on the results and conclusions above, the researchers hereby recommend that policy makers and regulators of accounting practices in Nigeria should come up with regulatory framework and standards for environmental accounting and costs disclosures so as to make it compulsory. This should also be enforced. Also, companies in oil and gas industry should step up in incurring and disclosing more costs to reflect responsive environmental responsibilities that will sustain their operating environments for present and future uses. Government should as well give tax incentives, recognition and awards to companies in this sector which strictly adhere to environmental laws of the nation.

7. References

- Adelegan, M. M. (2004). *Nigerian Petroleum Law and Practice*, Ibadan, Nigerian Fountain Books.
- Akanno, S.N, Che, F, Radda, A & Uzodinma, I (2015). Patterns of corporate Social and Environmental Disclosure in Nigeria, *International Journal of Business and Finance Management Research* 3, 71-82, accessed online from www.bluepenjournals.org/ijbfmr on 4th May, 2020
- Akinlo, O.O & Iredele, O.O (2014). Corporate environmental disclosure and market value of quoted companies in Nigeria. *The Business and management Review*, 5(1).
- Albatayneh, R.M.S (2014). *Then Effect of Corporate sustainability performance of the Relationship between Corporate Efficiency Strategy and Corporate Financial Performance*. A PhD Dissertation Submitted to Graduate Business School of the University of Malaysia.
- Archel, P., Husillos, J., Larrinaga, C., & Spence, C. (2009). Social Disclosure, Legitimacy Theory and the Role of the State. *Accounting, Auditing and Accountability Journal*, 22 (8).
- Arong, F. E, Ezugwu, I & Egbere, M.I (2014). Environmental Cost management and profitability of oil sector in Nigeria. *Journal of Good Governance and sustainability Development in Africa*, 2(20), 181-192
- Arvidson, S. (2011). Disclosure of Non-Financial Information in the Annual Report; A Management-Team Perspective. *Journal of Intellectual Capital*, 12(2), 277-300.

- viii. Ayoola, T. J (2011). Gas Flaring and its Implication for Environmental Accounting in Nigeria. *Journal of Sustainable Development*, 4(5), October 2011 [dio:10.5539/jsd.v4n5p244](https://doi.org/10.5539/jsd.v4n5p244). Accessed from www.ccsenet.org/jsd on 3rd May, 2020.
- ix. Bassey, B., Effio, S.O & Elton, O. E (2013). Environmental Sustainability and Firm Performance. *Research Journal of Finance and Accounting*, 4(3). Accessed from www.iiste.org on 4th May, 2020.
- x. Berry, M & Rondinchi, D (1998). Procreative corporate management: environmental new industrial revolution, *The academy of management Executive* 12(2) 40-44.
- xi. Brey C, & Haavaldsen M (2014). Exploring the Relationship Between Sustainability Disclosure, Financial Performance and Initial Public Offerings- UK evidence among recently listed companies on the AIM. Master's Thesis submitted to Copenhagen Business School.
- xii. Burhan, A. H., & Rahmanti, A (2012). The impact of sustainability reporting on company performance, *Journal of Economics, Business, and Accountancy Ventura* 15 (2), 257 – 272.
- xiii. Chukwuma, R. N. (2015). Influence of Environmental Costs on the Performance of Some Selected Quoted Manufacturing Companies in Nigeria. An MSc Thesis submitted to faculty of Business Administration, University of Nigeria, Enugu Campus.
- xiv. Clarkson, P.M., Lic, Y, Richardson, G.D & Vasvari, F.P (2011). Does it really pay to be green? Determinants and consequences of Procreative environmental strategies. *Journal of accounting and public policy*, 30(2).
- xv. Deegan C. (2002). Introduction: The Legitimizing Effect of Social and Environmental Disclosures – a Theoretical Foundation. *Account, Auditing Accountability Journal* 15(1).
- xvi. Edgin, L. & Okomah, I.E. (2010). Mystifying Development Policy Strategies in the Niger Delta: The Unending Mistake. *Journal of Research in National Development*, 8(2)
- xvii. Elkington, J. (1998). Partnerships from cannibals with forks: The triple bottom line of 21st-century business. *Environmental Quality Management*, 8(1), 37-51.
- xviii. Emeka-Nwokeji, N. A. & Okeke, P. C (2019). Evaluating Corporate Environmental Disclosures and Performance of Quoted Non-Financial Firms in Nigeria. *Journal of accounting, business and social sciences*, 1(2) 2672-4235.
- xix. Ezeabasili, N.(2009). Legal mechanism for achieving sustainability in Nigeria. *African Research Review*, 3(2), 369-381
- xx. Fiori, G; Donato, F; & Izzo, M.F (2015). Corporate social responsibility and firms Performance. An analysis on Italian listed companies. Accessed from <http://ssrn.com/abstract=1032851>, 2nd May, 2020.
- xxi. Gatimbu, K.K & Wabwire, J.M (2016). Effect of Corporate Environmental Disclosure on Financial Performance of Firms listed at Nairobi Securities Exchange, Kenya, *International Information Technologies*, 2(1): 1-6 Accessed online from. www.sciencepublishinggroup.com/j/ijsmit.rm on 2nd May, 2020.
- xxii. Glautier, M.W.E & Underdown, B (2009). *Accounting theory and Practice* (7th ed) England: Pearson Educational Limited.
- xxiii. Gray, R. & Bebbington, J. (2000), 'Environmental Accounting, Managerialism and Sustainability: Is the planet safe in the hands of business and accounting?' *Advances in Environmental Accounting & Management*, 1(1), 1-44.
- xxiv. GRI (2013). *Sustainability Reporting Guidelines, Version. 3.1 Standard Disclosures: Performance Indicators*. Retrieved from <https://www.globalreporting.org/Pages/default.aspx> on 10th May, 2020.
- xxv. Growther, D. (2000). *Social and environmental accounting*. London: Financial Times. Prentice Hall.
- xxvi. Harte, G. & Owen, D. (1991), 'Environmental Disclosure in the Annual Reports of British Companies: A Research Note', *Accounting, Auditing & Accountability Journal*, 4(3).
- xxvii. Hill, C.W.L & Jones, G.R. (2009). *Theory of Strategic Management with case* (8th ed), Australia: South Western Cengage Learning.
- xxviii. Idemudia, U. (2007). Corporate Partnerships and Community Development in the Nigerian Oil Industry: Strengths and Limitations. United Nations Research Institute for Social Development.
- xxix. Ifurueze, M.S.K, Lyndon M. E., & Binglar P. F. (2013). The impact of Environmental Cost on corporate Performance: A study of oil companies in Niger Delta States of Nigeria, *Journal of Business and Management* 2(2), 1-10.
- xxx. Kasbuna, N. F., Tho, B. H. & Ong, T. S. (2016). Sustainability Reporting and Financial Performance of Malaysian Public Listed Companies. *Institutions and Economics* 8, (4).
- xxxi. Kimenyi, M.S., Deresa, T & Pugliese, J. (2013). Community-Driven Development in Nigeria's Niger Delta Region. *Africa in Focus*, 2(1).
- xxxii. KPMG International (2013). *The KPMG Survey of Corporate Responsibility Reporting 2013*. Amstelveen: KPMG International. Available
HTTP:<<http://www.kpmg.com/global/en/issuesandinsights/articlespublications/corporate-responsibility/pages/corporate-responsibility-reporting-survey-2013.aspx>> (accessed 22 June 2020).
- xxxiii. Krecheld, D & Fernando, H (2009). Undisclosed Risk: Corporate Environmental and Social Reporting in Emerging Asia, Retrieved from <http://www.wri.org> on 1st May, 2020.
- xxxiv. Kubeyinje, K & Neziyana, T.(1999). Delta Communities Protest Neglect, Press for Government Aid, Oil Company compensation. *Africa Recovery*, 13(1).
- xxxv. Kwanghfan, O. (2005). The Impact of Sustainability Reporting on Corporate Performance of selected Quoted Companies in Nigeria. PHD thesis submitted to Faculty of Business Administration, University of Nigeria, Enugu Campus.

- xxxvi. Liu, Y.S., Zhou, X Yang, J.H & Hoepner, A.G. (2016) corporate Carbon emission and financial Performance: Does carbon emission disclosure mediate the relationship in the U.K? A discussion paper presented to ICMA Centre, Henley Business School, University of Reading and Technical Advisory Committee (Data), Carbon Disclosure Project. Accessed from www.cmacentre.ac.uk on 10th May, 2020.
- xxxvii. Malarvizhi, P & Matta, R. (2016). 'Link between Corporate Environmental Disclosure and Firm Performance' Perception or Reality?, *Review of Integrative Business and Economics*, 5(3) 1-34. Accessed from <http://buscompress.com/journal-home.html> on 2nd May, 2020.
- xxxviii. McGin (2009), *The Greatest Big Companies in America* Newsweek, pp 55-60.
- xxxix. Nathanson, J.A (2017). Pollution, Environment. *Encyclopedia Britannica*. Accessed on-line on 10th May, 2020.
- xl. Ngwakwe C.C (2008). 'Environmental Responsibility and Firm Performance: Evidence from Nigeria'. *International Journal of Social, Management, Economics and Business Engineering* 2(10).
- xli. Nwaiwu, N.J & Oluka, N.O (2018). Environmental cost disclosure and financial performance of oil and gas in Nigeria. *International Journal of Advanced Academic Research/Finance Management*, 4(2) 1-23.
- xlvi. Nyirenda, G., Ngwakwe, C. C. and Ambe, C. M. (2013). Environmental Management Practices and Firm Performance in a South African Mining Firm. *Managing Global Transitions* 11 (3): 243-260.
- xlvi. Ogbodo S.G. (2010). Environmental Protection in Nigeria: Two decades after the Koko incident. *Annual Survey of International and Comparative Law* 15(1)
- xlv. Olawale, A. S. (2010). The Impact of corporate social responsibility on the profitability incident, *Annual Survey of International and Comparative Law* 15 (1).
- xlv. Omodero C.O & Ihedinihu, J.U (2016). Impact of Environmental and Corporate Social Responsibility Accounting on Organizational Financial Performance; Evidence from Selected Listed firms in Nigeria. *Journal of Emerging Trends in economics and Management Science*, 7 (5), 291-306.
- xlvi. Ong T. S., Teh B. H., & Ang Y. W. (2014). The Impact of Environmental Improvements on the financial Performance of Leading Companies Listed in Bursa Malaysia. *International Journal of Trade, Economics and Finance*, 5 (5).
- xlvii. Ong T.S., Tho H.S., Goh H.H., Thai S.B. & Teh B.H (2016). The Relationship between Environmental Disclosure and Financial Performance of Public Listed Companies in Malaysia. *International Business Management* 10(4).
- xlvi. Onyali C. I., Okafor T. G., & Egolum, P. (2014). An Assessment of Environmental Information Disclosure practices of selected manufacturing companies. *International Journal of finance and Accounting*, 3 (6), 349-355. doi: 10.5923/j.jifa.20140306.03.
- xlix. Organisation for Economic Co-operation and Development (OECD) (2011) *OECD Sustainable Manufacturing Toolkit: Seven Steps to Environmental Excellence*, Paris: OECD. Online. Available HTTP: <<http://www.oecd.org/innovation/green/toolkit/48704993.pdf>> (accessed 15 November 2020).
- l. Oti, P.A & Mbu-Ogar, G.B (2018). Analysis of environmental and social disclosure and financial performance of selected quoted oil and gas companies in Nigeria (2012-2016). *Journal of Accounting and Financial management*, 4(2) 1-11.
- li. Richardson, A., & Welker, M. (2001). Social Disclosure, Financial Disclosure and the Cost of Equity Capital. *Accounting, Organizations and Society*, 26 (7), 597-616.
- lii. Stefan, K (2015). Effects of non-Renewable Resources on Living Organisms www.solarschools.net. (retrieved January 8, 2020).
- liii. Uadiale, O.M & Fagbemi, T.O (2012), Corporate social responsibility and financial performance in developing economies: The Nigeria experience, *Journal of Economics and Sustainable Development* 3(4) 44-55
- liv. Ugbomeh, B.A. & Atubi, A.O. (2010). The Role of the Oil Industry and the Nigerian State in Defining the Future of Niger Delta Region of Nigeria. *African Research Review*, 4(2).
- lv. Ulterlacher, J & Malan, D. (2008). The Corporate Response to sustainability Reporting. Retrieved from <http://www.ubs.ac.za>, 1st May, 2020.
- lvi. Umoren, A.O., Akpan, M.O & Okafor, L.N (2018) Oil Companies and environmental accounting reporting in Nigeria. *Asian Journal of Economics and Accounting*, 8(1) 1-8
- lvii. Vijfinkel, S., Bouman, N. & Hessels, J. (2011). Environmental sustainability and financial performance of SMEs. *Scientific Analysis of Entrepreneurship and SMEs* (accessed from www.entrepreneurship-sme.eu on 10th May, 2020)
- lviii. World Business Council for sustainable Development (2002). The business case for sustainable development. Switzerland. Retrieved from [http://www.wbcsd.ch/DocRot/r/Business- case PDF](http://www.wbcsd.ch/DocRot/r/Business-case%20PDF) on 1st may, 2020.