Environmental Costs and Key Financial Performance Indicators of Oil Firms in Nigeria

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Abstract

This study examined the effect of environmental costs on the key financial performance indicators of oil firms in Nigeria. The study specifically examined the effect of environmental cost on the retained earnings, earnings per share and the return on asset of oil firms in Nigeria. A sample of three firms was selected out of a population of eleven oil and gas firms listed on the Nigeria Stock Exchange during the period. Secondary data were collected from the selected firms and analysed using multiple regression analysis. Findings of the analysis shows that environmental cost has a positive and insignificant effect on the retained earnings of oil firms in Nigeria. It was also observed that environmental cost has a negative and insignificant effect on the earnings per share of oil firms in Nigeria. The study equally revealed that environmental cost has a positive and significant effect on the return on asset of oil firms in Nigeria based on the findings, the study recommends that oil firms should adopt uniform reporting and disclosure standards of environmental cost for the purpose of control and measurement of performance. Firms (especially smaller ones), should be encouraged to disclose their environmental practices in their annual reports to enhance their competitiveness which would subsequently lead to high corporate performance. Top management should ensure that they comply with the environmental laws of the nation as it will go a long way in enhancing sustainability.

Keywords: *Environmental Cost, Retained earnings, Earning per share, Return on asset.*

1. Introduction

Over the years most African countries have not paid adequate attention on the issue of environmental accounting to show a proper information on the environmental cost of the oil firms. In industrialized countries such as the US and the UK, serious attentions have been paid to activities that degrade the environments and their related cost implications on the performance of oil firms. In other words, environmental accounting has developed to the extent that it has been incorporated in the System of National Account. Norway, has also done this incorporation in 1970, Philippines in 1990, Namibia in 1994 and Indonesia in 2016. Saudi Arabia, one of the major oil producing countries has also provided for environmental accounting to checkmates the activities of industries that degrades the ecosystem through pollution and degradation of natural environment. Prior

evidences have linked environmental accounting to industrial performance (Adams, 2019). By attempting to compel companies to report environmental issues, Legislations were enacted in some of the developed countries. Some of them include: The 1997 Kyoto Protocol, World Bank Global Gas Flaring Reduction (GGFR) Public-Private Partnership, 2017, The 2017 Bali Climate Declaration by Scientists, The UNCTAD 2016, U.S.EPA, 1995; IUCN 1980 etc.

In Nigeria many legislations have been enacted (such as: Associated Gas Reinjection Act Cap 26, LFN 1990, The Federal Environmental Protection Agency Act Cap, 131 LFN 1990, Statement of Accounting Standards (SAS) 14 and 17 which regulate both the upstream and downstream sectors of the petroleum industry and the Nigerian Gas Master Plan, 2018 which is a guide for the commercial exploitations and management of Nigeria's gas sector aimed at growing the economy with gas) for the protection of the environment. There is no such law on environmental accounting that has compelled the firms to report this environmental information separately in annual reports and accounts. The report of the Environment Research Group (ERG) of the institute of Chartered Accountants in England and Wales (ICAEW) recommends as part of the annual reporting cycle, that company should publish details of the company's environmental policy, detail of director's overall responsibility for environmental issues and the company's environmental objectives which should be expressed in a way that enables performance against them to be measured as well as information on actions taken to preserve the environment (Ali, 2017).

Proponents of environmental accounting argue that the use of environmental accounting is very important while others were of the opinion that it does not. Interestingly, Ali, (2017) acknowledges that the use of environmental accounting has gained consensus among the developed countries because allows companies to reduce the level of degradations on the environment which in turn lead to the reduction in the level of penalties and fines, and other social costs. It makes companies to be socially responsible to the society. Available evidence suggest that the neglect of the environment in Nigeria have been enormous (Amahalu, Obi, Abiahu, and Okosuogwe, 2018). This according to Boyd, (2018) has necessitated local groups to declare force majeure on oil shipments and to engage in various heinous crimes such as oil theft commonly referred to as bunkering, pipeline damage, abduction of oil workers and forcing companies to shut in production. Deeegan, and Gordon, (2016) report shows that since December 2018, Nigeria has experienced increased pipeline vandalization, kidnappings and militants takeovers of oil facilities in Niger Delta. This is an attempt to seek for a redistribution of oil wealth since their environment is not taken care of by the company, and in most cases accuse the industry of abandoning the goose that lays the golden eggs. Moreover, kidnapping of oil workers for ransom and vandalisation of oil facilities are common, most of which arises because of the neglect meted on the environment from which this oils are extracted. EPA (2016) concurred with Awasthi when he noted that oil industry in Niger-Delta had severally been blamed for polluting the environment. For instance, a research carried out by Guthrie, and Parker, (2018) indicated that oil and gas companies operating in Nigeria had been fined, and made to pay some compensations for outright neglect of the environment. Apart from pollution caused by oil, natural gas often associated with oil

production is always flared to the environment and the damages to the ecosystem not accounted for by the company who are supposed to take financial responsibility of any damages done as a liability in their financial statements. Environmental Protection Agency (2016) summarized these costs in a model called Environmental Quality Reporting (EQR) model with the following components of costs Environmental operating expenditure (EOPEX), Environmental Externality Expenditure Cost (EEXTC) and Environmental Pollution Prevention Expenditure (POPREV).

Based on the foregoing, this study has set to investigate the extent to which Petroleum companies report the aforementioned costs and their effect on sustainable performance of firms in Nigeria. Stakeholders such as regulators and policy makers will find this research very interesting. The research also add to literature on the area of environmental accounting in Nigeria. It will also help to reduce conflicts between the companies and stakeholders. This study is therefore aimed to determine the effect of environmental accounting practices on the sustainability of Nigerian oil firms.

The response of firms to environmental liabilities has brought about the reconfiguration of corporate performance indices in a larger context under the subtle influence of environmental and social factors, in order to develop a holistic panorama of an entity's performance. This has led to a growing demand from various stakeholders for measurement of a company's environmental practices and subsequent public disclosure of this information. As a result, a new area of accounting has emerged regarding environmental accounting. The interest of accounting in the environment emerged from the reality that management needed financial data on environmental expenditures as a result of the increasing needs of different stakeholders such as; government, investors, lenders, general public, customers, etc to have financial data on environmental performances of different organizations reported in financial statements (Guthrie, and Parker, 2018). Consequently, the absence of comprehensive and verifiable information on environmental practices of companies may signal a practice where companies can pollute the environment and yet appear more economic efficient than others which incur costs to protect the environment. It is against this backdrop that the researcher has decided to examine the effect of environmental costs accounting on the earnings performance of oil firms in Nigeria. Specifically, the objectives of this research work includes the following;

- to examine the effect of environmental cost on the retained earnings of oil firms in Nigeria;
- to ascertain the effect of environmental cost on the earnings per share of oil firms in Nigeria.
- to determine the effect of environmental cost on the return on asset of oil firms in Nigeria.

2. Review of Related Literature

2.1 Conceptual Review

2.1.1 Environmental Costs

Environmental costs are costs incurred by companies in order to protect the environment, prevent environmental problems and minimize damages to the environment. They are those costs incurred in compliance with, or prevention of breach of environmental laws, regulations and company policies. However, the true environmental costs to a firm can be far broader, including costs of resources both those directly related to production and those involved in general business operations, waste treatment and disposal costs, the costs of poor environmental reputation and the cost of paying an environmental risk premium. The U.S. Environmental Protection Agency (2016) defines environmental costs as those costs that have a direct financial impact on a company (internal costs), and costs to individuals, society and the environment (external costs). Any activity conducted by enterprises in their environments leads to the emergence of environmental costs. Some of the environmental costs arise as a result of actions taken to protect the environment and occur as a result of the use of environmental resources. Another part of these costs arises due to environmental pollution caused by these companies. Environmental costs can be divided into three different groups: reduction costs, operating costs and damage costs (Guthrie, and Parker, 2018).

Environmental accounting covers information relating to all aspects of the environment. It includes environment-related expenditure, environmental benefits of products and details regarding sustainable operations (Freeman, 2017). Environmental accounting provides details of the role played by the natural environment in the economy. It provides data which highlight both the contribution of natural resources to economic well-being and the cost imposed by pollution of resource degradation (Hackston, and Milne, 2016). Environmental accounting according to Hackston, and Milne, (2016) enables organizations to track their environmental data and other greenhouse gas (GHG) emissions against reduction targets, and facilitates environmental reporting to provide sustainability related data that is comprehensive, auditable, and timely to advance and strengthen the interdependent and mutually reinforcing pillars of sustainable performance and development and environmental protection in Nigeria.

Letmathe and Doost (2018) pointed out that Environmental accounting as a prevalent subject in the international community is not yet a priority in Nigeria. Ngwakwe, (2018) noted that environmental cost does not only refer to costs paid to comply with regulatory standards and costs which have been incurred in order to reduce or eliminate releases of hazardous substances but includes all other costs associated with corporate processes which reduce adverse effect on the environment. Onyali, Okafor, and Egolum (2019) define environmental costs 'as costs associated with the creation, detection, remediation and prevention of environmental degradation. They therefore, classify environmental costs into four categories of: 1) Prevention Costs, 2.) Detection Costs, 3) Internal Failure Costs and 4) External Failure Costs. Previous studies on this area has concentrated more on the developed countries than it is in the developing countries especially Nigeria. For instance,

Wiseman, (2017) find that environmental operating expenditures are not charged independently of other expenditures, and that there is a significant relationship between environmental accounting and reporting and sustainable development. Again Adams, (2019) in his study of costs of environmental friendly policies and their financial effects on corporate performance of selected oil and gas companies observed that the related cost of environmental protection and management has a positive influence on firm's corporate performance, and that environmental friendly organizations enjoy high level of corporate competitiveness resulting in high performance. Moreover, Tiesieh Ali, (2017) observed that there is a significant relationship between environmental activities and profitability. The study recommended that Nigeria Oil companies should show data on environmental expenditures, environmental costs charged to income in the account as well as details in the notes to the accounts. Boyd, (2018) examined the implication of environmental accounting on corporate performance using 500 companies in Europe and America between September 2016 and December 2017 and found that 67 per cent (335) of the companies issue environmental reports. He also found that that those organizations that issue environmental report receive increased patronage from stakeholders than those that do not, pointing out that this affect performance. Other notable studies in environmental accounting are the Ontario Hydro Full Cost Accounting (1995) and the AT & T Green Accounting of the U.S. Environmental Protection Agency (2016). Also, the industrial green substance emissions (Carbon dioxide, Methane and Hydro-carbons) and the penalties resulting from the Kyoto Protocol have made it a requirement for corporate organizations to take serious considerations and actions on issues that affect the environment in the western countries, but in Nigeria such studies are limited.

2.1.2 Retained Earnings

Retained earnings refer to the portion of the earnings left with the company after the distribution of dividend to its shareholders. Retention of earnings is from the profits of the business for a financial year. A company cannot pay dividends or retain earnings in the case of net loss in any financial year.

In the case of profits, a company can use them to distribute dividend and provide a return to the shareholders. They can retain the balance portion of the earnings by transferring to reserves. The retained earnings add funds for expansion and build capital for the company. A company can reinvest a portion of its earnings into its business expansion plans.

The shareholders of a company invest, expecting a return on their investment. Certain shareholders expect dividend from the company as a return on their investment. In other cases, investors who trade in shares or invest for capital appreciation also expect dividend from the company.

2.1.3 Earnings Per share

Earnings per share (EPS) is calculated as a company's profit divided by the outstanding shares of its common stock. The resulting number serves as an indicator of a company's

profitability. It is common for a company to report EPS that is adjusted for extraordinary items and potential share dilution. It is also a company's net profit divided by the number of common shares it has outstanding. EPS indicates how much money a company makes for each share of its stock and is a widely used metric for estimating corporate value. A higher EPS indicates greater value because investors will pay more for a company's shares if they think the company has higher profits relative to its share price. EPS can be arrived at in several forms, such as excluding extraordinary items or discontinued operations, or on a diluted basis.

2.1.4 Return on asset

Return on Assets (ROA) is a type of return on investment (ROI) metric that measures the profitability of a business in relation to its total assets. This ratio indicates how well a company is performing by comparing the profit (net income) it's generating to the capital it's invested in assets. The higher the return, the more productive and efficient management is in utilizing economic resources. Below you will find a breakdown of the ROA formula and calculation.

2.2 Theoretical Framework

This study is anchored on the Efficient Market Hypotheses, theory propounded by Eugene Fama in 1970. Fama while working on Random Walk Hypothesis (RWH) in the University of Chicago Graduate School of Business developed the Efficient Market Hypothesis (EMH) as academic concept of study through his published Ph.D thesis in 1965 and later in 1970 modified it into theory with three basic assumptions. He also looked at flaws in the RWH, by focusing on the issue of market leptokurtosis which he called EMH. EMH theory states that if available information relating to a product is given, actual prices at every point in time will represent very good estimates of intrinsic values. The three basic assumptions of EMH Theory includes:

i. All investors are independent, rational, well-informed and hope for the highest profit.

ii. All information are free and randomly available in the market, that's means, no one can predict any new information. Once the information is released in the market, the price will respond as soon as possible.

iii. There are no taxes or transaction fees of information in the market.

Since the market price and its performance will be affected by the available information, all available information (both conventional) should be fully reflected on the security or product (Environmental Protection Agency, 2016). If available information is reflected in the annual reports, and accounts, all investors and other stakeholders will be well informed, thus promoting the performance of the industry. A survey of the existing literatures indicates that information add values to organizational sustainable performance be it financial, environmental, management etc. Regardless of the form, useful information according to existing literatures (EPA, 2016) must possess the

following characteristics: relevance, timeliness, accuracy, completeness and summarization, and these will help an organization to achieve their three fundamental information system objectives which are common to all organizations. These include: (a) to support the stewardship function of management, (b) to support management decision making and (3) to support the firm's day-to-day operations. When these attributes are consistently presents, information has reliability and provides value to the users, thus promoting the corporate performance of the company. Unreliable information has no value as it can lead to dysfunctional decisions (Freeman, 2017). Just like EMH, environmental accounting seeks to provide stakeholders with up to date/timely, relevance, accurate and complete information to aid decision making. This is effect, aids performance. This is the essence of the theory in this present study.

2.3 Empirical Review

There have been studies in the area of environmental accounting globally as efforts are being made to promote environmental consciousness among corporations;

In Australia, Tilt (2017) studied the pattern of environmental disclosure among Australian firms. Evidence gathered in the study shows that even where a firm has a specific corporate environmental policy, they place a low priority on reporting environmental performance data to external parties. This implies that Australian firms prefer to disclose their activities and specific programs, rather than their research and development, capital expenditure, policies or performance. Also, in the Australian context, Cowan and Gadenne (2018) conducted a study which employed content analyses in interpretation of the financial statement information disclosure. There research found a tendency by their sampled Australian firms to disclose higher levels of positive environmental news. Further in 2016, Mitchell, Percy and MCkinlay examined the environmental disclosures of twenty Australian firms subject to a successful EPA prosecution between 1994 and 1998 using content analysis. Results reveal that the disclosures made by the sampled firms were predominantly positive in nature.

In Canada, Bewley and Li (2010) examined the environmental disclosures of Canadian manufacturing firms. Their study relied on voluntary disclosure theory and used Wiseman index to measure the 1993 annual report disclosures of 188 firms. Industry membership was also used to proxy for pollution propensity. The study found that firms with a higher pollution propensity and greater media coverage of their environmental performance are more likely to disclose general environmental information.

In America, Hughes , Anderson and Golden (2017) examined environmental disclosures made by U.S. manufacturing firms between 1992 and 1993 using a modified Wiseman index to measure disclosures in the president's letter, MD&A, and notes sections of the annual report, and the CEP rankings to proxy for environmental performance. Their investigation revealed that firms rated as poor by the CEP generally make the most disclosures of environmental cost information. Freedman and Patten (2019) examined the financial statement report on environmental disclosures of 112 US companies in terms of their disclosure under the 1986 Toxic Release inventory regulations. The study adopted

the event study methodology. The findings of these studies reveal that entities that exposed those environmental events experienced negative market reactions, those entities with higher levels of environmental reporting prior to the event suffered less negative reactions than those entities with less environmental reporting.

In UK, Murray, Sinclaire, Power and Gray (2016) investigated the relationship between UK companies' social and environmental performance disclosure and their financial market performance. The sample of the study was made up of 100 of the UK's largest companies. Social and environmental disclosure was measured by the total number of pages of voluntary and mandatory social and environmental disclosure by the companies in their annual reports over a period of 10years using cross-sectional analyses. Findings reveal a convincing relationship between consistently high returns and high levels of social and environmental disclosure while low market returns is also found to be associated with low social and environmental disclosure practices.

In Malaysia, Malcolm (2017) examined the extent to which the environmental disclosures in annual reports of companies listed on the Kuala Lumpur Stock Exchange are associated with corporate characteristics. A rating system for environmental disclosures was developed, based on a review of previous studies, embracing industry membership, financial performance, share price fluctuations, political cost proxies, dependence on debt and the capital market. The findings suggested that environmental disclosure is negatively associated with company financial performance. Norhasimah (2016) investigated the effect of environmental disclosure on financial performance in Malaysia using the Malaysian public limited companies. Using a sample of a sample of 100 companies, the study observed that there is a significant relationship between total environmental disclosure and profit margin.

In Indonesia, Setyorini and Ishak (2017) examined corporate social and environmental disclosure on a positive accounting theory view point. The study used descriptive research design with secondary data. The population of the study was listed companies on the Indonesian stock exchange from 2018-2019. The study applied sampling method on the sectors of the listed companies in the Indonesian stock exchange. There was approximately 336 to 398 companies' listed Indonesian stock exchange. The findings reveal that when the association is driven more by political cost considerations, it can be expected that corporate social and environmental disclosure is positive associated with earnings management.

In Bahrain, Juhmani (2019) conducted a study which aimed to ascertain the extent of social and environmental reporting among listed companies in various economic sectors. The results of their study among others showed that while over 50% of the sample of listed companies provided social and environmental information in their 2017 annual reports and their websites, Commercial banks and insurance companies made the most disclosure of social and environmental accounting. The study further found that the least disclosure was made by companies in the hotels and tourism sector and industrial sector even though firms in tourism and industrial sectors generate more waste than their counterparts in financial institutions.

In Pakistan, Ahmad, Waseer, Hussain and, Ammara (2018) investigated relationship between environmental accounting and non-financial firms' performance listed in Pakistan stock exchange, Pakistan. This study used regression analysis technique (REM), using companies' annual data from 2016-2016. The empirical analysis showed a significant positive relationship between environmental accounting and firm's size. While, earning per share and return on capital employed statistically turned out to be insignificant.

In the Nigerian scene, Okoye and Ezejiofor (2016) conducted an appraisal of the relationship between sustainability environmental accounting and corporate performance of Nigerian firms using simple correlation analytical technique. Primary data was used for the study as gathered using questionnaires distributed to 25 respondents from finance sections of the two manufacturing companies judgmentally selected as Innoson Nigeria plc Nnewi and Nigerian Bottling company plc Enugu. Findings reveal that there is relationship between sustainable environmental accounting and increase in corporate productivity to enhance corporate growth and there is a relationship between sustainable environmental accounting and economic performance of a corporate organization. Adediran and Alade (2016) investigated if there is any significant relationship between environmental accounting and corporate performance in Nigeria using Return on Capital Employed (ROCE); Net Profit Margin (NPM) Divided per share (DPS) and Earnings per Share (EPS). Data for the study were secondary data generated from Annual Reports and Accounts of Fourteen (14) randomly selected companies quoted on the Nigerian stock exchange for the year 2010 and analysed using multiple regression analysis . Result shows that there is significant negative relationship between environmental accounting and Return on Capital Employed (ROCE) and Earnings per Share (EPS) and a significant positive relationship between Environmental Accounting and Net Profit Margin and Dividend per Share. Olayinka and Oluwamayowa (2019) investigated the aggregate and individual impact of corporate environmental disclosure on market value using descriptive research design and secondary data. The sample constituted 50 companies on Nigerian Stock Exchange purposively selected while hypotheses were tested using correlation co-efficient. Their study revealed that the inclusion of environmental information will enhance market value. Nze, Okoh and Ojeogwu (2016) assessed the effect of corporate social responsibility on earnings of two quoted Nigerian Stock Exchange oil and gas firms (2010-2019). Data for the study were sourced from the published annual financial statement of companies and the analyses done using simple linear regression technique. Results revealed corporate social responsibility has positive and significant effect on earnings.

More recently, Eboh and Chukwuka (2018) conducted an empirical investigation into the effect of green business practices on organizational performance of selected manufacturing firms in Nigeria. Simple random sampling technique was used in selecting the 10 manufacturing firms with a sample size of 543 respondents was determined from the population of 5705 drawn from management, middle and lower cadre of the selected manufacturing firms using Cochran (1977) statistical formula. Data were analyzed and the hypotheses were tested using linear regression analysis. Findings revealed that green business initiatives had significant and positive effect on the selected manufacturing

firms' productivity, which indicates that the implementation of green business practices, principles and processes will lead to very positive outcome that will be visibly manifested in the organization and the environment. Iliemena and Ijeoma (2019) examined the effect of Sustainability reporting on financial performance of manufacturing firms quoted on the Nigerian stock exchange using secondary data from annual reports and accounts of 24 sampled quoted manufacturing companies. The study period ranged from 2017 to 2018 which represents IFRS reporting period in Nigeria. The three hypotheses formulated were tested using regression analyses at 5% level of significance. Findings reveal among others that there is no significant effect of environmental disclosure on return on capital employed (ROCE). Amedu, Iliemena and Umaigba (2019) also evaluated the value relevance of the three dimensions of sustainability reporting information using primary data and found environmental sustainability reporting which is an output of environmental accounting not value relevant.

3. Methodology

The research design adopted for this study is the *ex-post facto* as the study relied on historic data. This research studied all the firms in the Nigerian petroleum industry quoted on the Nigerian Stock Exchange. However, for the analysis, the study focused on the oil and gas firms operating in Nigeria. The period of the study, is 10years, from 2011-2020. The nature of data for this study is secondary and sourced from the annual reports and accounts of sampled oil and gas firms for audit quality variables. Firm's annual statements and reports are deemed to be a reliable source of data since public firms are statutorily required to be audited by a recognized auditing firm and yearly performance made known to shareholders through the publication of annual statements of accounts. The population of the study consist of all the 14 firms classified under the Oil and Gas sector of the Nigerian Stock Exchange.

Only oil and gas firms whose shares are quoted on the Nigerian Stocks Exchange and which have a complete data for the period under review were considered by the study. Out of the fourteen (14) oil and gas firms, the researcher selected three (3) firms based on the need for availability, reliability and accuracy of data. The sampled firms include, ETERNA Oil Plc, MRS Oil Plc and OANDO Oil Plc. The basis for selecting three companies from the quoted fourteen firms is that the 3 selected firms have their complete annual reports and Account published.

The general model is represented thus:

$$ENVC_{it} = a + b_1RE_{it} + b_2EPS_{it} + b_3ROA_{it} + \varepsilon_{it} \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots(1)$$

Where:

a = constant;

ENVC = Environmental cost

RE = Retained earnings

EPS = Earnings per share

ROA = Return on asset

The standard Ordinary Least Squares (OLS) or regression analysis was applied to a series of data gathered from the annual reports and accounts of the sampled oil and gas firms in Nigeria as specified above. The signs of the coefficients were relied upon in describing the direction and strength of linear relationship between the dependent and independent variable while the t-statistics and p-value will be relied upon in determining the impact and significance between the variables. The data analysis technique was aided by the EVIEWS statistical software.

4. Discussion of Findings

4.1 Data Presentation

Table 1: Logged data obtained from oil firms

Company	Year	RE	EPS	ROA	ENVC
OANDO Oil	2011	7.409943	2.531479	7.493115	7.106253
	2012	7.445761	2.567026	7.540742	7.167793
	2013	7.481903	2.603144	7.611166	7.210269
	2014	7.584716	2.705864	7.844234	7.28643
	2015	7.580271	2.701568	7.929143	7.381471
	2016	7.634279	2.755875	8.016865	7.422121
	2017	7.628596	2.749736	8.011714	7.450875
	2018	7.580349	2.683047	8.012639	7.379659
	2019	7.453269	2.553883	7.983715	7.341925
	2020	7.518636	2.61595	7.998406	7.337415
Eterna Oil	2011	7.074117	2.905256	7.489138	7.074117
	2012	7.131657	2.962843	7.413942	7.131657
	2013	7.137872	2.96895	7.456666	7.137872
	2014	7.25353	3.084934	7.537518	7.25353
	2015	7.166465	2.997823	7.54004	7.166465
	2016	7.074221	2.899273	7.559981	6.998141
	2017	6.98107	2.803457	7.548129	7.00053
	2018	6.89181	2.71433	7.586683	7.110107
	2019	6.304466	2.127105	7.504421	7.115528
	2020	6.284142	2.10721	7.521514	7.136392
MRS Oil	2011	7.628596	2.749736	8.011714	7.450875
	2012	7.580349	2.683047	8.012639	7.379659
	2013	7.453269	2.553883	7.983715	7.341925
	2014	7.409943	2.531479	7.493115	7.106253
	2015	7.445761	2.567026	7.540742	7.167793
	2016	7.481903	2.603144	7.611166	7.210269
	2017	7.074221	2.899273	7.559981	6.998141
	2018	6.98107	2.803457	7.548129	7.00053
	2019	6.89181	2.71433	7.586683	7.110107

2020	7.628596	2.749736	8.011714	7.450875

Source: Author's Compilation from the annual report and accounts of oil and Gas firms studied, 2022

4.2 Data Analysis

Table 2: Multiple Regression Result

Dependent Variable: ENVC
Method: Panel Least Squares
Date: 11/26/22 Time: 17:56
Sample: 2011 2020
Periods included: 10
Cross-sections included: 3
Total panel (balanced) observations: 30

Variable	Coefficient	Std. Error	t-Statistic	Prob.
RE	0.068869	0.066326	1.038336	0.3146
EPS	-0.025417	0.079064	-0.321475	0.7520
ROA	0.459228	0.104859	4.379478	0.0005
C	3.254254	0.625077	5.206165	0.0001

R-squared	0.798253	Mean dependent var	7.210428
Adjusted R-squared	0.760425	S.D. dependent var	0.137631
S.E. of regression	0.067365	Akaike info criterion	-2.380516
Sum squared resid	0.072609	Schwarz criterion	-2.181370
Log likelihood	27.80516	Hannan-Quinn criter.	-2.341641
F-statistic	21.10235	Durbin-Watson stat	1.123617
Prob(F-statistic)	0.000008		

SOURCE: Eview output version 10, 2022

Table 2 indicates that any change in Retained earnings will increase environmental cost by 0.068869 while change in Return on asset will result in an increase of 0.459228 in environmental cost. However, any change in Earnings per share will decrease environmental cost by -0.025417. In summary, environmental cost is influenced positively by retained earnings and Return on asset while environmental cost it influenced negatively by earnings per share. The extent of effect of RE and ROA on ENVC are positive and significant, while the extent of the effect of Earnings per share is negative and insignificant.

The table also indicates that an increase in Retained earnings, earnings per share and return on asset of Nigerian Oil firms will decrease environmental cost by 0.067365.This implies that environmental cost is affected by Retained earnings, earnings per share and return on asset of Nigerian Oil firms. The Durbin-Watson statistic is 1.123617 which is not up to 2. In this case, the Durbin Watson statistic is closer to 2 than 0 which indicates the absence of autocorrelation in

the series. The result indicates the absence of positive serial correlation in the time series data extracted from the annual report and accounts of the firms.

The Adjusted R-squared is 0.760425. The adjusted R^2 reveals that only about 76% of the variations in environmental cost could be explained by Retained earnings, Earnings per share and Return on asset of oil firms while about 24% could be explained by other factors capable of influencing environmental cost of oil firms as well as the error term and the unexplained variables.

Test of Hypothesis One

The decision criterion is to accept H_0 if the probability of the t-Statistics > 0.05, otherwise reject. The probability of the t-Statistics of 0.3146> 0.05, therefore, we accept the alternative hypothesis while rejecting the null hypothesis to conclude that environmental cost has a positive and insignificant effect on the retained earnings of oil firms in Nigeria

Test of Hypothesis Two

The decision criterion is to accept H_0 if the probability of the t-Statistics > 0.05, otherwise reject. The probability of the t-Statistics of 0.7520 < 0.05, therefore, we reject the alternative hypothesis while accepting the null hypothesis to conclude that environmental cost has a negative and insignificant effect on the earnings per share of oil firms in Nigeria.

Test of Hypothesis Three

The decision criterion is to accept H_0 if the probability of the t-Statistics > 0.05, otherwise reject. The probability of the t-Statistics of 0.0005 > 0.05, therefore, we accept the alternative hypothesis while rejecting the null hypothesis to conclude that environmental cost has a positive and significant effect on the return on asset of oil firms in Nigeria.

Finding from the test of hypotheses shows that environmental cost has a positive and insignificant effect on the retained earnings of oil firms in Nigeria. This finding validates the findings of Al-Tuwaijri *et al.* (2019) which observed that the relations among environmental disclosure, environmental performance and economic performance are very significant.

The result of hypothesis two shows that environmental cost has a negative and insignificant effect on the earnings per share of oil firms in Nigeria, this is in line with the studies of Bewley and Li (2010) appealed to voluntary disclosure theory to examine the environmental disclosures of Canadian manufacturing firms, which shows that firms with a higher pollution propensity and greater media coverage of their environmental performance are more likely to disclose general environmental information.

The result of hypothesis three indicates that environmental cost has a positive and significant effect on the return on asset of oil firms in Nigeria, this is in line with the study of (Rajapakse, 2016; Surman & Kaya, 2016; Thompson & Zakarai, 2019; O'Donovan & Gibson 2010) on the relationship between corporate financial performance and corporate social and environmental disclosure shows that significant positive financial returns were measured for strong

environmental management while significant negative financial returns were measured for weak environmental management.

5. Summary

5.1 Summary of the Findings, Conclusion and Recommendations

Findings of the analysis shows that environmental cost has a positive and insignificant effect on the retained earnings of oil firms in Nigeria.
It was also observed that environmental cost has a negative and insignificant effect on the earnings per share of oil firms in Nigeria
The study equally revealed that environmental cost has a positive and significant effect on the return on asset of oil firms in Nigeria

Environmental costs cover all costs incurred concerning environmental protection such as emissions treatment as well as wasted material, capital and labour which so called 'non product output' as a result of inefficiency production activities. Different firms may consider different elements into environmental costs but it is important that all significant and relevant costs are incorporated for sound decision making purpose. The general picture, which emerges from current reporting, is that since the disclosures of environmental information are voluntary, there is a diversity of reporting practice. Large companies tend to report more environment information in their annual reports than the medium-scale businesses; and the disclosure, tend to be more qualitative than quantitative despite the fact that there is a significant relationship between environmental Accounting and Corporate performance.

Based on the findings, the study recommends the following;

1. Firms should adopt uniform reporting and disclosure standards of environmental practices for the purpose of control and measurement of performance.
2. Firms (especially smaller ones), should be encouraged to disclose their environmental practices in their annual reports to enhance their competitiveness which would subsequently lead to high corporate performance.
3. Top management should ensure that they comply with the environmental laws of the nation as it will go a long way in enhancing sustainability.

REFERENCES

Adams, C.A. (2019). The Ethical, Social and Environmental Reporting Performance Portrayal Gap. Account. *Audit Accountant Journal*.

Adediran, S.A., &Alade, S. O (2016). The Impact Of Environmental Accounting On Corporate Performance In Nigeria. *European Journal of Business and Management.* ISSN 2222-1905 (Paper) ISSN 2222-2839 (Online) 5(23). Retrieved from www.iiste.org

Ahmad, M. Waseer W.A, Hussain S., &Ammara U. *(2018).* Relationship between Environmental Accounting and non-financial Firms Performance: An empirical analysis

of selected firms listed in Pakistan Stock Exchange, Pakistan. *Advances in Social Sciences Research Journal,* ISSN 2055-0286, 5(1). DOI: http://dx.doi.org/10.14738/assrj.52.4139

Ali, M. E. (2017). Transfer of Sustainable Energy Technology to Developing Countries as a Means of Reducing Greenhouse Gas Emission: the Case of Bangladeshi; Review of Relevant Literature.

Amahalu, N.N, Obi, C.J, Abiahu, M.C and Okosuogwe, O.A (2018). Effect of the Adoption of International Financial Reporting Standard (IFRS) on the Financial Performance of Selected Banks Quoted on the Nigerian Stock Exchange (2017-2019).

Amedu, J.M., Iliemena, R.O. &Umaigba, F.T. (2019). Value relevance of sustainability reporting in Nigerian manufacturing companies. *Journal of Global Accounting,* 6(2), 131 - 147. www.researchgate.net

Bewley, K., & Li, Y. (2010). Disclosure of environmental information by Canadian manufacturing companies: A voluntary disclosure perspective. *Advances in Environmental Accounting and Management, 1, 26-45.*

Boyd, J. (2018). The Benefits of Improved Environmental Accounting: An Economic Framework to Identify Priorities Resources for the Future. Washington, DC.

Cooper C, Taylor P, Smith N, Catchpowle L. (2018). A discussion of the political potential of social accounting. Critical Perspectives on Accounting. 16(7):951-974

Deeegan, C. and Gordon, B. (2016). "A study of the Environmental Disclosure Practices of Australian Corporations. *Accounting and Business Research Journal*.

Environmental Protection Agency (2016). An Introduction to Environmental Accounting as a Business Management Tool: Key Concepts and Terms, United States Environmental Protection Agency, Office of pollution Prevention and Toxics, Washington.

EPA (2016). Valuing Potential Environmental Liabilities for Managerial Decision-Making: A Review of Available Techniques, United States Environmental Protection Agency, Office of pollution Prevention and Toxics, Washington.

Freedman, M. & Patten, D.M. (2019). Evidence on the pernicious effect of financial report environmental disclosure. *Accounting Forum,* 28, 27-41

Freeman, A. B. (2017). Towards an Epistemology for Radical Accounting: Beyond Objectivism and Relativism. Critical Perspective on Accounting.

Global Reporting Initiative (GRI). (2017) Sustainability Guidelines on Economic, Environmental and Social Performance.

Guthrie, J. and Parker, L. (2018). Corporate Social Disclosure Practices; A Comparative International Analysis. Advances in Public Interest Accounting.

Hackston, D. and Milne, M.J. (2016). Some Determinants of Social and Environmental Disclosure in New Zealand Companies, Accounting, *Auditing and Accountability Journal.*

Henderson, S. & Pierson, G. (2010). Issues in financial Accounting French Forest, NSW: Pearson Education Australia.

Hughes, S., Anderson, A., & Golden, S. (2017). Corporate Environmental disclosures: Are they useful in determining environmental performance? *Journal of Accounting and Public Policy, 20 (3), 1-17.*

Iliemena , R. O. &Ijeoma, N. B. (2019). Effect of sustainability reporting on firm performance. Unpublished seminar. School of postgraduate studies, NnamdiAzikiwe University.

Iliemena, R. O. &Amedu, J.M.A. (2019). Effect of standard costing on profitability of manufacturing companies: study of Edo state Nigeria. *Journal of Resources Development and Management,* 53, 28 - 34. www.researchgate.net

Iliemena, R. O. C. & Okolocha, C. B. (2019). Effect of audit quality on financial performance : evidence from a developing capital market. *International Journal of Recent Research in Commerce Economics and Management (IJRRCEM),* 6(3), 191-198.**www.paperpublications.org**

Juhmani, O. (2019); Determinant of Corporate Social and Environmental Disclosure on Websites: The Case of Bahrain. *Universal Journal of Accounting and Finance: 2(4) Accessed at http://www.hrpub.org doi!10.13189/ujat.2019.020402.*

KPMG, United Nations Environment Programme (UNEP) (2016) Carrots and Sticks for Starters'. Current Trends and Approaches in Voluntary and Mandatory Standards for Sustainability Reporting.

Letmathe P, and Doost RK (2018). Environmental Cost Accounting and Auditing. *Management and Audit*. *Journal.*

Malcolm, S., Khadijah Y., & Ahmad M. A. (2017). Environmental disclosure and performance reporting in Malaysia. *Asian Review of Accounting,* 15(2), 185-199. Retrieved from https://doi.org/10.1108/13217340710823387

Mitchell, J., Percy, M., &McKinlay, B. (2016). Voluntary environmental reporting practices: A further study of "poor" environmental performers. *Australian Journal of Corporate Law*, 19 (2), 64-81.

Murray, A. (2010). Do markets value companies' social and environmental activity? An inquiry into associations among social disclosure, social performance and financial performance. PhD thesis. University of Glasgow. Retrieved from http://theses.gla.ac.uk/1770/

Murray, A., Sinclair,D., Power, D. & Gray, R. (2016). Do financial markets care about social and environmental disclosure? Further evidence and exploration from the UK. *Accounting, Auditing & Accountability Journal,* 19(2), 228-255.

Ngwakwe, C.C. (2018): Environmental Responsibility and Firm Performance: Evidence from Nigeria. *International Journal of Social, Behavioural, Educational*, Economic and Industrial Engineering

Norhasimah (2016). The effects of environmental disclosure on financial performance in Malaysia.*Procedia Economics and Finance,* 35(1), 117-126.

Nze, D. O., Okoh J., &Ojeogwu, I.C. (2016). Effect of corporate social responsibility on earnings of quoted firms in Nigeria. *ESUT journal of Accountancy* 1, 260 -267.

Okoye, P.V.C. & Ezejiofor, R.A. (2016). An appraisal of sustainability environmental accounting in enhancing corporate productivity and economic performance. *International Journal of Advanced Research,* 1 (8), 685 -693.

Onyali, C.I, Okafor, T.G and Egolum P. (2019). An Assessment of Environmental Information Disclosure Practices of Selected Nigerian Manufacturing Companies, *International Journal of Finance and Accounting.*

Parktown: Mabogunje, A.I (2017). Health Challenges of Nigerian Urbanisation Paper Presented at 9th Benjamin Olukayode Osuntokun memorial. Lecture Presented at University College Hospital (UCH) Ibadan.

Schaltegger S, Burritt R, Petersen H. An introduction to corporate environmental management: Striving for Sustainability. Greenleaf Publishing: UK; 2016.

Wiseman, J. (2017) 'An Evaluation of Environmental Disclosures Made in Corporate Annual Reports', Accounting, Organizations and Society.

Yakhou, M & Dorweiler, V (2019). Environmental Accounting: An Essential Component of Business Strategy. USA: John Wiley and Sons Ltd.