GREEN ACCOUNTING AND FINANCIAL PERFORMANCE OF OIL AND GAS COMPANIES IN NIGERIA

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K E Y W O R D S	A B S T R A C T
	This study investigated the effect of green accounting on financial performance of listed oil companies in Nigeria. The study adopted experimental research design using ex-post-facto data which was extracted from NGX Group Factbook and the annual published financial statement of the oil companies in Nigeria. The sample size of the study was eight. The study covered a period of ten (10) years from 2012-2021. Descriptive statistics and unit root test were conducted. The study used Panel data regression for the test of hypothesis with the aid of E-view statistical software version 9. The dependent variable in the study is financial performance measured with return on capital employed, earnings per share (EPS), and net profit margin NPM) while the independent variable is green accounting measured with environmental sustainability costs, waste management costs, and environmental clean-up costs. The findings of the study revealed that the relationship between environmental sustainability costs, environmental clean-up cost, waste management cost and return on capital employed, earnings per share and net profit margin is not significant. The study concluded that green accounting is a determinant of financial performance of the listed oil companies in Nigeria and recommended that quoted oil and gas companies should increase the extent of economic activities on the environment and disclose this in the annual reports for investment decision making and to enjoy long-run corporate sustainability and an improved financial performance. Furthermore, Government and regulators should strictly enforce green accounting disclosure in annual reports by oil companies.

Introduction
Background of the Study

As a result of the climatic change and global warming, there have been calls for environmental impact assessment subsequently companies have been under pressure to review their operating activities on the environment. The climate change has been linked with company's activities such as the manufacturing, oil and gas companies who produce environmental waste, carbon monoxide and

exploration of crude oil as this has caused environmental degradation. These companies are only income targeted and not environmentally conscious of the negative impact of their activities on the environment and also on the lifestyles of the host communities. Environmental degradation is on the increase as a result of the operational activities of the oil companies and other industrial and technological companies. These negative results from the operational activities consists of pollution, emissions, and environmental degradation. Ohidia , Omokhudu and Oserogho (2016) postulated that companies particularly the ones whose operational activities have hazardous impact on the environment such as pollution on the environment, should disclose in their annual report, those costs that relate to clean up and restoration of the environment to its natural state, waste management cost, restoration cost, recycling cost etc, According to Yusuf and Ekundayo (2016), According to Yakhou and Dorweiler (2004), the damaging effect of business activities on the environment take different forms which include pollution of air, water, underground pollution, which endangers the land habitat and threatens species residing in them. Beredugo and Mefor (2012) contends that natural resources such as crude oil and natural gas are consistently explored and exploited by multinational companies which do result in environmental pollution and global warming. Green accounting is not a well-known concept in Nigeria which may be attributed to the low level of awareness of its benefits hence, listed companies are not mandated to green account in their annual reports. In Nigeria, there is no uniformity in reporting environmental issues as no accounting standard has been established but rather guidelines issued by some organizations e.g Regulation Enforcement Agency Act of 2007. These guidelines are not mandatory but advisory (Okafor, 2018).That is, there are no mandatory environmental accounting policies or environmental disclosure guidelines, for Nigerian companies to make these disclosures. This implies that no mandatory requirement for quantitative or qualitative disclosures of environmental accounting information in annual reports exists neither is there any mandatory requirement under the Companies and Allied Matters Act (CAMA 1990) nor as per International Accounting Standards (IAS's) or International Financial Reporting Standards (IFRS). There is no mandatory Stock Exchange listing requirement for Nigerian companies, to disclose environmental accounting information although the Nigerian Exchange Group in its recent Guideline (2018) issued on sustainability reporting suggesting the disclosure of environmental information. Hence, environmental accounting reporting in Nigeria is voluntary which does not inspire the disclosure of environmental costs. Closer observation of the annual reports have revealed a rising cost of production in the oil industry which has also negatively affected the profitability of the companies. According to Olushola (2020), the rising cost of production could be traced to increased operational expenses such as the several levies paid to diverse agencies that regulate   the industry and costs of security as a result of harsh investment

environment, disruptions in productions and militancy that has persistently affected the operations of the oil and gas companies .

The financial performances of some listed oil companies has been fluctuating for some years and these are attributable to militancy and vandalization of pipelines as their host communities are not in concordance with the destruction of their eco-system which has been dastardly wasted thus having a multiplier effect on their economic activities and livelihood. Some of the oil companies have ceased business while others are struggling to survive as their host communities are now on their necks to clean up the polluted environment. For example, Shell BP has severally suffered severe destruction of their oil pipeline lines, oil reservoirs and other inhumane attacks meted out to its staff. Adediran and Alade (2013) revealed in their findings that there is a significant negative relationship between green accounting and profitability. Some other research findings have revealed positive relationship between green accounting disclosures and profitability of companies (Ogoun and Ekpulu, 2020; Menike 2020). On the other hand, other studies have revealed that a negative or mixed association exists between green accounting and financial performance of entities (Azzam, Alqudah, Haija and Shakhatreh 2020) .Thus, findings from these studies revealed different results which could partly be attributed to different statistical test techniques employed by the researchers. These mixed and inconclusive findings inspired the researcher to conduct this study as an addition to the existing body of knowledge with an earnest desire to have an in-depth understanding regarding the effect of green accounting on the financial performance of oil and gas companies in Nigeria.

Objectives of the Study

The main objective of the study is to critically examine the effect of green accounting on financial performance of oil and gas producing companies in Nigeria. The specific objectives of the study are to:

i. ascertain the effect of environmental sustainability cost on return on capital employed (ROCE) oil and gas companies in Nigeria;
ii. ascertain the effect of waste management cost on return on capital employed of oil and gas companies in Nigeria;
iii. determine the effect of environmental clean-up cost on return on capital employed of oil and gas companies Nigeria;
iv.   examine the extent of effect of environmental sustainability cost on earnings per share of oil and gas companies in Nigeria;
v.   determine the extent of effect of waste management cost on earnings per share of oil and gas companies in Nigeria;
vi.   assess the effect of environmental clean-up cost on earnings per share of oil and gas companies in Nigeria;
vii.   investigate the extent of effect of environmental sustainability cost on net profit margin of oil and gas companies in Nigeria;

viii. examine the effect of waste management cost on net profit margin of oil and gas companies in Nigeria;

ix. determine the effect of environmental clean-up cost on the net profit margin of oil and gas companies in Nigeria.

Research Questions

1. What is the effect of environmental sustainability cost on return on capital employed (ROCE) oil and gas companies in Nigeria?
2. What is the effect of waste management cost on return on capital employed of oil and gas companies in Nigeria?
3. What is the effect of environmental clean-up cost on return on capital employed of oil and gas companies Nigeria?
4. To what extent has environmental sustainability cost affected earnings per share of oil and gas companies in Nigeria?
5. To what extent has waste management cost affected earnings per share of oil and gas companies in Nigeria?
6. What is the effect of environmental clean-up cost on earnings per share of oil and gas companies in Nigeria?
7. To what extent has environmental sustainability cost affected net profit margin of oil and gas companies in Nigeria?
8. What is the effect of waste management cost on net profit margin of oil and gas companies in Nigeria?
9. What is the effect of environmental clean-up cost on net profit margin of oil and gas companies in Nigeria?

Research Hypotheses

H_{01}: There is no significant effect of environmental sustainability cost on return on capital employed (ROCE) of oil and gas companies in Nigeria is not significant.

H_{02}: There is no significant effect of waste management cost on return on capital employed of oil and gas companies in Nigeria.

H_{03}: There is no significant effect of environmental clean-up cost on return on capital employed of oil and gas companies Nigeria.

H_{04}: Environmental sustainability cost has not affected earnings per share of oil and gas companies in Nigeria to a great extent.

H_{05}: Waste management cost has not affected earnings per share of oil and gas companies in Nigeria to a great extent.

H_{06}: There is no significant effect of environmental clean-up cost on earnings per share of oil and gas companies in Nigeria.

H_{07}: Environmental sustainability cost has not affected net profit margin of oil and gas companies in Nigeria to a great extent.

H_{08}: There is no significant effect of waste management cost on net profit margin of oil and gas companies in Nigeria.

H₀9:   There is no significant effect of environmental clean-up cost on net profit margin of oil and gas companies in Nigeria.

Scope of the Study

The study examined the effect of green accounting on financial performance of oil and gas companies in Nigeria. The study covered only quoted companies in the Nigerian Exchange Group because of availability of data. Previous studies had conducted research on the effect of green accounting on financial performance of manufacturing and the services sector in Nigeria hence this elicited the researcher to diversify into the oil and gas sector to also examine the effect of green accounting on their financial performances because this sector is the one that mostly degrades the environment. Some past studies covered fewer number of years like 5 (five) years but this study covered a period of 10 years (2012 -2021). 10(ten) years was used as this is believed would produce an in-depth understanding of the effect of green accounting on financial performance of oil and gas firms in Nigeria.   The reason for the time frame of 2012-2021 is the availability of data from the audited annual reports of the selected firms. Data in the study variables were sourced from the audited financial reports of eight listed oil and gas companies in the Nigerian Exchange Group. The proxies For green accounting included Environmental Sustainability cost, Environmental Waste Management cost and Environmental Cleanup cost while return on capital employed, net profit margin and earnings per share were employed as measures of financial performance.

Literature Review
Fig.1.1 Conceptual Framework
Independent variable   Dependent variable
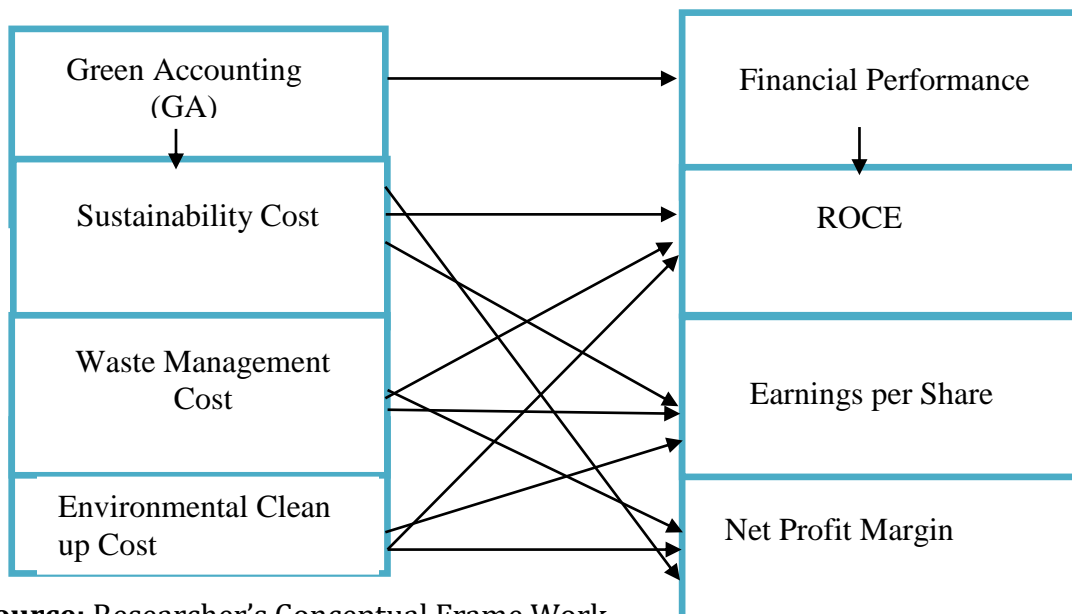
Source: Researcher's Conceptual Frame Work

Concept of Green Accounting

Environmental accounting also known as 'green accounting' or environmental management accounting is a variant of accounting. Iyyanki and Valli (2017) defined green accounting as a modification of the system of National Accounts to incorporate the cost of restoration of depletion of natural resources. Weng, Chen, and Chen (2015) referred to environmental accounting as green accounting which measures (in economic terms) the performance report of firms that reflects the identification, measurement and reporting of environmental specific costs, such as liability cost and waste disposal cost. It is the accounting for any cost or benefit that occurs from modifications in a firm's product or process that will also impact on the environment. According to the ACCA (2015), environmental accounting is the disclosure of financial and non-financial information of a firm's environmental impact or footprints for an accounting period. This environmental disclosure reports on costs incurred by the firm such as waste management, recycling, repackaging, energy and resource conservation, carbon management, emission reduction, pollution control, and the preservation of wetlands on the natural environment(Gatimbu and Wabwire 2016)"Going green" assists in mitigation of environmental degradation and pollution, maintenance and servicing of equipment, maintenance of oil pipelines etc. Losses due to business operational activities include degradation and pollution of air and water, discharge of hazardous waste, depletion of non-renewable and natural resources, deforestation etc. Green Accounting assists in computation of income for a nation by considering the costs of economic damage and depletion of the natural resource base of an economy.

Measures of Financial Performance

Dwivedi, (2002) opines that financial performance is a subjective measure of how a company utilizes its resources in its operations to generate income. He also stated that companies within the same industry can compare their performances. Wang, Lu, Ye, Chau and Zang (2016) argued that a company's financial performance may be regarded from three aspects:- The productivity of the company, size of the profitability and the level of market value of the company. According to Rahman, Zain and Yahaya (2011), businesses are more concerned with profit maximization. Hassan, Rabia and Shatha (2021) submits that the performance of a firm is the capacity of a firm to earn returns on investment in its assets that has a positive net present value. Iliemena and Okolocha (2010) submit that the measures of financial performance of a company depicts the financial well-being over a period of time. Financial performance measures the effectiveness and efficiency by which a firm uses its assets to generate revenue over a given period.

Stakeholder Theory

The foundation of this study lies on the 'stakeholders' theory' which holds that businesses should consider the interest of other stakeholders, such as the

society and operating environment while pursuing their major goal of profitability. The stakeholder theory was adopted to examine the effect of environmental degradation by oil and gas companies on the stakeholders and to determine how green accounting disclosure affect financial performance of these oil and gas companies. To facilitate the adoption of green accounting, companies must consider the stakeholders in their business operations. These include the concerns of the host communities in which the companies operate, their customers, the capabilities of suppliers, government regulations, and the technological, organizational, and environmental determinants of green accounting. Hence, the effects of stakeholder on a company on use of green accounting is considered in this study. The stakeholder theory has been adopted for several environmental studies such that stakeholders have been instrumental in influencing both corporate ecological responsiveness (e.g., Bansal, P.; Roth, K 2000) and environmental strategies. According to Freeman, stakeholders can be classified as internal (customers, suppliers, and employees) or external (competitors and the government). To respond to pressure from stakeholders, companies must consider the demands of multiple stakeholder groups .Studies have shown the existence of a positive relationship between green accounting disclosures and profitability of firms (Ogoun and Ekpulu, 2020; Menike, 2020). .However, the results have been mixed, and the influence of stakeholders on environmental management has been inconsistent. For example, whereas Ogoun and Ekpulu, 2020; Menike, 2020 found a positive relationship between environmental disclosure and firms' performance while Azzam and Alqudah, 2020 posits that a negative or mixed association exists between green accounting and financial performance of firms. The stakeholder theory is credited to "Dr. Edward Freeman" the father of stakeholder theory. He is a Professor at University of Virginia. In his book. "Strategic Management: A Stakeholders Approach", he noted that shareholders are just one of the numerous stakeholders in a company. He defined a stakeholder as anyone that is affected by a Firm's business operating activities and can also influence the firm's operations. Stakeholders includes customers, suppliers, host communities etc Darnall , Henriques and Sadorsky (2010) noted that, a new business model has emerged that recognizes and considers the conflicting needs of the different stakeholders by creating business policies and strategies that are beneficial to all. Those at the helm of affairs must incorporate the welfare of different stakeholders by strategizing on maximizing value. Hence, pressure from the different stakeholders to disclose on social and environmental information.

Research Design

This research evaluated the relationship between green accounting and financial performance hence experimental research design using Ex-post-facto data was adopted for the study because of the nature of the data required and also data relating to both variables in this study already existed in the literature (Madugba,

Ben-caleb, Lawal and Agburuga 2020)and the researcher cannot manipulate the variables as there is no control over the variables hence a causal relationship can be ascertained between green accounting and financial performance.

The population of this study comprised quoted oil and gas companies in Nigerian Exchange Group. Eight (8) oil and gas companies whose shares are actively quoted on the floors of Nigerian Exchange Group (NGX Group) were selected. See appendix (A)

This study investigated the effect of green accounting on financial performance of oil and gas companies in Nigeria which covered a period of ten years from 2012 – 2021. The eight companies were selected based on availability of data required for the study. The period was chosen by the researcher due to the availability of data as it will give a conclusive decision on the green accounting activities of the oil and gas in Nigeria. See appendix (B).

This study made use of secondary data which were generated from the financial statement of the selected oil and gas companies in Nigeria covering a period of ten years for the eight companies from 2012- 2021 making eighty firm years.

This study employed Panel data regression analytical tool. This statistical tool was adopted because of the number of Oil and Gas firms and the period of time involved .The data generated from the financial statement of the oil and gas companies in this study was subjected to the panel data regression and the Hausman test to select the appropriate model for the ten years covering 2012-2021.

Data Analyses

In this study, a panel data regression was used in which both the fixed effect and random effect of panel data regression was carried out hence the Hausman test was used to determine which of the fixed or random effect should be used for interpretation.

The relationship between environmental sustainability cost, waste management costs, and environmental clean-up costs and return on capital employed of listed oil companies in Nigeria is not significant.

Decision rule: Reject null hypothesis if probability value computed by means of E-view is less than or equal to 0.05 ($p \leq 0.05$)

Table 4.3.1 presents the fixed effect of panel data regression showing the effect of environmental sustainability cost, waste management costs, and environmental clean-up costs on return on capital employed of listed oil companies in Nigeria.

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	1.200279	0.110792	10.83361	0.0000

LESC	-0.008989	0.017172	-0.523461	0.6024
LWMC	-0.009848	0.014093	-0.698821	0.4871
LECC	-0.011076	0.013982	-0.792166	0.4311

Effects Specification

Cross-section fixed (dummy variables)

R-squared	0.538483	Mean dependent var	1.066530
Adjusted R-squared	0.468557	S.D. dependent var	0.453410
S.E. of regression	0.330537	Akaike info criterion	0.755367
Sum squared resid	7.210808	Schwarz criterion	1.090196
Log likelihood	-18.08163	Hannan-Quinn criter.	0.889296
F-statistic	7.700674	Durbin-Watson stat	1.567849
Prob(F-statistic)	0.000000		

Source; Author's computation, 2023

Table 4.3. 2 presents the random effect of panel data regression showing the effect of environmental sustainability cost, waste management costs, and environmental clean-up costs on return on capital employed of listed oil companies in Nigeria.

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	1.139829	0.150915	7.552808	0.0000
LESC	-0.005220	0.024082	-0.216751	0.8290
LWMC	-0.010668	0.019789	-0.539072	0.5915
LECC	0.000716	0.019389	0.036941	0.9706

Effects Specification

		S.D.	Rho
Period random		0.000000	0.0000
Idiosyncratic random		0.484809	1.0000

Weighted Statistics

R-squared	0.007475	Mean dependent var	1.066530
Adjusted R-squared	-0.033314	S.D. dependent var	0.453410

S.E. of regression	0.460901	Sum squared resid	15.50737
F-statistic	0.183256	Durbin-Watson stat	0.762207
Prob(F-statistic)	0.907454		

Source: Author's computation, 2023

Table 4.3.3 presents the Hausman Test

Correlated Random Effects - Hausman Test
Equation: Untitled
Test period random effects

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Period random	0.694840	3	0.8744

Source Author's computation, 2023

Decision Rule: accept random effect if probability of Hausman test is less than or equal 0.05

As contained in Table 4.3.3 (the Hausman Test) the probability of the test is not significant at 5% level and since the null hypothesis is that the random effect model is the preferred, we reject the null hypothesis and accept the alternative. Hence, we conclude that the fixed effect model is more appropriate. This implies that our discussion of result will be based on the fixed effect model.

From Table 4.3. 1 above,(fixed effect model) the adjusted coefficient of multiple determination of 0.468557 indicate that about 46.856% of the variations observed in return on capital employed (ROCE) of listed oil companies in Nigeria is determined by changes in the value of the predictor variable, (environmental sustainability costs, environmental clean-up costs and waste management costs). This implies that about 53.14% of the changes in return on capital employed are attributable to factors other than the one considered in our study. The econometric value of F-ratio of 7.700678 is significant at 5% level and this further highlights the appropriateness of the model specification.

Again, the Durbin-Watson statistic of 1.567849 is approximately 2 and indicated the absence of auto-correlation.

Therefore, this study rejected the null hypothesis and concluded that the independent variables jointly has a significant influence on Return on capital employed of listed oil companies in Nigeria.

Test of hypothesis two

The relationship between environmental sustainability cost, waste management costs, and environmental clean-up costs and earnings per share of listed oil companies in Nigeria is not significant.

Decision rule: Reject null hypothesis if probability value computed by means of SPSS is less than or equal to 0.05 (p≤0.05)

Table 4.4.1 presents the fixed effect of panel data regression showing the effect of environmental sustainability cost, waste management costs, and environmental clean-up costs on earnings per share of listed oil companies in Nigeria.

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.564418	0.129277	4.365967	0.0000
LESC	0.030032	0.020037	1.498833	0.1387
LWMC	-0.027381	0.016444	-1.665108	0.1006
LECC	-0.020737	0.016315	-1.271031	0.2082

Effects Specification

Cross-section fixed (dummy variables)

R-squared	0.541914	Mean dependent var	0.518888
Adjusted R-squared	0.472507	S.D. dependent var	0.531035
S.E. of regression	0.385684	Akaike info criterion	1.063966
Sum squared resid	9.817638	Schwarz criterion	1.398796
Log likelihood	-29.96271	Hannan-Quinn criter.	1.197895
F-statistic	7.807781	Durbin-Watson stat	2.256593
Prob(F-statistic)	0.000000		

Source: Author's computations, 2023

Table 4.4 2 presents the random effect of panel data regression showing the effect of environmental sustainability cost, waste management costs, and environmental clean-up costs on earnings per share of listed oil companies in Nigeria

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.610811	0.162691	3.754435	0.0003
LESC	0.047426	0.025961	1.826833	0.0718
LWMC	-0.043112	0.021333	-2.020874	0.0470
LECC	-0.038217	0.020902	-1.828415	0.0716

		S.D.	Rho
	Effects Specification		
Period random		0.000000	0.0000
Idiosyncratic random		0.522638	1.0000
	Weighted Statistics		
R-squared	0.118882	Mean dependent var	0.518888
Adjusted R-squared	0.082672	S.D. dependent var	0.531035
S.E. of regression	0.508611	Sum squared resid	18.88400
F-statistic	3.283112	Durbin-Watson stat	1.153752
Prob(F-statistic)	0.025540		

Source: Author's computations, 2023

Hausman Test
Decision Rule: accept random effect if probability of Hausman test is less than or equal 0.05
Correlated Random Effects - Hausman Test
Equation: Untitled
Test period random effects

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Period random	1.720466	3	0.0324

As contained in Table 4.4.3 (the Hausman Test) the probability of the test is significant at 5% level and since the null hypothesis is that the random effect model is the preferred, we accept the null hypothesis and conclude that the random effect model is more appropriate. This implies that our discussion of result will be based on the random effect model.

From Table 4.4.2 above,(random effect model) the adjusted coefficient of multiple determination of 0.082672 indicate that about 8.27% of the variations observed in the listed oil companies in Nigeria is determined by changes in the value of the predictor variable, (environmental sustainability costs, environmental clean-up costs and waste management costs). This implies that about 91.73% of the changes in return on capital employed are attributable to factors other than the one considered in our study. The econometric value of F-ratio of 3.283112 is significant at 5% level and this further highlights the appropriateness of the model specification.

Again, the Durbin-Watson statistic of 1.153752 is approximately 2 and indicated the absence of auto-correlation.

Therefore, this study rejected the null hypothesis and concluded that the independent variables jointly has a significant influence on earnings per share of listed oil companies in Nigeria.

Test of hypothesis three

The relationship between environmental sustainability cost, waste management costs, and environmental clean-up costs and net profit margin of listed oil companies in Nigeria is not significant.

Decision rule: Reject null hypothesis if probability value computed by means of SPSS is less than or equal to 0.05 (p≤0.05)

Table 4.5.1 presents the fixed effect of panel data regression showing the effect of environmental sustainability cost, waste management costs, and environmental clean-up costs on net profit margin of listed oil companies in Nigeria.

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.369397	0.146472	2.521970	0.0141
LESC	0.017870	0.022686	2.787689	0.0337
LWMC	-0.003073	0.018734	-0.164033	0.8702
LECC	0.001380	0.018483	0.074666	0.9407

Effects Specification

Cross-section fixed (dummy variables)

R-squared	0.411966	Mean dependent var	0.454476
Adjusted R-squared	0.321499	S.D. dependent var	0.530101
S.E. of regression	0.436651	Akaike info criterion	1.313762
Sum squared resid	12.39316	Schwarz criterion	1.651105
Log likelihood	-38.92296	Hannan-Quinn criter.	1.448581
F-statistic	4.553774	Durbin-Watson stat	1.571757
Prob(F-statistic)	0.000069		

Source: Author's computation, 2023

Table 4.5 2 presents the random effect of panel data regression showing the effect of environmental sustainability cost, waste management costs, and environmental clean-up costs on net profit margin of listed oil companies in Nigeria

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.530731	0.173668	3.056007	0.0031
LESC	0.006701	0.027754	0.241440	0.8099
LWMC	-0.015300	0.022891	-0.668363	0.5060
LECC	-0.011197	0.022301	-0.502088	0.6171

Effects Specification			S.D.	Rho
Period random			0.000000	0.0000
Idiosyncratic random			0.557636	1.0000

Weighted Statistics				
R-squared	0.011290	Mean dependent var	0.454476	
Adjusted R-squared	-0.029906	S.D. dependent var	0.530101	
S.E. of regression	0.537970	Sum squared resid	20.83763	
F-statistic	0.274051	Durbin-Watson stat	0.886025	
Prob(F-statistic)	0.843926			

Source: Author's computations, 2023

Hausman Test
Decision Rule: accept random effect if probability of Hausman test is less than or equal 0.05

Correlated Random Effects - Hausman Test
Equation: Untitled
Test period random effects

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Period random	1.101390	3	0.7767

As contained in Table 4.5.3 (the Hausman Test) the probability of the test is not significant at 5% level and since the null hypothesis is that the random effect model is the preferred, we accept the null hypothesis and conclude that the fixed effect model is more appropriate. This implies that our discussion of result will be based on the fixed effect model.

From Table 4.5. 1 above,(fixed effect model) the adjusted coefficient of multiple determination of 0.321499 indicate that about 32.14% of the variations

observed in net profit margin of listed oil companies in Nigeria is determined by changes in the value of the predictor variable, (environmental sustainability costs, environmental clean-up costs and waste management costs). This implies that about 67.86% of the changes in net profit margin are attributable to factors other the one considered in our study. The econometric value of F-ratio of 4.553774 is significant at 5% level and this further highlights the appropriateness of the model specification.

Again, the Durbin-Watson statistic of 1.1571757 indicated the absence of auto-correlation.
Therefore, this study rejected the null hypothesis and concluded that the independent variables jointly has a significant influence on net profit margin of listed oil companies in Nigeria.

Discussion of result for Hypotheses one

Table 4.3.1 indicated that there is evidence that supports a co-efficient of regression of -0.008989 for environmental sustainability cost (ESC) and a probability value of 0.6024. This implies that ESC is negative and insignificant determinant of return on capital employed of oil and gas companies in Nigeria. The implication is that oil companies in this study do not consider the sustainability of the environment as paramount as this is reflected in the amount of environmental sustainability cost. Our finding disagrees with that of Madugba et al (2020) that oil companies do invest heavily in their ESC. The reason could be linked to the lower number of 5 (five) years used in their study.

Statistical evidence as contained in Table 4.3.1 confirmed that the co-efficient of regression value of -0.009848 was shown for waste management costs (WMC). The probability value shown for the same variable is 0.4871. Meaning that WMC is negative and insignificant determinant of return on capital employed of oil companies in Nigeria. This implies that oil companies in Nigeria are not properly managing or curbing waste that emanates as a result of their activities in the host communities, no wonder the continuous youth hostilities and loss of the aquatic species in the host communities.

Environmental clean-up costs (ECC) is shown to have a co-efficient of regression of -0.011076 with a probability value of 0.4311. This means that environmental clean-up costs do not have an affirmative and significant relationship with return capital employed of the oil companies in Nigeria. A caveat is whether the impact of the clean-up costs is enough to cushion the effect of their distortive activities on the host communities was not considered in this study.

Discussion of Result for Hypotheses two

There is evidence that supports a positive but insignificant association between environmental sustainability costs and earnings per share of oil companies in Nigeria. This is affirmed by a co-efficient of regression value of 0.047426 and a probability value of 0.0718. The implication is that a unit increase in earnings per

share of the oil companies will lead to an equal decrease in the ESC of the companies in Nigeria. Again the implication is that compared to their earnings, their investment in environmental sustainability costs is too poor.

Table 4.4.2 indicated that waste management cost has a co-efficient of regression of -0.043112. This means that waste management cost has a negative but significant association with earnings per share of the listed oil companies in Nigeria. This implies that investment of the oil companies in waste management in the host communities are too small to impact on their earnings per share.

Environmental Clean-up Costs (ECC) is indicated to have a co-efficient of regression value of -0.039217 with a probability of 0.0716. Meaning that ECC is negative and insignificant determinant of earnings per share of the oil companies in Nigeria. The reason for this could be that the oil companies has neglected the impact of their activities on the host communities or that the government do not mandate the oil companies to clean up the environment.

Discussion of Result for hypotheses three

There is evidence that supports a positive but insignificant association between environmental sustainability costs and net profit margin of oil companies in Nigeria. As contained in Table 4.5.1, the co-efficient of regression value of 0.17870 is positive and the probability value is lower than 0.0357 hence, we conclude that the relationship between environmental sustainability cost and net profit margin of oil and gas companies in Nigeria is significant. The result however disagrees with that of Umoren et al.(2018) whose study result showed negative and insignificant relationships between environmental accounting reporting and net profit margin .

Despite the contribution of these oil companies to environmental sustainability, the host communities do not feel the impact hence their outcry regarding the negative effects of the oil companies' operational activities as their aquatic nature has been totally destroyed and thus their means of livelihood. However, this was not considered in this study.

Waste Management cost (WMC) as shown above is indicated to have a co-efficient of regression value of -0.003075. This means that the relationship between WMC and net profit margin of the oil companies in Nigeria is negative and insignificant. The result disagrees with that of Oti et al. (2018) whose study result revealed positive and significant relationships between Waste Management cost and a firm's financial performance.

Implying that as the oil companies does not engage in proper waste management in the host communities, this would result to destruction of the eco-system and hence their livelihood, this would strain the relationship between the host communities and the MNC in the long run. The outcome is youth resentment in such communities, which would have adverse effect on the revenue of the companies.

From Table 4.5.1 above, it is evident that environmental clean-up cost has a positive but non-affirmative association with net profit margin of the oil and gas companies in Nigeria. This assertion is confirmed by a co-efficient of regression value of 0.001380. This reason for this finding could be that the oil and gas companies has neglected to mop-up the oil spills within the host communities.

Summary of Findings

This study examined the relationship between green accounting and financial performance of listed oil and gas companies in the Nigerian Exchange Group for ten fiscal years from 2012-2021.Findings revealed the following :

Hypothesis one: environmental sustainability costs have a negative and insignificant effect on return on capital employed of listed oil companies in Nigeria. The implication of this finding is that most of the oil companies in Nigeria do not invest in environmental sustainability cost to sustain the natural environment within the host communities where they operate.

Hypothesis two: a negative and insignificant relationship exists between waste management cost and return on capital employed of oil companies in Nigeria. This result agrees with that of Umoren et al. (2018) which showed insignificant relationships between environmental accounting practices and performance variables (return on capital employed, net profit margin earnings per share, and earnings per share). This implies that oil companies are not environmentally responsive as they do not give attention to waste control and management. The 3R's of waste management (reuse, reduce, recycle) should be inculcated in the business strategic plan of these companies. There is need for adoption of advanced technology that can convert this waste to useable products. This will go a long way to mitigate the continuous youth hostilities, vandalization of pipelines and loss of the aquatic lives which has impoverished the residents of the host communities.

Hypothesis three: Environmental clean-up costs (ECC) are shown to have a co-efficient of regression of -0.011076 with a probability value of 0.4311. This means that environmental clean-up costs do not show an affirmative and significant relationship with return on capital employed by the oil companies in Nigeria. Though some of these companies invest in cleanup of oil spills and removal of other hazardous waste, the impact of the investment is not felt by the communities as it is either proper cleanup is not done or there are no monitoring government agencies to oversee and supervise the cleanup.

Hypothesis four: Here, a positive but insignificant association exists between environmental sustainability costs and earnings per share of oil companies in Nigeria. Some companies that are not environmentally conscious will tend to invest a paltry amount in sustainability of the environment hence this is not likely going to affect earnings per share.

Hypothesis five: waste management cost has a negative but significant association with earnings per share of the listed oil companies in Nigeria meaning that the oil companies have not deemed it fit to be environmentally friendly and responsive to effects of their operational activities. This can lead to sabotage by the residents in the communities especially when there is no compensation from the oil companies and the government for environmental degradation. This, no doubt will impact on their earnings per share.

Hypothesis six: From above results, the oil companies do not deem it expedient to clean up the environment they have exploited as the hazardous remains of their activities filters to destroy the eco-system and the government has turned a blind eye to these. This can be seen from the results as ECC is negative and an insignificant determinant of earnings per share of the oil companies in Nigeria.

Hypothesis seven: Here, the relationship between environmental sustainability cost and net profit margin of oil and gas companies in Nigeria is positive and significant. This depicts that though the oil and gas companies invests in sustainability cost, the impact is not felt as there is still an outcry by the host communities regarding the devastation of their bio-system that has led to abject poverty by the business explorational activities of these companies.

Hypothesis eight: waste Management cost (WMC) as shown above is indicated to have a co-efficient of regression value of -0.003075. This means that the relationship between waste Management cost and net profit margin of the oil companies in Nigeria is negative and insignificant. Implying that the oil companies does not engage in waste management and control in the host communities, meaning they are not proactive and responsive enough ,the outcome of which is vices such as sabotage, destruction of pipelines, youth unrests etc. This would affect the revenue of the companies.

Hypothesis nine: From the result of test of hypothesis nine, we conclude that that environmental clean-up cost has a positive but non-affirmative association with net profit margin. This implies that the oil and gas companies has neglected to mop-up the oil spills within the host communities.

Conclusion

According to the Global initiative (2011), there has been a paradigm shift in financial reporting of firms by the integration of green accounting aside corporate social responsibility for a more reliable and transparent reporting.. Nigeria is still on teething edge in recognizing the relevance of the green accounting concept. Having examined the effect of green accounting on financial performance of listed oil companies in Nigeria, green accounting has been identified as an essential determinant of efficient and effective management of listed oil companies both in emerged and emerging economies alike. It also established that non-compliance to

codes of environmental laws occurs in different dimensions among the oil companies.   Management, directors and lower level managers as well as the government of Nigeria contribute to the incidence of non-compliance with environmental laws in the oil subsector and across the economy in different dimensions. It is therefore the opinion of the researcher that if oil companies in Nigeria comply with environmental laws and governance principles, it will significantly enhance the financial health of oil companies in the subsector of Nigeria which will in turn boost the stakeholders' confidence in the Nigerian oil sector.

Considering the findings of the study, the researcher wish to make the following recommendations;
Accounting bodies and the Nigerian Exchange Group as a matter of fact should provide in their guidelines mandatory reporting of environmental costs in annual reports of companies.

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