
EFFECT OF ENVIRONMENTAL ACCOUNTING ON PROFITABILITY OF LISTED OIL AND GAS FIRMS IN NIGERIA

Chijioke Louis Okudo¹; Nestor Ndubuisi Amahalu²

1. Olabisi Onabanjo University, Ago-Iwoye, Ogun State, Nigeria
(louischijioke22@gmail.com)

2 Department of Accountancy, Nnamdi Azikiwe University Awka, Anambra State, Nigeria
(nn.amahalu@unizik.edu.ng)

ABSTRACT

The objective of this study was to ascertain the effect of environmental accounting on profitability of oil and gas firms listed on Nigeria Stock Exchange between 2011 and 2021. Eleven (11) listed oil and gas firms were purposively sampled. The proxies for environmental accounting include waste management cost, community development cost, employee health and safety cost and environmental remediation cost, while net profit margin was employed as profitability measure. Pearson Correlation Coefficient and Panel Least Square (PLS) Regression analysis via STATA 13 statistical software were used to test the hypotheses of the study. The result of this study showed that waste management cost, community development cost, employee health and safety cost and environmental remediation cost have a significant positive effect on net profit margin at 5% level of significance respectively. This study therefore recommends inter alia that since environmental remediation cost is value relevant in making strategic business decision, Thus, oil and gas firms should constantly reposition their accounting system in order to provide information on environmental remediation so that the true costs in an organization can be ascertained and properly allocated.

Keywords: Waste Management Cost, Community Development Cost, Employee Health and Safety Cost, Environmental Remediation Cost, Net Profit Margin.

Background to the Study

The use of natural resources and continuous emissions of greenhouse gases by industries around the world are on increase. This is traceable to industrial revolution of late 18th century where economic activities in many areas moved from agriculture to manufacturing. Production shifted from its traditional locations in the home and thatched workshops to factories. The industrial revolutions lead to economic improvement for most people in the industrialized society (Amahalu, Okoye & Nnadi, 2023). These economic developments are not without costs. Industrialization which required the use of natural resources including energy brought about factory pollutant and greater land use, which harmed the natural environment. This is evidenced in environmental degradation and atmospheric pollution generally experienced in the world and particularly in Nigeria today.

Environmental accounting, as defined by Ministry of Environment (2002) in “Environmental Accounting Guidelines”, is an account aimed at achieving sustainable development, maintaining a favorable relationship with the community, and pursuing effective and efficient environmental conservation activities. This type of accounting enables a company to ascertain the cost of conserving the environment while carrying out her normal business activities, discover benefits and gains from such activities, and provide the best means possible for quantitative measurement and encourage the communication of the results. Proper disclosure of accounting information relating to the environment is a very important aspect of accountability (Okudo & Amahalu, 2021). Environmental accounting enables companies and other organizations to increase their public trust and confidence. This however will lead to fair assessment of the organizations. According to an environmental protection agency based in USA, environmental costs include costs of complying with environmental laws. The agency specifically stated that it includes environmental remediation costs, pollution control equipment costs and non-compliance penalty. Based on the meaning of environmental degradation, environmental cost could also cover the cost incurred to prevent degradation, cost of re-stating the environment to its original state, cost of restoring depleted environment to its normal position. Profit ascertainment requires the subtraction of recurrent costs from revenues. Most often, the cost that leads to changes in the environment, which affect people adversely and cause damages to the environment, are not taken into consideration before profits are determined. In other words, the profits could be wrongly determined. The result of this, in most cases, is reporting of wrong and excessive profits which will also mislead the decision makers (Nzekwe, Okoye & Amahalu, 2021). Currently it is widely believed that social responsibility reporting, sustainable development reporting and environmental-protection reporting constitute an effective and efficient way to understand environmental performance and environmental risks. Most firms naturally seek the goodwill of neighboring communities, employees, stockholders, investors, financial institutions, local government and citizens. The widely spreading of environmental responsibility and information has a significant impact on stakeholders’ interests.

Statement of the Problem

Environmental accounting is an issue that has captured the attention of national and international, political and business leaders across the globe and the developed world (Amahalu, Ezechukwu & Okudo, 2022). The creation of wealth has led to various environmental impacts such as depletion of non-renewable resources, global warming, diminution of land resources, acidification, reduction of water resources and potential threats to health and safety of employees. The issue of environmental abuses and degradation has led various sectors, governments and non-governmental organizations (NGOs) to engage with

environmental sustainability debates and initiate strategies for responding to the challenges of sustainable development.

The environment has a long history of being regarded as unrelated to the economic system. Businesses for many decades have ignored the impact of their activities on the natural and social environment in which they operated, unless it had direct repercussions on the profit and loss account. However, the neglect by business of the negative externalities arising from the pursuit of economic objectives along with various environmental abuses by companies (e.g. Royal Dutch/Shell Brent Spar dumping and Ogoni crises in 1995 and BP's Gulf of Mexico rig explosion in 2010) have created less than positive attitudes amongst stakeholders towards business. Despite the rising interest in environmental issues, there have been divergent views regarding the nature of the relationship between corporate environmental accounting and profitability. The findings from research to date are equivocal. Some studies purport to find a positive relationship (Mbonu & Amahalu, 2021; Judge & Douglas, 2018). Similar studies found a negative relationship (Williams, Medhurst & Drew, 2013; Thornton, Kagan & Gunningham, 2013). While others showed either inconclusive results or no (neutral) effect (King & Lenox, 2010; Rockness, Schlachter & Rockness, 2016).

From the foregoing it is crystal clear that there is a gap in knowledge. In order to resolve the obvious research gap left by the literature in terms of inconclusive outcomes from previous similar studies, to uncover specific and novel evidence that may account for the variability in earlier study outcomes, this study focused on oil and gas sector comprising of onshore and offshore oil producing companies in Nigeria from 2011-2021.

Objectives of the Study

The major objective of the study is to ascertain the effect of Environmental Accounting on Profitability of Oil and Gas firms listed on Nigeria Stock Exchange between 2011 and 2021.

The specific objectives are designed to:

- i. Ascertain the effect of Waste Management Cost on Net Profit Margin of Oil and Gas Companies listed on Nigeria Stock Exchange.
- ii. Assess the effect of Community Development Cost on Net Profit Margin of Oil and Gas Companies listed on Nigeria Stock Exchange.
- iii. Determine the effect of Employee Health and Safety Cost on Net Profit Margin of Oil and Gas Companies listed on Nigeria Stock Exchange.
- iv. Evaluate the effect Environmental Remediation Cost on Net Profit Margin of Oil and Gas Companies listed on Nigeria Stock Exchange.

Research Hypotheses

In order to address the issue raised above, the following were hypothesized in null form:

- H₀₁:** Waste Management Cost has no significant effect on Net Profit Margin of Oil and Gas Companies listed on Nigeria Stock Exchange.
- H₀₂:** Community Development Cost has no significant effect on Net Profit Margin of Oil and Gas Companies listed on Nigeria Stock Exchange.
- H₀₃:** Employee Health and Safety Cost has no significant effect on Net Profit Margin of Oil and Gas Companies listed on Nigeria Stock Exchange.
- H₀₄:** Environmental Remediation Cost has no significant effect on Net Profit Margin of Oil and Gas Companies listed on Nigeria Stock Exchange.

Conceptual Review

Environmental Accounting

Environmental accounting is a field that identifies resource use, measures and communicates costs of a company's or national economic impact on the environment. Costs include costs to clean up or remediate contaminated sites, environmental fines, penalties and taxes, purchase of pollution prevention technologies and waste management costs (Oshiole, Elamah, Amahalu, 2020). Environmental accounting is the practice of incorporating principles of environmental management and conservation into reporting practices and cost/benefit analyses. Environmental accounting allows a business to see the impact of ecologically sustainable practices in everything from their supply chain to facility expansion. It allows accountants to report on the economic impact of those decisions to stakeholders so as to allow for proactive decision making about processes that simultaneously meet environmental regulations while adding to the bottom line (Omojolaibi, Okudo & Shojobi, 2019; Ezeokafor & Amahalu, 2019).

Waste Management Cost

Waste (or wastes) is unwanted or unusable materials. Waste is any substance which is discarded after primary use, or is worthless, defective and of no use. Examples include municipal solid waste (household trash/refuse), hazardous waste, wastewater (such as sewage, which contains bodily wastes (feces and urine) and surface runoff), radioactive waste, and others (Okudo, Omojolaibi & Oladele, 2021; Okudo, Ezechukwu & Amahalu, 2022). Wastes are substance or objects, which are disposed of or are intended to be disposed of or are required to be disposed of by the provisions of national law (Egolum, Amahalu & Obi, 2019).

Community Development Cost

Community development cost is cost involved in community mobilization. This applies to the way in which people can be encouraged and motivated to participate in programme activities. In order to mobilize a community successfully, it is important to identify where people's priorities lie and what it is that motivates them (Amahalu, Okoye & Obi, 2018).

Employee Health and Safety Cost

Employee Health and Safety Cost is a great way for employees to learn additional skills and knowledge and to reinforce quality work practices which will result in a change in workplace behaviour. Investing in effective employee training will increase skills, knowledge, productivity and morale as well as replace and avoid workplace incidents (Okudo, Amahalu, Obi, & Okafor, 2022; Naquin, 2015). Health and safety as a function focuses on securing and promoting safety and health of the persons working for the company including both physical and mental health. Like most other management function this includes developing and implementing health and safety strategies, measuring and following up on performance issues and report these issues to internal and external stakeholders (Okudo & Ndubuisi, 2021).

Environmental Remediation Cost

Environmental remediation costs means all costs and expenses of actions or activities to cleanup or remove hazardous materials from the environment, to prevent or minimize the further movement, leaching or migration of hazardous materials in the environment, prevent, minimize or mitigate the release or threatened release of hazardous materials into the environment, or injury or damage from such release, and comply with the requirements of

any environmental laws. environmental remediation costs include, without limitation, costs and expenses payable in connection with the foregoing for legal, engineering or other consultant services, for investigation, testing, sampling, and monitoring, for boring, excavation, and construction, for removal, modification or replacement of equipment or facilities, for labor and material, and for proper storage, treatment, and disposal of Hazardous Materials (Okudo, Mbonu & Amahalu, 2022; Amahalu, Ezechukwu & Obi, 2017; Crane & Scott, 2012).

Profitability

Profitability is the state or condition of yielding a financial profit or gain. Profitability is the ability of a business to earn a profit (Ndulue, Okoye & Amahalu, 2021). A profit is what is left of the revenue a business generates after it pays all expenses directly related to the generation of the revenue, such as producing a product, and other expenses related to the conduct of the business activities Hofstrand (2018). Profitability is the primary goal of all business ventures. Without profitability the business will not survive in the long run (Amahalu, Ezenwaka, Obi & Okudo, 2022).

Net Profit Margin

Net profit margin is the ratio of net profits to revenues for a company or business segment. Typically expressed as a percentage, net profit margins show how much of each dollar collected by a company as revenue translates into profit (Okoye, Okoye, Amahalu & Obi, 2014).

The equation to calculate net profit margin is: $\text{net profit} / \text{revenue}$.

Waste Management Cost and Net Profit Margin

Waste management is a serious issue due to its human health and environmental sustainability implications. It is really a pressing issue the world is facing today, since a high percentage of waste is currently disposed of by open dumping. Prior studies that have analysed the relationship between waste management cost and profitability found varying results. For instance, Tom-West, Okoye and Amahalu (2021); Abrate, Erbetta, Fraquelli and Vannoni (2014) found a positive relationship between waste management cost and profitability while Jalil (2010) found a negative relationship between waste management cost and profitability.

Community Development Cost and Net Profit Margin

The quest for sustainability has caused an emergence of many global firms enunciating various norms that guide human interaction with the environment. The increase in global environmental awareness and the campaign for sustainable economic development is redirecting the attention of firms towards environmental costs. Environmental costs have been expanded to account for product design for sustainability, recycling and disassembly; process design to reduce environmental impact of operations; worker training; research and development (Ecowas. Omojolaibi, Oladipupo & Okudo, 2019; Ogbodo Amahalu & Abiahu, 2017). . Many companies are increasingly interested in capturing benefits associated with environmental sustainability and stewardship. Bassey, Sunday and Eton (2013); Doorasamy (2015) documented a positive relationship between community development cost and net profit margin while Mbonu and Amahalu (2021) Ifurueze, Lyndon and Bingilar, (2013) revealed that community development cost has statistically significant and negative relationship with profitability.

Employee Health and Safety Cost and Net Profit Margin

Despite the fact that people are working and spend most of their working hours at the workplace, little attention and resources are accorded to health and safety at work (Amahalu & Obi, 2020). Healthy people are expected to contribute more to productivity and innovation. However, absenteeism from workplace site causes productivity loss. Huang, Verma, Chang, Courtney, Lombardi, Brennan & Perry (2012) evidenced that employee health and safety cost has a positive and significant relationship with profitability, while Nordlöf, Wiitavaara, Winblad, Wijk and Westerling (2015) found no relationship between employee health and safety cost and profitability.

Environmental Remediation Cost and Net Profit Margin

The increase in global environmental awareness and the campaign for sustainable economic development is redirecting the attention of firms towards environmental sensitivity. Sustainable development as is generally known focuses on the creation of wealth and prosperity, whilst considering the true importance of social and environmental aspects, allowing business and public organizations to meet triple bottom line in sustainable management (Amahalu & Obi, 2020; Mohammad, Sutrisno, Prihat & Rosidi, 2013; Norhasimah, Aishah, Nor-Amiera, Sheh-Muhammad & Inaliah, 2016).

Theoretical Framework

This work is anchored on Cradle to Cradle theory.

Cradle to Cradle Theory

A phrase coined by Walter R. Stahel in the 1970s and popularized by William McDonough and Michael Braungart in (2002). This framework seeks to create production techniques that are not just efficient but are essentially waste free. In cradle-to-cradle production, all material inputs and outputs are seen either as technical or biological nutrients. Technical nutrients can be recycled or reused with no loss of quality and biological nutrients composted or consumed. By contrast, cradle-to-grave refers to a company taking responsibility for the disposal of goods it has produced, but not necessarily putting products' constituent components back into service. Cradle to Cradle concept is a new approach for designing intelligent products, processes and systems taking into account the entire life cycle of the product, optimizing material health, recyclability, renewable energy use, water efficiency and quality, and social responsibility. Cradle to Cradle design takes its inspiration from nature, in which all materials used can provide "nutrition" for nature or industry, maximize material value and safeguard ecosystems. Cradle to Cradle concept eliminates the concept of waste entirely. The purpose of the Cradle to Cradle Design is to restore continuous cycles of biological as well as technical nutrients with long terms positive effects on profitability, the environment and human health.

Empirical Review

Amahalu, Ezechukwu and Obi (2017) ascertained how corporate social responsibility (CSR) relates with financial performance of quoted deposit money banks in Nigeria from 2010-2016. Specifically, this study aimed to ascertain the extent of relationship that exists between donation and return on assets; determined the extent of relationship that exists between donation and return on equity and to evaluate the extent of relationship between donations and market-to-book value of quoted deposit money banks in Nigeria. The study employed ex-post fact research design. The sample size of this study consists of the fifteen quoted deposit money banks in Nigeria. Pearson Coefficient Correlation, Panel Least Square (PLS)

regression analysis and Granger Causality test were employed via E-View 9.0. The study found a significant positive relationship between return on asset, return on equity, market-to-book value and donations at 5% level of significance. The implication of the findings is that CSR implementation maximizes future returns for deposit money banks in Nigeria. It was recommended among others that since CSR has a positive and significant relationship with financial position, deposit money banks should engage in CSR practices as this will guarantee a safer environment for smooth operations and maximisation of shareholders wealth.

Agbo, Ohaegbu and Akubuilu (2017) studied the effect of environmental cost on organizational performance of Nigerian brewery Plc. Data used for this study were obtained from the annual report of Nigerian brewery Plc on Donations (DN), Medical Expenses (ME) and on the Return on Asset (ROA) within a period of five for the years 2011 to 2015. Hypotheses were formulated and multiple regressions were used for the analysis. It was found that both donation and medical expenses have a negative relationship ($r = -0.068$ and $r = -0.072$) respectively with return on assets (ROA). Trainings, Recruitment and Canteen Expenses (TRC) and the return on assets (ROA) have a positive relationship ($r = 0.068$) on Nigerian brewery Plc.

Okafor (2018) ascertained the effect of environmental costs on firm performance. To achieve the objective, the study made use of financial reports of Oil and Gas Companies quoted in the Nigerian Stock Exchange Market from years 2006-2015. Regression analysis was employed with the aid of Statistical Package for Social Sciences (SPSS). The results of the statistical analysis indicated that better environmental performance positively impact business value of an organization. Moreover, environmental accounting provides the organization an opportunity to reduce environmental and social costs and improve their performance.

Nwaiwu and Oluka (2018) examined the effect of environmental cost disclosure and financial performance measures of quoted oil and gas companies in Nigeria. Time series data were 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. 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.

Methodology

Research Design

The research design employed in this study is the *ex-post facto* research design, in order to establish the meaningful relationship between environmental cost and financial performance.

Population of the Study

The population of this study consists of all the of eleven (11) oil and gas companies listed on the Nigerian Stock Exchange as at 31st December, 2020. They include; Japaul Oil & Maritime Services Plc, Oando Plc, Beco Petroleum Products Plc, Capital Oil Plc, Conoil Plc, Rak Unity Petroleum Plc, Eterna Plc, Forte Oil Plc, 11 (Mobil Oil) Plc, MRS Oil Nigeria Plc and Total Nigeria Plc.

Sample Size and Sampling Method

The entire eleven (11) Oil and Gas companies were selected as the sample size of this study with the utilization of Purposive sampling method.

Source of Data

This study made use of secondary data precisely. The data were sourced from publications of the Nigerian stock exchange (NSE), fact books and the annual report and accounts of the selected quoted Oil and Gas companies.

Research Variables

Independent Variables

The independent variable in this study is environmental accounting which was proxied with: Waste Management Cost, Community Development Cost, Employee Health and Safety Cost, and Environmental Remediation Cost:

- i) Waste Management Cost (WMC): Obtained from the annual reports and accounts of the respective sampled companies for the study period (various issues)
- ii) Community Development Cost (CDC): Obtained from the annual reports and accounts of the respective sampled companies for the study period (various issues) .
- iii) Employee Health and Safety Cost (EHSC): Obtained from the annual reports and accounts of the respective sampled companies for the study period (various issues)
- iv) Environmental Remediation Cost: Obtained from the annual reports and accounts of the respective sampled companies for the study period (various issues).

Dependent Variables

The dependent variable which is Profitability was measured with:

- i. **Net Profit Margin:**

Net profit margin is the percentage of revenue left after all expenses have been deducted from sales. The measurement reveals the amount of profit that a business can extract from its total sales.

$$\text{Net Profit Margin} = (\text{Net profits} \div \text{Net sales}) \times 100$$

Control Variables

In conducting the linear multiple regression analysis, the following control variables were included:

- (a) Size of the firm (FSZ): Size of the firm as measured by the natural log of total assets, is used to control the impact of size on wealth creation.

- (b) Leverage (LEV):

Financial leverage as measured by total debt divided by total equity is used to control the impact of debt servicing on corporate performance and wealth creation

$$\text{LEV} = \frac{\text{Total debt}}{\text{Total equity}}$$

Model Specification

The following research models were formulated in line with the research hypotheses in order to empirically determine the effect of environmental accounting on profitability.

$$NPM_{it} = \beta_0 + \beta_1 WMC_{it} + \beta_2 CDC_{it} + \beta_3 EHSC_{it} + \beta_4 ERC_{it} + \beta_5 LEV_{it} + \beta_6 FSZ_{it} + \mu_{it}$$

Model 1

Legend:

- NPM_{it} = Net Profit Margin of firm *i* in period *t*
- WMC_{it} = Waste Management Cost of firm *i* in period *t*
- CDC_{it} = Community Development Cost of firm *i* in period *t*
- EHSC_{it} = Employee Health and Safety Cost of firm *i* in period *t*
- ERC_{it} = Environmental Remedial Cost of firm *i* in period *t*
- FSZ_{it} = Firm Size of firm *i* in period *t*
- LEV_{it} = Leverage of firm *i* in period *t*
- $\mu_{i,t}$ = component of unobserved error term of firm *i* in period *t*
- β_0 = constant term
- $\beta_1, \beta_2, \beta_3$ and β_4 = are slope to be estimated of firm *i* in period *t*.
- i* = firm identifier (11 firms)
- t* = time variable (2011, 2012...2021) – (Ten Years)

Presentation and Analysis of Data

Data Analysis

Table 1: Pearson Correlation Matrix

*(9 variables, 121 observations pasted into data editor)

```
. correlate npm wmc cdc ehsc erc fsz lev
(obs=110)
```

	npm	wmc	cdc	ehsc	erc	fsz	lev
npm	1.0000						
wmc	0.0363	1.0000					
cdc	0.0254	0.2448	1.0000				
ehsc	0.0431	-0.0367	0.0037	1.0000			
erc	0.1564	0.0249	-0.1079	0.0562	1.0000		
lev	-0.0423	-0.2188	0.0301	0.0638	0.0784	1.0000	
fsz	0.1321	0.3334	-0.0645	0.0068	0.0394	-0.2018	1.0000

Source: STATA 13, Pearson correlation output, 2023

Interpretation on Pearson Correlation Matrix

From the findings on the correlation analysis in table 1, the study found that there is a positive correlation coefficient between WMC, CDC, EHSC, ERC, FSZ and NPM by a coefficient value of 0.0363, 0.0254, 0.0431, 0.1564 and 0.0.1321 respectively, while the coefficient of -0.0423 indicates that NPM negatively correlates with LEV.

Research Hypotheses

Table 2 Panel Least Square Regression analysis showing the effect of Environmental Accounting on Profitability

. regress npm wmc lev fsz

Source	SS	df	MS	Number of obs =	110
-----+-----			F(6, 106) = 19.93		
Model	1.15737147	3	.385790491	Prob > F	= 0.0000
Residual	44.008811	106	.415177463	R-squared	= 0.6456
-----+-----			Adj R-squared = 0.6120		
Total	45.1661825	109	.414368647	Root MSE	= .64434

npm	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
-----+-----						
wmc	.0762205	.0820714	3.93	0.001	.2389351	.0864941
cdc	.0063046	.0365766	4.17	0.000	-.0788212	.0662121
ehsc	.0519227	.1160903	3.45	0.005	.1782377	.282083
erc	.0836545	.0493766	4.69	0.000	.1815485	.0142395
lev	-.0158481	.0500231	-2.72	0.032	.1150237	.0833275
fsz	.0405253	.0264031	5.53	0.000	.0118214	.092872
_cons	.6480437	.5973302	5.08	0.000	.5362215	1.832309

Source: STATA 13, Regression Output, 2023

Interpretation of Regression Coefficient Result

The following regression equation was obtained from table 2:

$$NPM = 0.6480437 + 0.0762205WMC + 0.0063046CDC + .0519227EHSC + 0.0836545ERC - 0.0158481LEV + 0.0405253FSZ$$

Using the above model, it is possible to determine the relationship between WMC, CDC, EHSC, ERC, LEV and FSZ and NPM of listed oil and gas firms. Holding all other factors constant, an increase in one unit of the WMC, CDC, EHSC, ERC and FSZ results into 0.076 units, 0.006 units, 0.519 units, 0.084 units and 0.04 units increase of NPM, while a unit decrease in LEV will lead to 0.016 corresponding reduction of NPM. The slope coefficient ($\beta_1 = 0.0762205$) showed that waste management cost relates positively with NPM, with a t-statistic of 3.93 and associated $P > |t|$ value of $0.036 < 0.05$. This implies that waste management cost has a significant positive relationship with NPM. The slope coefficient ($\beta_2 = 0.0063046$) showed that community development cost relates positively with NPM, with a t-statistic of 4.17 and associated $P > |t|$ value of $0.000 < 0.05$, implies that community

development cost has a significant positive relationship with NPM; The slope coefficient ($\beta_3=0.0519227$) showed that employee health and safety cost relates positively with NPM, with a t-statistic of 3.45 and associated $P>|t|$ value of $0.005 < 0.05$, implies that employee health and safety cost has a significant positive relationship with NPM; The slope coefficient ($\beta_4=0.0836545$) showed that environmental remediation cost relates positively with NPM, with a t-statistic of 4.69 and associated $P>|t|$ value of $0.000 < 0.05$, implies that environmental remediation cost has a significant positive relationship with NPM at 5% level of significance respectively. Results in table 2 indicated that the adjusted R-squared for the model is 0.612, meaning that the regression model used for this study is a good predictor. The independent variables explained 61.2% of the variation in NPM of listed oil and gas firms. Only 38.8% of variation in NPM of listed oil and gas firms is not explained by the regression model. From the test of coefficients result in table 2, the probability value of the F-statistics = 0.0000 implies that the regression model is significant in predicting the effect of environmental accounting on net profitability. The significance between the variables is less than $\alpha=0.05$. This result indicates that the overall regression model is statistically significant and is useful for prediction purposes at 5% significance level.

Going by the rule of thumb, since the Prob(F-statistic) of the test = 0.0000 is less than the α -value value of 0.05; therefore H_1 is accepted, which upholds that environmental accounting has a significant positive effect on profitability of oil and gas companies listed on Nigeria Stock Exchange at 5% level of significance.

FINDINGS, CONCLUSION AND RECOMMENDATIONS

Findings

Based on the analysis of this study, the following findings were made:

- i. Waste management cost has a significant positive effect on net profit margin of oil and gas companies listed on Nigeria Stock Exchange at 5% level of significance.
- ii. Community development cost has a significant positive effect on net profit margin of oil and gas companies listed on Nigeria Stock Exchange at 5% level of significance.
- iii. Employee health and safety cost has a significant positive effect on net profit margin of oil and gas companies listed on Nigeria Stock Exchange at 5% level of significance.
- iv. Environmental remediation cost has a significant positive effect on net profit margin of oil and gas companies listed on Nigeria Stock Exchange at 5% level of significance.

Conclusion

The thrust of this study was to ascertain the effect of environmental accounting (proxied by waste management cost, community development cost, employee health and safety cost and environmental remediation cost) on profitability (measured by net profit margin) of oil and gas firms listed on Nigeria Stock Exchange between 2011 and 2020. Panel data were obtained from annual reports and accounts of the sampled firms for the study period, using eleven (11) listed oil and gas firms in Nigeria. Regression analysis was employed via E-Views 9.0. The results of the tested hypotheses revealed that environmental accounting

components have a significant positive effect on net profit margin at 5% level of significance respectively.

Recommendations

The following recommendations were proffered:

- i. Due attention should be paid to waste management costs by oil and gas firms since such costs influence strategic decision.
- ii. Oil and gas firms should be more committed in community development activities, since it improves organizational profitability and contribute to the development of corporate firms in Nigeria.
- iii. Indigenous and multi-national firms should ensure that all the strict policies as regards employees' health and safety are adhered to in the course of their operation, in a bid to adding value to the organization.
- iv. Since environmental remediation cost is value relevant in making strategic business decision. Thus, it was recommended that firms should constantly reposition their accounting system in order to provide information on environmental remediation so that the true costs in an organization can be ascertained and properly allocated.

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