

Environmental Cost Accounting and Profitability of Publicly Traded Consumer Goods Companies in Nigeria

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Abstract: *The research objective is to discover the link between environmental cost accounting and the profitability of consumer goods companies incorporated in Nigeria. The dimension of environmental cost accounting used are pollution control cost, waste management cost and social project costs while the profitability proxies are net profit margin and return on asset. Retrospective research design as well as stakeholder theory was used in the study. The study population consisted of twenty-six consumer goods companies, eighteen of which were purposively selected for the period 2017-2021. Content analysis was used to obtain data on the environmental cost dimension. The data obtained were analysed by means of descriptive statistics and multiple regression aided by SPSS version 22.0. The result revealed a positive, non-significant relationship between social project costs and net profit margin along with return on asset. Pollution control cost had a positive, significant relationship on net profit margin but its relationship on return on asset is not significant. Waste management cost depicted a negative relationship that is not significant with net profit margin and return on asset. The research concluded that environmental cost accounting had a positive, non-significant relationship with the profitability of publicly traded consumer goods companies in Nigeria. Among other things, the study recommends that corporate entities increase their spending on social projects aimed at ameliorating the suffering of host communities and that corporate organization should spend more on waste management and pollution control.*

Keywords— *Environmental cost accounting, profitability, pollution control cost, waste management cost, social project cost, net profit margin and return on asset.*

1. INTRODUCTION

Human activities generate a great quantity of waste that is released into the various components of the environment (air, water and land), resulting in undesirable changes in the environment. Environmental cost considerations have generally been ignored or neglected in development planning in most developing countries. Exploiting nature without regard for its repercussions can lead to a breakdown in social harmony. The technological development of industrialization is the lifeblood of all developing countries. The current choice of technology that would reduce the impact on the environment and improve the quality of life is a necessity (Khitoliya, 2004).

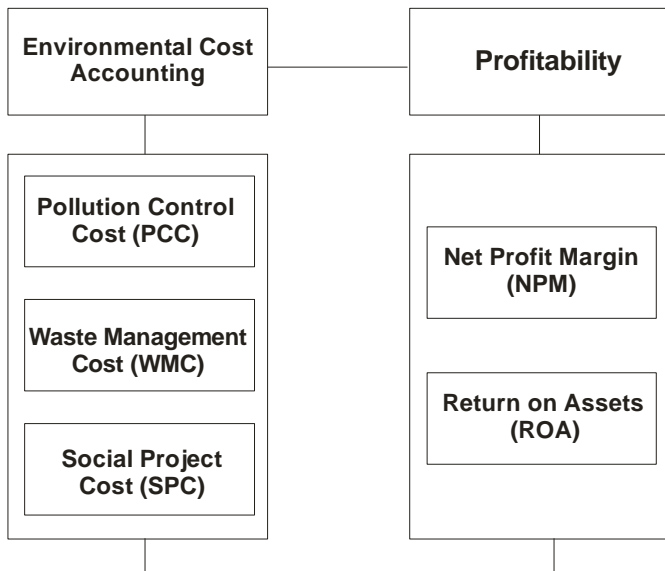
Umoren *et al.*, (2018) hypothesized that man's desire to eventually use environmental resources to improve his life led to the degradation or pollution of the human environment that affected his existence. The need to properly record environmental activities to determine their impact on the environment and possible ways to mitigate the problem led to the definition of Environmental cost accounting. Oyedokun *et al.*, (2019) stated that environmental costs are the costs incurred by business entities to monitor, prevent and report environmental impact. Companies play an important role in the economic development of society due to their technological expertise, financial support and institutional capacity to implement sustainable solutions (Okore, 2021).

Agbo *et al.*, (2017) found out that the need for environmental preservation and resource sustainability forced organisations to develop alternative ways of doing business around the world to reduce the impact on the environment and its inhabitants due to over-exploitation of available natural resources. Indeed, when an organization has a positive impact on the environment of its stakeholders and the host community, it leads to significant commercial success (Omodero *et al.*, 2016). Environmental degradation, depletion of natural resources, and lack of organisational social responsibility towards host communities have made environmental accounting an important area of researcher's interest. Leading to this study are issues facing host communities where industries are cited as a result of their activities or operations of these companies without sufficient impact to mitigate the effect on the residents in form of corporate social responsibility. Several studies have been conducted inside and outside the country on environmental cost accounting and financial performance with mixed results, some of which showed a positive relationship (Oyedokun *et al.*, 2019; Okore, 2021; Lyndon *et al.*, 2018) a negative relationship (Ifurueze *et al.*, 2013) and others no relationship (Umoren *et al.*, 2018; Womenazu *et al.*, 2019). Some researchers have argued that corporate spending on, among other things, social projects, pollution control and waste management may not translate into corporate profitability. These diverse views of the researchers create a knowledge gap which necessitated this study to account for Environmental

Cost Accounting and Profitability of Publicly Traded Consumer Goods Companies in Nigeria.

2. CONCEPTUAL FRAMEWORK

The conceptual framework relevant to Environmental Cost Accounting and Profitability of Publicly Traded consumer goods companies in Nigeria is schematically presented below.



Sources: Jonah *et al*, 2023; Oyedokun *et al*, 2019; Okore, 2021.

3. PURPOSE OF THE STUDY

The main aim of this study is to determine the relationship between environmental cost accounting and the profitability of publicly traded consumer goods companies in Nigeria. The specific objectives are to:

1. Evaluate the relationship between pollution control cost and net profit margin of publicly traded consumer goods companies in Nigeria.
2. Evaluate the relationship between waste management cost and net profit margin of publicly traded consumer goods companies in Nigeria.
3. Evaluate the relationship between social project cost and net profit margin of publicly traded consumer goods companies in Nigeria.
4. Evaluate the relationship between pollution control cost and return on assets of publicly traded consumer goods companies in Nigeria.
5. Evaluate the relationship between waste management cost and return on assets of publicly traded consumer goods companies in Nigeria.
6. Evaluate the relationship between social project cost and return on assets of publicly traded consumer goods companies in Nigeria.

4. RESEARCH HYPOTHESES

The following hypothesis guided the study:

Ho₁: There is no significant relationship between pollution control cost and the net profit margin of publicly traded consumer goods companies in Nigeria.

Ho₂: There is no significant relationship between waste management cost and the net profit margin of publicly traded consumer goods companies in Nigeria.

Ho₃: There is no significant relationship between social project cost and the net profit margin of publicly traded consumer goods companies in Nigeria.

Ho₄: There is no significant relationship between pollution control cost and return on assets of publicly traded consumer goods companies in Nigeria.

Ho₅: There is no significant relationship between waste management cost and return on assets of publicly traded consumer goods companies in Nigeria.

Ho₆: There is no significant relationship between social project cost and return on assets of publicly traded consumer goods companies in Nigeria.

5. THEORETICAL FRAMEWORK

Stakeholder Theory

Stakeholder theory was proposed by Freeman at the University of Virginia in 1984. This theory emphasized the need for managers to take corporate responsibility to stakeholders rather than to shareholders. This theoretical proposal emphasized that the success of any firm depends on the successful management of diverse interests within the organization (Bassey *et al*, 2013).

This theory argued for a progressive level of environmental awareness that created a need for companies to expand their planning processes to proper disclosure of environmental issues to the benefit of all interest groups. Environmental cost accounting should be treated according to stakeholder theory, including all costs incurred in relation to environmental issues.

6. CONCEPTUAL REVIEW

6.1 ENVIRONMENTAL COST ACCOUNTING:

Akande (2019) discussed that identifying, recording and reporting the costs incurred as a result of business operations in the environment is called environmental accounting. Environmental costs are costs incurred by companies to prevent and protect environmental problems and reduce environmental damage (Charles *et al*, 2017). Chinedu *et al*, (2019) stated that the cost incurred to comply with environmental protection laws is considered an environmental cost. They said that, according to the 2014 US Environmental Protection Agency, the primary role of the environmental accountant is to draw the attention of environmental stakeholders to encourage them to find ways to avoid or reduce environmental costs and improve environmental quality.

Bassey *et al*, (2013) stated that environmental cost accounting allows the organization to reveal all environmental costs incurred by the business in order to

reduce costs to make a profit. Environmental cost comprises environmental measures, which include waste management cost (material recycle cost, and clean-up cost), pollution cost (oil spill cost, gas flaring cost, etc.) and social project cost (development and capital expenditure costs). These costs are incurred to reduce or prevent environmental damage arising from resource conservation (Okore, 2021).

6.2 POLLUTION CONTROL COST:

Pollution control cost is an investment that guarantees long-term returns. It is true that the damage caused by pollution is much greater than the investment required to implement a comprehensive and sustainable pollution control system. Pollution is an indicator of system inefficiency, representing a waste of global resources, an economic burden for countries and a financial loss for businesses. As a result, the companies are facing increasing opposition from the public. To reduce pollution, inefficiencies must be eliminated. A lot of time and money is lost in the factory and the sewage system; in many cases the process of material change will solve the problem at the highest cost without harming the quality of the product (Khitoliya, 2004).

Asthama and Meera (2003) define environmental pollution as "adverse changes in the physical, chemical and biological properties of air, water or soil that will harm human life and others, industrial processes, living conditions and cultural resources, or waste our resources". The cost of reducing pollution includes the costs a firm acquires to remove or reduce the cost of pollution as a result of its activity (Omodero *et al*, 2016)

6.3 WASTE MANAGEMENT COST:

Waste is an unwanted or unusable material that is generated through human activities. Waste management refers to all activities, geared towards managing waste. The main aim of waste management is to improve the environment for healthy living through sustainable means (Khitoliya, 2004).

Solid waste management costs are all costs associated with the production of waste; on-site handling, storage and processing, collection, transportation, processing and recovery and final disposal (Baljeet, 2001). For the environment of man to be conducive for living waste must be managed and its management involves huge costs especially that of the industrial sector of the economy.

6.4 SOCIAL PROJECT COST:

These are the cost incurred by corporations involve in social responsibility projects like Electricity supply, water supply, the building of the school, road projects, and scholarship schemes to host communities among others. An organization that effectively carries out social projects within its jurisdiction of operation will likely experience interruption of activities by host communities

thereby increasing its productivity, resulting in increased profitability.

6.5 PROFITABILITY:

Profitability is a measure of an organisation's revenue, relative to its expenses. An efficient entity will realise more profit than a non-efficient corporation. Profitability is the main objective of a business organization. Profit is only realized when a company has gone through an economic cycle. All business entities strive for abundant profits.

Oliver (2001) asserts that, for profit induce shareholders to buy shares and private equity owners to invest their capital, it is the pursuit of profit that leads to the production of goods and services, and it is the profit earned that ensures the survival and growth of the enterprise. The dimensions of profitability used in the study are net profit margin and return on assets.

Net profit margin (NPM): is a measure of how much a firm earns after deducing other operating expenses from gross profit.

$$NPM = \frac{\text{Net Profit after Tax}}{\text{Total Revenue}} \quad (1)$$

Return on Asset (ROA): This is an indicator of a company's profitability relative to its total assets. It is a very important ratio that provides a standard for determining the efficiency of management in an organisation.

$$ROA = \frac{\text{Net Profit after Tax}}{\text{Total Asset}} \quad (2)$$

7. EMPIRICAL REVIEW

Adegbie *et al*, (2020) studied the environmental accounting practices and share value of food and beverage companies in Nigeria. The research design used is ex-facto and secondary data was obtained from ten surveyed companies using purposive sampling method. Stakeholder theory was used to frame the study. The data obtained from the audited annual reports of the selected companies were analysed using quantitative and qualitative statistics. The results revealed a significant effect between environmental accounting practices and stock values. The study concludes that environmental accounting affects the stock value of publicly traded food and beverage companies. It is suggested that corporate accounting and disclosure of environmental costs should be a top management priority to have a positive impact on corporate value.

Agbo *et al* (2017) considered the impact of environmental costs and financial performance of Nigerian breweries. The dimensions used in the study are donations, medical costs, training, recruiting, store costs, and return on assets. Multiple regressions were used to analyse the audited annual reports of listed companies

from 2011 to 2015. The study showed that medical expenses and the donation made have a negative relationship with the return on assets, while training, canteen expenses and recruitment have a positive effect on the return on assets. The study established a significant relationship between environmental costs and financial performance.

Charles *et al*, (2017) studied environmental accounting disclosures and financial performance in food and beverage companies in Nigeria. The study used a retrospective research design and stakeholder theory was used to frame the research. Pearson correlation coefficient and multiple regressions were used to analyse secondary data obtained from ten food and beverage companies in Nigeria from 2006 to 2015. The study showed that environmental accounting disclosure has a significant positive relationship with return on equity and negative impact on return on capital invested, and profit margins. The study concluded that food and beverage companies in Nigeria do not adopt environmental accounting. Among other things, it is recommended to establish uniform reporting standards and disclosure of environmental performance standards by companies, as well as mandatory environmental disclosure.

Chinedu *et al*, (2019) examined the impact of environmental disclosure on the financial performance of cement companies in Nigeria. The study used a retrospective research design. The dimensions of the predictor variable used were worker safety costs, charitable contribution costs, and community development costs, while the criterion variable used was profitability. The secondary data used was obtained from the annual financial report of the cement companies from 2006 to 2017. The study employed Panel Regression model to analyse the collected data. The result of the finding depicted that charitable contribution, as well as community development costs, had a positive, significant relationship on profitability, while employee safety costs had a negative, significant relationship on profitability. This means that companies that have better exposure to environmental accounting perform better financially. The study concluded that the disclosure of environmental accounts contributes significantly to the financial performance of cement companies in Nigeria. Among other things, the study recommended that cement companies adopt standard environmental accounting disclosures and make appropriate provisions for workers' health and safety to achieve optimal productivity, which will lead to improved financial performance.

Damieibi (2023) reviewed the environmental accounting practices and net profit of listed oil and gas companies in Nigeria. Dimensions used for environmental accounting included pollution, waste management and drainage costs. The stakeholder theory was used in the research. The study used secondary data collected from the audited financial statements of ten oil and gas companies listed on the Nigerian stock exchange between 2012 and 2021.

The data were analysed by least squares regression using SPSS version 22.0. The results indicated that there is a positive, significant relationship between pollution cost accounting and net profit, while a negative, significant relationship was observed between drainage cost accounting and net profit. There is no statistically significant relationship between the accounting of waste management costs and net profit. It has been concluded that environmental accounting practices affect the net profit margin of Quoted oil and gas companies in Nigeria. The study recommended that adequate attention be paid to waste management accounting by the management of oil and gas companies in Nigeria in other areas as well to improve profitability.

Ifurueze *et al*, (2013) surveyed the impact of environmental costs on corporate performance in Nigeria. The proxies used as dimensions for the independent variable are the following: development costs, waste management costs, and employee health and safety costs, while the criterion variable was represented by return on total assets. Study data was obtained from twelve publicly traded oil and gas companies in Nigeria from 2001 to 2011. Multiple regression was used to analyse the collected data. The result showed a negative relationship between development costs and return on assets, similarly waste management costs showed a negative significant relationship to return on total assets and a positive relationship to employee health and safety costs. It was concluded that environmental costs had an impact on business performance. It was recommended that well-articulated environmental costing parameters be developed by oil companies' management for a conflict-free corporate atmosphere.

Jonah and Aaron (2023) an investigation of environmental disclosure and market value of food and beverage companies in Nigeria. Retrospective research design was used in the study. Stakeholder theory was used to establish the project. Secondary data collected from audited financial statements of ten publicly traded food and beverage companies in Nigeria from 2010-2020 were analysed using multivariate statistics, multiple regression and Pearson correlation supported by SPSS version 22.0. The results show a significant relationship between environmental accounting disclosure and market value of food and beverage companies in Nigeria. The study also shows that environmental pollution control and cost of environmental regulations have a positive and significant relationship with earnings per share and no relationship with equity book value per share. It is concluded that the company should disclose environmental accounting information to improve market value. The study suggests that management should adopt effective environmental reporting policies that will improve the company's market value.

Lyndon *et al*, (2018) investigated the environmental responsibility reporting and financial performance of public oil and gas companies in Nigeria. Content

analysis was used to collect data from the annual reports of thirteen listed oil and gas companies from 2012 to 2017. The data was analysed using least squares regression and the results show a positive relationship between environmental responsibility reporting and financial performance of oil and gas companies in Nigeria. The study concluded that environmental responsibility reporting is at an advanced stage in Nigeria due to the voluntary nature of disclosure requirements. Finally, he said that companies should plan and implement economic, social and environmental policies and their supervisors should plan and implement the same reports.

Okafor T.G. (2018) analysed environmental cost accounting and financial performance reports in Nigeria. Environmental accounting dimension includes; cost on population control, environmental remediation, environmental laws compliance and penalty losses, donations and charitable contributions, whereas financial performance proxied with return on asset. Secondary data was collected from ten publicly traded oil and gas companies in Nigeria from 2006 to 2015. Data was analysed using regression method. The results of the study show a statistically positive, significant relationship between environmental cost accounting proxies and return on assets. The study established that environmental cost accounting impact on the firm financial performance. It has been suggested that, for better performance, more environmental activities should be undertaken by oil and gas publicly traded companies in Nigeria.

Okore (2021) assessed the impact of environmental costs on the performance of manufacturing companies in Nigeria. Performance was proxy with return on the asset, while the dimension of environmental cost are donation, the cost of charity, the cost of social responsibility, the cost of waste management, and the cost of environmental training. The retrospective research design was used and the research data was collected from audited financial statements of some companies in Nigeria from 2011 to 2020. The data was analysed using Panel least square, the finding indicated that environmental cost variable had a significant association with return on assets of manufacturing firms in Nigeria. The study recommended investment in environmental cost variables to encourage uninterrupted and smooth operations.

Olagunju and Ajiboye (2022) studied the exposure of environmental accounts and the market value of publicly traded non-financial firms in Nigeria. Longitudinal research design was used and the population of the survey consisted of one hundred and twelve publicly traded non-financial firms in Nigeria. The study used a purposive sample of seventy-two listed annual reports of non-financial companies. Content analysis was used to obtain environmental exposure data. The collected data were analysed using least squares regression technique. The findings show that environmental accounting disclosure

has a positive and significant relationship with both earnings per share and costs. The study concluded that environmental accounting disclosure has a significant impact on the market value of private and non-financial corporations in Nigeria. It is recommended that companies prioritize the inclusion of environmental information in their annual reports.

Oyedokun et al, (2019) analysed the impact of environmental accounting disclosure and firm value of Industrial goods companies in Nigeria. The data was collected from a secondary source of industrial inventory from 2007 to 2016. A retrospective empirical research design was developed for the study based on stakeholder theory. A number of data were analysed using descriptive and regression. The results show that exposure to environmental accounting measured by non-financial indicators has a positive effect on company value; on the other hand, performance has a negative impact on the company's value. The study recommends the use of sanctions to effectively encourage disclosure to enhance the business value of industrial goods companies in Nigeria.

Umoren et al, (2018) reviewed the performance of oil companies and environmental reports in Nigeria. The environmental accounting measure used is degradation, air pollution, employee well-being, litigation, water pollution, and community well-being, while the performance variable used are earnings per share, dividend per share, net profit margin, and return on capital employed. The secondary data used for the study comes from the audited financial statements of eleven oil companies from 2014 to 2016. The data analysis uses descriptive statistics and regression techniques. Study results showed that environmental accounting reports were not significantly associated with performance variances. The study found a non-significant relationship between environmental accounting reports and performance. As a result of the findings, it recommended that environmental information be mandated and sanctions imposed on companies that violate disclosure requirements.

Womenazu et al, (2019) examined the environmental disclosures and corporate performance of publicly traded oil and gas companies in Nigeria. The study made use of a cross-sectional and chronological research design. Secondary data has been collected from the audited financial statements of thirteen (13) oil and gas companies listed in Nigeria from 2005 to 2016. The collected data were analysed by ordinary least squares multiple regression supported by e-view 9, the consultant-participant theory was used to anchor the study. The findings of the study showed insignificant association between environmental pollution disclosure and the return on equity of publicly traded companies in oil and gas sector of Nigeria Economy, meaning that the amount allocated to pollution management is insignificant relative to the return on equity. The study

further revealed that community and human factors do not affect the return on equity of publicly traded companies in oil and gas sector of Nigeria Economy, meaning return on equity is not affected by pipeline vandalism and oil company accidents. The study concluded that environmental pollution disclosure has no significant effect on the return on equity of oil and gas companies in Nigeria. It recommended that there is a need for more corporate social responsibility and viable policies to be put in place by agencies responsible for mitigating environmental risks in host communities.

8. METHODOLOGY

The study adopted a retrospective research in which pre-existing secondary data was obtained for the study. The study population consists of twenty-six publicly traded consumer goods companies in Nigerian as at July 2023. A purposive or judgmental sampling method was used to select the sample size of eighteen companies based on convenience and the availability of financial data covering the period from 2017 to 2021. Data for the study was obtained through a content analysis of the dimensions of environmental cost accounting. In this study, the Global Reporting Initiative (GRI) 2022 guideline was adopted, using a binary coding system index that assigns 0 and 1 to items. If items are made public, they are set to 1 and 0 if not reported. The data collected was analysed using descriptive statistics and multiple regression, supported by SPSS version 22.0

9. MODEL SPECIFICATION

The model for this study is stated below.

$P = F(\text{ECA})$

$P = B_0 + B_1\text{ECA} + e \dots\dots\dots 1$

$\text{NPM} = B_0 + B_1\text{PCC} + B_2\text{WMC} + B_3\text{SPC} + e \dots\dots\dots 2$

$\text{ROA} = B_0 + B_1\text{PCC} + B_2\text{WMC} + B_3\text{SPC} + e \dots\dots\dots 3$

Where;

P = Profitability

ECA = Environmental Cost Accounting

NPM = Net Profit Margin

ROA = Return on Assets

PCC= Pollution Control Cost

SPC = Social Project Cost

WMC= Waste Management Cost

B₀= Constant or intercept

B₁-B₃= Regression Coefficient

e = error term

10. DATA PRESENTATION AND INTERPRETATION

Table 1.0 Descriptive statistic on all variables of the study

Descriptive Statistics

	PCC	WMC	SPC	NPM	ROA
N Valid	90	90	90	90	90
Missing	0	0	0	0	0
Mean	.34	.50	.37	.2654	.1277
Median	.00	.50	.00	.1120	.0996
Std. Deviation	.478	.503	.485	.95766	.16534
Skewness	.666	.000	.563	8.832	.683
Kurtosis	-1.593	-2.046	-1.722	81.600	6.139
Minimum	0	0	0	-.49	-.55
Maximum	1	1	1	9.04	.75
Sum	31	45	33	23.88	11.49

Source: SPSS version 22, Output 2023

The table above shows the descriptive statistics for the mean, standard deviation, skewness, kurtosis, minimum and maximum, and the sum of the studied variables. The table shows 90 cases with no missing cases in all variants. Mean data showing measures of central tendency of the probability distribution at the median are tabulated for all variables. The standard deviation, showing the spread of a distribution as a measure of dispersion, is moved one value above the mean, indicating that the data is more spread out. To determine the skewness in the distribution, the skewness is calculated from the table. The value is between 0.000 and 8.832, which means that the distribution is skewed to the right. Kurtosis is a measure of peakness or flatness of a distribution. Kurtosis shows positive and negative values, the Kurtosis values that are greater than three indicated leptokurtosis (NPM, ROA) while the Kurtosis less than three indicated platykurtic (PCC, WMC, SPC).

Tables 2.1a, 2.1b and 2.1c show the relationship between pollution control cost (PCC), waste management cost (WMC) and social project cost (SPC) with Net Profit Margin (NPM)

Model Summary^b

	Model
	1
R	.226 ^a
R Square	.051
Adjusted R Square	.018
Std. Error of the Estimate	.94899
Change R Square	.051
Statistics F Change	1.544
df1	3
df2	86
Sig. F Change	.209
Durbin-Watson	1.982

a. Predictors: (Constant), SPC, PCC, WMC

b. Dependent Variable: NPM

ANOVA^a

Model	Sum of Squares	Df	Mean Square	F	Sig.
1 Regression	4.173	3	1.391	1.544	.209 ^b
Residual	77.450	86	.901		
Total	81.622	89			

a. Dependent Variable: NPM

b. Predictors: (Constant), SPC, PCC, WMC

A positive correlation coefficient (R) of 0.226 is observed in

Coefficients^a

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	.100	.207		.481	.632
PCC	.325	.218	.162	1.489	.140
WMC	-.100	.211	-.053	-4.76	.635
SPC	.284	.215	.144	1.319	.191

a. Dependent Variable: NPM

Source: SPSS 22.0 output 2023

the above tables, indicating a weak relationship between net profit margin and the regressors. Determination coefficient (R²) of 0.051 indicates that 5.1% of the variation in net profit margin is described by changes in the regressors, while 94.9% of the variation in net profit margin is explained by factors other than those used in the model. Calculated f value of |1.544| had an alpha value of 0.209>0.05 indicating no significant relationship. The Durbin-Watson score showed 1.982 and was greater than 1.50 minimum autocorrelation value, so the usefulness of the model was confirmed by the researcher.

Pollution control costs have a positive value on t = |1.489| and an alpha-value of 0.140>0.05 indicating no relationship between pollution control costs and net profit margin. This means that a lower amount is allocated to pollution costs.

Waste management costs have a negative value on t = |0.476| and an alpha value of 0.635>0.05 indicating that there is no significant relationship between cost on waste management and net profit margin. This means that there are not enough budgets for waste management.

Social project costs has a positive value on t = |1.319| and an alpha value of 0.191>0.05, indicating that there is no significant relationship between social project costs and net profit margin. This shows that not much has been spent on a social project.

This finding is consistent with that of Womenazu et al, 2019 and Umoren et al, 2018, who found that there was no significant relationship between environmental accounting and financial performance in the industries investigated.

Tables 3.1a, 3.1b and 3.1c show the relationship between pollution control cost (PCC), waste management cost

(WMC) and social project cost (SPC) with return on asset (ROA).

Model Summary^b

	Model 1
R	.267 ^a
R Square	.071
Adjusted R Square	.039
Std. Error of the Estimate	.16207
Change Statistics	
R Square Change	.071
F Change	2.207
df1	3
df2	86
Sig. F Change	.093
Durbin-Watson	1.638

a. Predictors: (Constant), SPC, PCC, WMC

b. Dependent Variable: ROA

ANOVA^a

Model	Sum of Squares	Df	Mean Square	F	Sig.
1 Regression	.174	3	.058	2.207	.093 ^b
Residual	2.259	86	.026		
Total	2.433	89			

a. Dependent Variable: ROA

b. Predictors: (Constant), SPC, PCC, WMC

Coefficients^a

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	.092	.035		2.598	.011
PCC	.081	.037	.233	2.166	.033
WMC	-.014	.036	-.044	-4.02	.688
SPC	.042	.037	.123	1.139	.258

a. Dependent Variable: ROA

Source: SPSS 22.0 output 2023

A Positive correlation coefficient (R) of 0.267 in the table above depicts a weak relationship between return on asset and regressors. Determination Coefficient (R²) of 0.071 indicate that 7.1% of the variance in return on assets is explained by changes in the regressors, while 92.9% of the variance in return on asset can be explained by factors not present in the model. Calculated f-value of |2.207| has an alpha level of 0.093>0.05 indicating no relationship. Thus, the Durbin Watson value of 1.638 is above the minimum value of 1.50 which indicates no autocorrelation, therefore the model usefulness was upheld by the researcher.

Pollution control costs has a positive value on t = |2.598| and an alpha-value of 0.033<0.05, indicating that pollution control

cost had an impact significantly on return on asset. This means that an increase in the cost of pollution control will result in an increase in return on assets.

Waste management costs has a negative value on $t = |0.402|$ and an alpha-value of $0.688 > 0.05$, which shows no relationship between the cost of waste management and return on assets.

Social project cost has a positive value on $t = |1.139|$ and an alpha-value of $0.258 > 0.05$, which shows no relationship between the social project cost and the net profit margin. The results of this study are consistent with those of Umoren et al, 2018 and Womenazu et al 2019.

11. CONCLUSION AND RECOMMENDATION

This study on environmental cost accounting and profitability of publicly traded consumer goods companies in Nigeria shows a positive and insignificant relationship. Therefore, environmental cost accounting has an insignificant relationship on profitability of publicly traded consumer goods in Nigeria. As a result of the findings below are the recommendations:

- The corporate entity should increase its spending on social projects aimed at ameliorating the suffering of the host communities.
- More expenditure on waste management and pollution control among others should be embarked upon by corporate organizations.
- Proper disclosure of environmental cost accounting matters on their annual reports.

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