ENVIRONMENTAL COST REPORTING AND FINANCIAL PERFORMANCE OF LISTED AGRICULTURAL COMPANIES IN NIGERIA

NEWSTYLE, Doutimiareye
Department of Accountancy,
International Institute of Tourism and Hospitality,
Yenagoa, Bayelsa State, Nigeria
newstyle.dou@iithyenagoa.edu.ng

&

LAWSON, Timina
PhD Student, Department of Accounting, Faculty of Administration and Management,
Ignatius Ajuru University of Education, Port Harcourt, Rivers State, Nigeria
timinal@yahoo.com

Citation: Newstyle, D., & Lawson, T. (2024). Environmental cost reporting and financial performance of listed agricultural companies in Nigeria. *International Journal of Tourism and Technology (IJTT), 2*(1), 10-30

Abstract
This study evaluated the effect of environmental cost reporting on financial performance of listed agricultural companies in Nigeria. The study anchored on the legitimacy theory and adopted ex-post facto research design. Five (5) listed agricultural companies were employed as population of the study. This study adopted census sampling technique due to availability data and completeness of the data. The cross-sections included in the study was five (5) agricultural companies sample period includes ten (10) years with a total panel observation of fifty (50) spanning from 2014 to 2023. The data for this study were sourced from the published annual accounts of the sampled agricultural companies on the Nigeria Stock Exchange Group. The study adopted descriptive statistics, unit root test, and Panel Least Square (PLS) regression technique estimates were used for the data analyses. The study finding showed that there is a significant effect of waste management cost on return on investment, there is no significant effect of health and safety cost on return on investment, there is a significant effect of legal regulations fees on return on investment. Based on the result, the study concluded that there is a significant effect of environmental cost reporting on financial performance of listed agricultural companies in Nigeria. The study recommended amongst others that management of listed agricultural companies in Nigeria should ensure adequate compliance with the guidelines of waste management cost as this portrays a good image of their firm financial performance.

Keywords: *Waste Management Cost, Health and Safety Cost and Legal Regulations Fees*

1. INTRODUCTION

Corporate organizations in the past thought that shareholders profitability and prosperity were not concern with any environmental impact on the people wherein they operate. The resultant effects of these are the various forms of environmental degradations such as air, water, land or soil, deforestation, noise pollution, overpopulation, natural habitat destruction, ecosystem destruction, loss of biodiversity, climate change, wildlife extinction, depletion of the ozone layer, etc (Lawrence & Bernard, 2023; Major & Nwdighoha, 2024; Nwdighoha, 2024; Chinedu et al., 2023; Abubakar & Sadiq, 2023; Akinadewo et al., 2023; Ighoroje & Ozigbo, 2023; Syarief & Julia, 2023; Murti, 2023; Clement & Oluwaseun, 2023; Ishmael et al., 2023; Kansilembo et al., 2023; Dunia, 2023; Okere et al., 2022; Naji & Hawkar, 2022). Ihenyen and Ikegima (2022) acknowledged that many companies are created with the objective of maximizing owners' wealth without considering its economic footprints on the other stakeholders as well as the community at large. They further stated that the activities of many

companies such as oil and gas companies, manufacturing companies and agricultural companies do generate negative impacts which are called social failure and threats. These include deforestation, elimination of marine life, increased atmospheric carbon dioxide, increased climatic disruption, persistent deposit of toxic chemicals into human beings, constant melting of mountain, increased health hazard caused by the sound and smoke emission from generators and factory plants

Environmental cost reporting is a mechanism for companies to voluntarily have environmental concerns carried out by stakeholders and supervised by legal organizations (Haleem et al., 2021; Derila et al., 2020). Murti (2022) stated that environmental cost reporting is a voluntary mechanism carried out by the company, focusing on environmental impacts due to business operations, interactions with stakeholders, and forms of accountability to the law. Companies have widely used the application of environmental cost accounting as a tool to help manage environmental performance (Ilelaboye & Alade, 2022; Obiora et al., 2022; Ezenwaka et al., 2022; Ogbonna et al., 2020). Ulupui et al. (2020) showed that one of the tools used by companies to manage environmental performance was MFCA (Material Flow Cost Accounting). Mazahrih (2019) argued that environmental information enables stakeholders to evaluate a company's efficiency with the utilization of economic resources, commitment to environmental preservation, and the ability to make decisions that can improve environmental performance. The implementation of MFCA could reduce environmental costs along with increasing the effectiveness of the company's performance. Ulupui et al. (2020) also mentioned that green accounting encouraged companies to comply with government regulations and policies. Endiana et al. (2020) found that environmental cost reporting affected the company's financial position. Information on the company's environmental costs was significant and sufficient to support financial performance. Companies with sustainable principles also tended to pay attention to environmental cost accounting in line with their attention to environmental management. Therefore, if a company implements green accounting, it will result in good environmental performance, often with an increase in its financial performance (Syarief & Julia, 2023; Murti, 2023; Clement & Oluwaseun, 2023; Endiana et al., 2020).

Statement of the Problem

The uncontrolled scientific, technological, economic and socio-cultural activities coupled with unsustainable exploitation of the natural resources pose great threats to human and natural habitats. The above situation, according to them, called for urgent intervention from individuals, organization and countries to look for prompt and appropriate solutions to protect and preserve the environment.

The problem of mishandling of environmental degradation has become one of the biggest problems facing developing countries. The agricultural sector was examined in this study because it has many environmental problems and the majority of the companies in this sector are not reporting their environmental cost due to the infant environmental laws focused more on oil and gas sector. Ihenyen and Ikegima (2022) identified environmental problems as deforestation, elimination of marine life, increased atmospheric carbon dioxide, increased climatic disruption, persistent deposit of toxic chemicals into human beings, constant melting of mountain, increased health hazard caused by the sound and smoke emission from generators and factory plants. Oshiole et al (2020) stated that, creation of wealth has led to various environmental impacts such as depletion of non-renewable resources, global warming, diminution of land resources, acidification, and reduction of water resources and potential

threats to health and safety of employees. Despite the rising interest in environmental issues, there have been divergent views regarding the nature of the relationship between environmental cost reporting and financial performance. The findings from research to date are equivocal. Some studies purport to find a positive or significant relationship or effect while some studies purport to find a negative or insignificant relationship or effect. Environmental protection has now become a global issue, and managers have to focus their attention on creating biodegradable products that can be recycled. However, within the developing nations, the understanding is somewhat different, mainly because of weak government regulations and a lack of organized pressure groups and consumer awareness to influence corporate behavior (Okafor, 2018). Environmental expenditures in terms of effective cost reduction are a highly viable approach toward enhancing profitability. Thus, environmental costs provide a framework for environmental responsibility and corporate financial performance. The extent to which environmental costs reporting influence the financial performance of firms is determined by some variables such as community development costs, environmental taxes and fines, training costs, recruitment costs, and canteen costs. It is based on these problems that this study is intended to look into the effect of environmental costs reporting on financial performance at listed agricultural companies in Nigeria.

Conceptual Framework

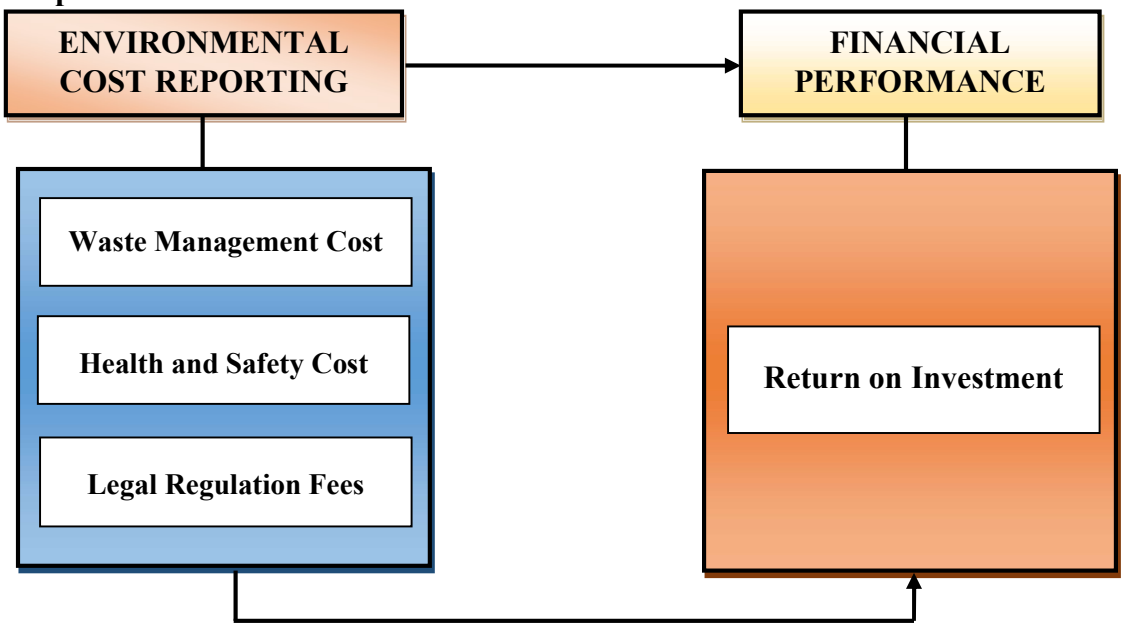

Fig. 1 A Conceptual frame work showing the effect of environmental cost reporting on financial performance of listed agricultural companies in Nigeria.

Sources: Dimensions and Measures adopted from Major and Nwdighoha (2024), Abubakar and Sadiq (2023), Akinadewo et al (2023), Ihenyen and Ikegima (2022), Thi et al. (2022), Okere et al. (2022).

Aim and Objectives of the Study

The aim of this study was to evaluate the effect of environmental cost reporting on financial performance of listed agricultural companies in Nigeria. The specific objectives are:

1. evaluate the effect of waste management cost on return on investment of listed agricultural companies in Nigeria.

2. evaluate the effect of health and safety cost on return on investment of listed agricultural companies in Nigeria.
3. evaluate the effect of legal regulations fees on return on investment of listed agricultural companies in Nigeria.

Hypotheses

The null hypotheses were formulated for the study.

H_{01}: There is no significant effect of waste management cost on return on investment of listed agricultural companies in Nigeria.

H_{02}: There is no significant effect of health and safety cost on return on investment of listed agricultural companies in Nigeria.

H_{03}: There is no significant effect of legal regulations fees on return on investment of listed agricultural companies in Nigeria.

2. REVIEW OF RELATED LITERATURE

Conceptual Review

Environmental Cost Reporting: Lawrence and Bernard (2023) defined environmental cost reporting as the process of providing information regarding the environmental and social costs, which may include environmental conservation and preservation costs as a way of social responsibility to stakeholders. Okafor (2018) referred to "environmental cost reporting as the environmental accounting principles of an account that aspired to achieve sustainable development, maintain a positive relationship with the community, and pursue successful environmental conservation actions. Raymond et al. (2016) defined environmental cost reporting as environmental accounting that identifies and quantifies the costs of environmental goods and services as well as data that is utilized to make environmental management decisions. Environmental expenditures, they said, are expenses related to the development, identification, remediation, and prevention of environmental damage. The researcher went on to say that this kind of accounting enables a business to determine the cost of environmental protection while conducting its regular business operations, discover the benefits and gains from such activities, and provide the best tools for quantitative measurement and communication of the results.

Dimensions of Environmental Cost Reporting

Waste Management Cost: Waste management cost is the cost associated with disposal of waste generated by the companies via their activities (both liquid and gaseous waste). Investments in production equipment might be made in order to reduce environmentally hazardous emissions. Waste management cost refers to all fees and expenses associated with taking steps to clean up or remove hazardous substances from the environment, preventing or reducing future spills or movements of hazardous chemicals, and adhering to all applicable environmental laws. According to Kornom-Gbaraba and Chukwuemeka (2021) waste management involves sensing what is there, sorting, separating, transforming, returning to service what can be used and properly disposing what is left. Expenses incurred for proper disposition of toxic waste, hazardous gas or industrial waste in the environment. Waste management therefore, means to prevent the negative effect of waste (Giami, 2021). It consists of; reduction of waste, reuse of waste, recycling of waste, compositing, energy recovery and final disposal.

Health and Safety Costs: Health and safety cost dwells on securing and promoting safety and health of staff, both physical and mental. Safe workplaces are profitable workplaces and, as such, activity should be carried out to preserve the health of employees, sub-contractors,

and the general public (Oshiole et al., 2020). An environmental health and safety cost is the cost expended in caring for the safety and health of the workers, including the cost of securing the environment (Chinedu et al., 2019). Employee health and safety costs are disclosed as part of the internal cost of programmes aimed at protecting employees from the organization's activities, products, and services dangers.

Legal Regulations Fees: Despite having these laws and regulations in place, it seems that environmental degradation, emissions, noise, and pollution of different kinds keep on increasing which often culminate to health hazards, disturbance of land and marine ecosystem, economic problems and disputes between firms and host communities, which thus affect firms' financial performance. . Suleiman (2007) attributed it to enforcement problems, indiscipline, outdated environmental laws, and leniency of existing laws. The attitude of several firms not to take environmental costs into consideration makes financial performance below expectation (Sengottuvel, 2018). Emakponuzo and Udih (2015) attributed non-compliance around these regulations to weak infrastructure, technology deficits and high levels of corruption in the society. The law is also one of the regulations that have incorporated corporate social responsibility into normal business activities. Litigation coming from non-compliance to these laws can make the company pay huge penalty which sometimes might be so huge that the company may not be able to afford to pay and might lead to winding up the company (Buckstein et al., 2016).

Financial Performance: According to Ngatia (2015), the real performance of the manufacturing sector can either be financial and non-financial. The purpose of this study centers on financial performance. Accounting-based performance measure is the variables that could be derived from the three basic financial statements of a corporation such as statement of financial position, statement of cash flow, and income statement (Ngatia, 2015). Financial performance is evaluated by the corporation's capacity to make profit after tax and to make positive operating fund (Iheduru & Okoro, 2019). According to Olowokere et al. (2021), performance is the total observation of the firm within a particular time to unfold the accomplishment of their operational activities. Iheduru and Okoro (2019) postulated that the performance of company is the measure of viability and ongoing accomplishment of particular, tangible, worthwhile, personal, and quantifiable goals. Performance as an image is an important tool in management that show the best way to control a firm as justified.

Measure of Financial Performance

Return on Investment: Ihesiulo (2005) stated that ROI is a measure of the success of the firm in earning a net return on investment and it should be on the increase. Return on investment (ROI) is a financial ratio used to calculate the benefit an investor will receive in relation to their investment cost. It is most commonly measured as net income divided by the original capital cost of the investment. Nwaiwu and Oluka (2018) defined ROI as the profitability of the firm measured in relation to the amount of investment. The term investment here may refer to total assets, capital employed or the owners' equity. Njoku and Jombo (2003) saw ROI as a measure of the company's percentage returns on its capital investment which consists of shareholders' funds and long term debts. They submit that the percentage return which represents financial returns must always be on the increase. The higher the ratio, the greater the benefit earned (corporate finance institute (CFI), 2020).

Theoretical Review

The Legitimacy Theory: Legitimacy Theory was propounded by different scholars and they include; Dowling and Pleffer (1975), Suchman (1995), Gray (1995) and Elkington (1997). Legitimacy theory is a befitting theory for this study because of the idea that a firm's legitimacy derives from the desirable, appropriate and valuable contributions it makes to its operating environment. Ofoegbu and Megbuluba (2016) mention that the theory supports the idea that businesses change their reporting practices to demonstrate that their operations are in line with societal values and expectations. Because there is a common social compact between businesses and society, legitimacy theory also creates an incentive for corporate environmental reporting. According to Daniel and Ambrose (2013), the legitimacy hypothesis formed the basis for the claim that pressure from stakeholders over time led to an increase in environmental disclosures and reporting. By disseminating environmental information, the business demonstrates its legitimacy in the eyes of the public, which is necessary for the firm to justify its existence in the eyes of society. Legitimacy theory assumes that the actions of an enterprise are considered desirable, proper and appropriate within certain socially constructed systems of norms, values, belief and definitions within the society where it operates (Suchman, 1995). This study is anchored on legitimacy theory as its concern is to encourage business to always a have social contract that would binding within the environment they operate. A social contract shows the expectations society expects from the organization's operations. Organizations try to make sure they try to operate within the bounds and norms of their respective society. The legitimacy theory suggests that businesses operate in a society according to the social contract upon which their survival and growth are dependent. From the above assumption of the legitimacy theory, firms and other organizations are expected and encouraged to take care of the waste generated, health and safety cost and legal regulations fees to act in the best interest of norms and values of society.

Empirical Review

Major and Nwdighoha (2024) evaluated the effect of environmental costs on financial performance of food and beverage firms in Nigeria. The population of the study was eight (8) listed food and beverage firms on the Nigeria Exchange Group (NGX) and operating in Nigeria. The study adopted purposive sampling technique to select six (6) listed food and beverage firms in Nigeria because the sampled food and beverage firms have all available and complete panel data. The data for the study were sourced from the published annual reports and accounts of the sampled food and beverage firms on the Nigeria Exchange Group. The study utilized descriptive statistics, unit root test, diagnostic tests, Hausman Test and Panel Least Square (PLS) regression technique with the help of E-view 12. The study found that, waste management cost has significant effect on return on capital employed, health and safety cost has significant effect on return on capital employed, community development cost has significant effect on return on capital employed of listed food and beverage firms in Nigeria. Based on the foregoing, the study generally concluded that there is a positive and significant effect of environmental costs on financial performance of food and beverage firms in Nigeria for the period 2013 - 2022. The study recommended amongst others that management of listed food and beverage firms in Nigeria should ensure adequate compliance with the guidelines of waste management cost as this portrays a good image of their firm financial performance.

Nwdighoha (2024) studied the effect of environmental expenditures and financial sustainability of quoted food and beverage manufacturing companies in Nigeria. Cross sectional data were sourced from financial statement and annual reports of 10 quoted consumer goods manufacturing companies inNigeria from 2010 to 2022. Net profit margin

and earnings per share were used as proxies for financial performance, while community development cost and remediation cost were employed as proxies for independent variables. Ordinary Least Square method was used to analyze the extent to which environmental accounting affect the performance of food and beverage manufacturing companies. The regression coefficient found that community development cost has positive and insignificant effect on net profit margin while community development cost and remediation cost has positive and significant effect on earnings per share of quoted food and beverage manufacturing companies in Nigeria. The study concluded that community development cost and remediation cost had insignificant effect on financial performance of the quoted food and beverage companies in Nigeria while community development cost and remediation cost had significant effect on financial performance of the quoted food and beverage companies in Nigeria. The study recommended that the management of the quoted food and beverage manufacturing companies should invest more on community development practices to sustain and improve upon their current level of financial performance.

Major and Nwdighoha (2023) studied the effect of environmental accounting cost and financial performance of listed natural resource firms in Nigeria. The population of the study was made up of four (4) listed natural resource firms on the Nigeria stock exchange (NSE) and operating in Nigeria as at 1st January, 2010 -to- 31st December, 2022. The study utilizes census sampling technique due to availability and completeness of the secondary data. The cross-sections included in the study was four (4) natural resource firms; sample period included thirteen (13) years, and total panel observation was fifty-two (52) spanning through from 2010 to 2022. The data for this study were sourced from the published annual reports and accounts of the sampled natural resource firms on the Nigeria Exchange Group. The study utilized descriptive statistics, unit root test, and Panel Least Square (PLS) regression technique were used for the data analyses. The result of the study disclosed that; the effect of health safety cost on return on asset of listed natural resource firms in Nigeria is negative and statistically not significant. This study generally concluded that the effect of environmental accounting cost on financial performance of listed natural resource firms in Nigeria is positive and statistically not significant for the period 2010-2022. The study recommended amongst others that payment of health safety costs should be sustained, as a safe and secure environment enhances the financial performance of natural resource firms in Nigeria.

Lawrence and Bernard (2023) studied the relationship between environmental costs and financial performance in Nigeria. The main objective of the study was to empirically determine if waste management costs and communities development costs lead to better performance or not. The study covered period between 2011 and 2020 and used the Panel Estimated Generalized Least Squares (Panel EGLS) regression. Results show that waste management cost and communities development costs (CDC) as well as firm size (FSIZE) are positively significant while the moderated waste management costs (FS*WMC) and moderated communities development costs (FS*CDC) are negatively significant with NPM. The study recommends among others that the larger firms should be more involved and behave responsibly with respect to issues that demand environmental friendliness.

Chinedu et al (2023) examined the effect of environmental costs on the financial performance of listed oil and gas companies in Nigeria. The ex-post facto research design was employed for the collection of financial statements of four listed oil and gas companies in Nigeria for a

ten-year period from 2010 to 2019. The purposive sampling technique was used for the study. The Panel Ordinary Least Square of the multiple regression model was conducted using the E-views version 9.0 statistical software package. The findings revealed that staff development costs have a negative but insignificant effect on listed Nigerian oil and gas companies' return on assets, while community development costs and employee health and safety costs have a positive but insignificant effect. The contribution of this study will be to help create a well-articulated employee health and safety cost system in order to provide the conflict-free working environment that managers and employees need for maximum productivity.

Abubakar and Sadiq (2023) examined the impact of environmental disclosure on financial performance of listed cement manufacturing companies in Nigeria. An ex post facto research design was adopted. The study generated Panel data from the listed cement manufacturing companies' annual reports and financial statements for the period 2017 to 2021. The data was analyzed using descriptive and fixed effect techniques. From the result showed that environmental disclosure has positive impact on financial performance of listed cement manufacturing companies in Nigeria. It means that higher levels of environmental disclosure will result to better financial performance of cement manufacturing companies. The control variable leverage was positive and statistically significant at 5 per cent. Based on the findings, the study recommends that relevant stakeholders including government agencies and accounting professional bodies should put in place practical monitoring instruments to ensure that firms in the Nigerian cement industry engage in better environmental accounting since it plays key role in their financial performance and long-run survival, by extension.

Kansilembo et al (2023) explored the relationship between environmental costs and financial performance of two large national plastic manufacturing companies, namely Bowler Metcalf Limited (BML) and Nampak Ltd, between 2018 and 2019. The study adopted a qualitative method of inquiry using content analysis to analyze the financial statements and reports of the two companies (secondary data analysis) available in the public domain. The results showed a positive relationship between environmental costs and profits in the financial statements of these two companies during 2018 and 2019. The study concluded and established that when these two plastic companies spend more on environmental costs, this positively affects overall financial performance and improves financial sustainability. It is recommended to allocate more resources/funding to support environmental costs to increase the profitability of the two plastic manufacturing companies.

Jonah (2023) studied the link between environmental cost accounting and the profitability of consumer goods companies incorporated in Nigeria. 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 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. 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.

Nyahuna and Doorasamy (2022) investigated the relationship between environmental management accounting practices (EMAP) and the financial performance of South African cement and mining companies. To attain the primary objective of the research, three hypotheses were tested based on data from 45 JSE-listed cement and mining companies from 2010 to 2021. Multiple regression analyses with IBM SPSS Statistics 24 were also used to test the hypotheses. The study found that two accounting measures, namely return on assets and net profit margin, had no significant relationship with EMAP. However, the study also revealed that one accounting-based measure, namely returns on equity, had a positive and significant relationship with EMAP. In addition, the results also suggest that EMA is essential to accomplish sustainability. The results provide managers with empirical evidence of EMAP that increases financial sustainability in an emerging economy such as South Africa.

Mohd et al (2022) examined the importance of environmental accounting disclosure practices (EADP) and provide a systematic review based on the existing literature. Bibliometric analysis technique was used in this research work based on the Scopus database over a 30-year period (1991- 2021), using a sample of 190 articles we determined the most relevant journals, influential authors, countries, keywords, academic institutions, most cited papers, and trends. The current analysis reveals that there is a steady rise in publications, and major academic work in this area was from Italy, the USA and the UK. The study also highlighted that environmental accounting disclosure practices have a positive effect on a firm's performance and that these disclosure practices are significantly dependent upon the firm's characteristics such as firm size, profitability, time of listing, financial leverage, board size and firm age.

Gap in Empirical Review

Prior research has studied the effect of environmental cost reporting and financial performance. Based on the empirical studies reviewed in term of concepts, years, scope, methodology adopted, variable employed, findings, conclusion and recommendations, the following gap were identified: (1) to the best of our knowledge, none of the prior studies conducted a study on the relationship between environmental cost reporting and financial performance of listed agricultural companies in Nigeria, (2) to the best of our knowledge, none of the prior studies have employed firm size in term of total assets as controlling variable in correlating environmental cost reporting and financial performance of listed agricultural companies in Nigeria, (3) to the best of our knowledge, none of the prior studies have constructed conceptual framework in chapter one and operational framework in chapter two in carried out a study on environmental cost reporting and financial performance of agricultural companies in Nigeria, (4) None of the previous studies conducted a study using all the five listed agricultural companies in Nigeria used in this study. Therefore, this study is designed to bridge this knowledge gap that existed in the literature of environmental cost reporting and financial performance of listed agricultural companies in Nigeria.

3. METHODOLOGY

This study adopted ex-post facto research design. This is because investigation started after the fact has occurred without the interference of the researcher and also for the fact that data

needed for the study already exists. The population of this study consists of all the five (5) agricultural companies listed on the Nigerian Exchange Group as at 31st December, 2023. Table 1 presents a comprehensive list of the population members.

Table 1 Listed Agricultural companies in the Nigeria Exchange Group.

S/N	Agricultural companies
1.	Ellah Lakes Pc
2.	FTN coca processors Plc
3.	Livestock Feeds Plc
4.	Okomu Oil Plam Plc
5.	Preco Plc

Source: *www.ngx.com.ng*

The entire five (5) agricultural companies were selected as the sample size of this study with the utilization of census sampling method. The sample is made up of secondarily sourced data obtained from the five (5) firms annual reports over a period of ten years (10) from 2014 to 2023, making a total number of fifty (50) observations, is used in this study.

Table 2 Mearuesment of Variables

Variables	Measures/ Abbreviations	Mathematical Expression	Sources
Independent Variable	Waste Management Cost (WMC)	Waste Management Cost are extracted direct from note to the accounts. In some firms it is refer to clean up expense while other refer as repair and maintenance expense.	Abubakar and Sadiq (2023), Akinadewo et al (2023), Ihenyen and Ikegima (2022),
	Health and Safety Cost (HSC)	Health and safety cost are extracted direct from note to the accounts. In some firms it is refer to medical expense while other refer as security expense	Thi et al. (2022), Okere et al. (2022).
	Legal Regulations Fees (LRF)	Legal regulations fees are extracted direct from note to the accounts. In some firms it is refer to legal fees while other refer as plenty and fines	Johnson et al. (2021), Oshiole et al. (2020) and Obara et al. (2017)
Dependent Variable	Return on Investment (ROI)	$\frac{\text{Profit Before Taxes}}{\text{Total Investment}}$	Akinadewo et al (2023), Oshiole et al. (2020) and desk researcher (2023)

Model Specification

The model's specifications were made in a way that it answered the study's specific goals. Because of its straightforward computational process and the estimates, it produces, which have the best properties, including linearity, unbiasedness, minivariance, and mean square error estimation, panel least square (PLS) was chosen for this research project (Koutsoyianis, 2003). In carrying out this research work on the effect of environmental costs reporting on the financial performance, we developed a compact form of our as follows:

Model: Return on Investment (ROI)

$ROI = f(WMC, HSC, LRF)$ 1

This can be written in Panel Least Square (PLS) form as:

$ROI_{it} = a_o + a_1 WMC_{it} + a_2 HSC_{it} + a_3 LRF_{it} + U_{it}$ 2

$a_1>0; a_2>0; a_3>0;$

Where: ROI= return on investment, as proxy for financial performance

WMC = Waste management cost as proxy for environmental cost reporting
HSC= Health and safety cost as proxy for environmental cost reporting
LRF= Legal regulations fees as proxy for environmental cost reporting
t = time period under study
a_o = constant
a_1-a_3= parameter or coefficient of explanatory variable
u = error term

Method of Data Analysis

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

1. DATA ANALYSIS AND DISCUSSION OF FINGINGS

Data Analysis

Table 3 Descriptive Statistics of the Variables

	ROI	WMC	HSC	LRF
Mean	63.30347	4.430766	4.432000	4.293478
Median	2.211303	4.502084	4.564860	4.355542
Maximum	1283.398	6.956399	6.300813	5.420659
Minimum	0.048798	1.079181	1.079181	2.089905
Std. Dev.	206.8122	1.211590	1.048305	0.792737
Skewness	4.650398	-0.122165	-0.725473	-0.656004
Kurtosis	26.15163	2.889483	3.374979	2.914319
Jarque-Bera	1296.881	0.149815	4.678855	3.601469
Probability	0.000000	0.927830	0.096383	0.165177
Sum	3165.174	221.5383	221.6000	214.6739
Sum Sq. Dev.	2095792.	71.92955	53.84826	30.79317
Observations	50	50	50	50

Source: Author's Computation, (2024) using E-Views 12

The above descriptive statistics table reveals that return on investment (ROI) have the greatest mean value (63.303). Furthermore, the higher standard deviation of return on investment (ROI) suggests that it does deviate significantly from the mean. On other hand, the above descriptive statistics table reveals that waste management cost (WMC) and health and safety cost (HSC) have the greatest mean values (4.430; 4.432) while legal regulations fees (LRF) have the lowest mean value (4.293). Furthermore, the higher standard deviation of waste management cost (WMC) and health and safety cost (HSC) suggests that it does deviate significantly from the mean, in contrast to the relatively lower standard deviation of legal regulations fees (LRF) substitution, which suggests that it does not deviate significantly from its respective means, as shown by the squared deviation figures. The table also shows that the observed distributions for return on investment (ROI), waste management cost (WMC), health and safety cost (HSC) and legal regulations fees (LRF) have skewness coefficients of 4.650, 6.855, -0.122, -0.725 and -0.656 that, respectively, estimate the asymmetry of the distribution

of time series data around its mean. ROI indicated positive skwness which implied that they has a long right tail while waste management cost (WMC), health and safety cost (HSC) and legal regulations fees (LRF) indicated negative sknwness which implied that they has a short right tail. According to the information provided by kurtosis showed that ROI, and HSC have leptokurtic values, which suggest that the variables are higher than the kurtosis value of (3) that is clearly mesokurtic while WMC and LRF had a platykurtic values that is less than the average kurtosis value 3. Finally, the Probability of the Jarque-Bera stat for the variables WMC, HSC, LRF was higher than 0.05 implying that the data on these variables were normally distributed while ROI was less than 0.05 implying that the data on these variables were not normally distributed hence, the researcher need to carry out a normality and diagnostics test to confirm the normality of the variables before further estimation.

Unit Root Test

Table 4. Unit Root Test Results

	ADF FISHERS		ORDER OF	
Variable	Level	1st Diff	INTEGRATION	REMARK
ROI	0.0001	-	I(0)	Stationary
WMC	0.0110	-	I(0)	Stationary
HSC	0.0021	-	I(0)	Stationary
LRF	0.0001	-	I(0)	Stationary

Source: Author's Computation, (2024) using E-Views 12

The stationarity properties of the data were examined using the Augmented Dickey-Fuller tests. From table 4 above, all the variables that represent environmental cost reporting and financial performance were stationary at levels.

Multivariate Data Analysis

Table 4: Hausman Test for Model One

Correlated Random Effects - Hausman Test
Equation: Untitled
Test cross-section random effects

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	21.152124	3	0.0001

Cross-section random effects test comparisons:

Variable	Fixed	Random	Var(Diff.)	Prob.
WMC	-0.577307	-0.355678	0.002719	0.0000
HSC	-0.216293	-0.112308	0.002146	0.0248
LRF	0.794482	0.772277	0.004524	0.7413

Source: Author's Computation, (2024) using E-Views 12

The results in Table 4 above show the results of the least square models based on Fixed Effect and Random Effect. The most suitable model for the analyses was determined using the Hausman test. The result of the Hausman statistics is 21.152 with 0001 probability value. Since the P-value is less than 0.05 level of significance, the study rejected the null hypothesis that the random effect model is preferred. The study therefore adopted the Fixed Effect Model

to explain the effect of environmental cost reporting on financial performance amongst listed agricultural companies in Nigeria.

Table 5 Model 1: Return on Investment (ROI) Model

Dependent Variable: ROI
Method: Panel Least Squares
Date: 11/08/24 Time: 08:52
Sample: 2014 2023
Periods included: 10
Cross-sections included: 5
Total panel (balanced) observations: 50

Variable	Coefficient	Std. Error	t-Statistic	Prob.
WMC	-0.577307	0.238792	-2.417610	0.0200
HSC	-0.216293	0.286745	-0.754305	0.4549
LRF	0.794482	0.267241	2.972903	0.0049
C	5.641045	0.920728	6.126720	0.0000

Effects Specification

Cross-section fixed (dummy variables)

R-squared	0.561557	Mean dependent var	5.535612
Adjusted R-squared	0.488483	S.D. dependent var	1.247312
S.E. of regression	0.892083	Akaike info criterion	2.755131
Sum squared resid	33.42411	Schwarz criterion	3.061055
Log likelihood	-60.87829	Hannan-Quinn criter.	2.871629
F-statistic	7.684775	Durbin-Watson stat	1.014581
Prob(F-statistic)	0.000006		

Source: Author's Computation, (2024) using E-Views 12

Table 5 above shows the regression estimation results of the effect of environmental costs reporting dimensions and financial performance measure in Nigeria. For the return on investment (ROI) model of Table 4.4 above, the Adj R2 = 0.488 which means that about 48.8% of systematic variations in financial performance measure (ROI) is accounted for by waste management cost (WMC), health and safety cost (HSC) and legal regulations fees (LRF). The remaining 51.2% can be explained by other factors not captured by our model. The D.W. statistic (1.014) indicates that it is unlikely that a serial correlation exists in the residuals for this will seriously render the results spurious. The F-statistic and its corresponding probability value disclosed that the regression model satisfies the overall goodness-of-fit statistical test.

Test of Hypotheses

Statement of Hypotheses

H_{01}: There is no significant effect of waste management cost on return on investment of listed agricultural companies in Nigeria.

Decision 1: The results in table 4.4 reported the effect of waste management cost (WMC) on return on investment (ROI) of listed agricultural companies in Nigeria. The waste management cost coefficient (-0.577) and T-statistics -2.417) disclosed a negative effect. This means that a one naira increase in waste management cost (WMC) will lead to a 2.417 naira decrease in return on investment (ROI). The Prob. ** value 0.020 < 5% chosen significant

level. Given the above result, the study rejected the null hypothesis and concluded that there is a significant effect of waste management cost on return on investment of listed agricultural companies in Nigeria. The finding of this study is in consonance with Lawrence and Bernard (2023) results showed that waste management cost and communities development costs (CDC) as well as firm size (FSIZE) are significant effect on financial performance. Syarief and Julia (2023) results of the study found that EMA has a direct significant effect on financial performance and the role of working capital management as a mediator contributes to the indirect effect of EMA on financial performance. Chijioke and Nestor (2023) result of the study showed that waste management cost have a significant positive effect on financial performance in term of net profit margin. Ihenyen and Ikegima (2022) study indicate that environmental accounting (waste management costs) and organizational performance (Return on assets, return on equity, and profit margin) of listed industrial sector businesses in Nigeria have a substantial association. Okore (2021) study showed that waste management cost and corporate social responsibility cost had positive and significant impact on return on asset of manufacturing firms in Nigeria. Oshiole et al (2020) result of the study showed that waste management cost disclosure have a significant positive effect on financial performance. However, the following prior studies disagree with the study by indicating insignificant and they include; Okere et al (2022) result indicates that environmental pollution prevention costs and environmental detection costs revealed an insignificant effect on the financial performance of oil and gas companies in Nigeria. Nwanwu (2022) result of the study showed that waste management cost, has a insignificant effect on return on investment (financial performance) of quoted oil and gas companies in Nigeria. Giami (2021) findings revealed that, amount spent on waste management /remediation has a insignificant relationship with growth in sales volume as well as return on asset. Kornom-Gbaraba and Chukwuemeka (2021) result revealed that waste management cost disclosure has insignificant effect on corporate performance of quoted oil companies in Nigeria. Nwaimo (2020) study revealed that environmental costs represented by waste management have no significant effect on return on capital employed, earnings per share and return on equity.

H_{02}: There is no significant effect of health and safety cost on return on investment of listed agricultural companies in Nigeria.

Decision 1I: The results in table 4.4 reported the effect of health and safety cost (HSC) on return on investment (ROI) of listed agricultural companies in Nigeria. The health and safety cost (HSC) coefficient (-0.216) and T-statistics -0.754) disclosed a negative effect. This means that a one naira increase in health and safety cost (HSC) will lead to a 0.754 naira decrease in return on investment (ROI). The Prob. ** value 0.454 > 5% chosen significant level. Given the above result, the study accepted the null hypothesis and concluded that there is no significant effect of health and safety cost on return on investment of listed agricultural companies in Nigeria. The finding of this study is in consonance with Ilelaboye and Alade (2022) findings showed that health safety cost has an insignificant effect on financial performance. Obiora et al (2022) result found to have an insignificant impact on return on capital employed of quoted firms in Nigeria. Giami (2021) findings revealed that, amount spent on compensation also has negative and insignificant relationship with both growth in sales volume and return on assets. Nwaimo (2020) study revealed that environmental costs represented by employee health and safety have no significant effect on return on capital employed, earnings per share and return on equity. However, the following prior studies disagree with the finding by indicating significant and they include; Ezenwaka et al (2022) study concludes that the cost of health safety has a significant positive effect on financial

performance (Revenue, Profit after tax & Cash flow from operation) of listed oil and gas companies in Nigeria. Ihenyen and Ikegima (2022) study indicate that environmental accounting (employee health and safety costs) and organizational performance (Return on assets, return on equity, and profit margin) of listed industrial sector businesses in Nigeria have a substantial association. Chijioke and Nestor (2023) ascertained the effect of environmental accounting on profitability of oil and gas firms listed on Nigeria Stock Exchange between 2011 and 2021. The result of the study showed that employee health and safety cost have a significant positive effect on financial performance in term of net profit margin. Okore (2021) study showed that, environmental training cost, donations and charitable cost had positive and significant impact on return on asset of manufacturing firms in Nigeria. Oshiole et al (2020) result of the study showed that employee health and safety cost disclosure have a significant positive effect on financial performance.

H_{03}: There is no significant effect of legal regulations fees on return on investment of listed agricultural companies in Nigeria.

Decision 1II: The results in table 4.4 reported the effect of legal regulations fees (LRF) on return on investment (ROI) of listed agricultural companies in Nigeria. The legal regulations fees (LRF) coefficient (0.794) and T-statistics 2.972) disclosed a positive effect. This means that a one naira increase in legal regulations fees (LRF) will lead to a 2.972 naira increase in return on investment (ROI). The Prob. ** value 0.004 < 5% chosen significant level. Given the above result, the study rejected the null hypothesis and concluded that there is a significant effect of legal regulations fees on return on investment of listed agricultural companies in Nigeria. The finding of this study is in consonance with Nwaiwu and Oluka (2018) examined the effect of environmental cost disclosure and financial performance measures of quoted oil and gas companies in Nigeria. The econometric results reviewed that environmental regulations have positive significant effect on financial performance measures. Lyndon and Harmony (2021) stated that regulatory authorities should set out a legal framework and standard requirement that can enhance the practice of environmental accounting and make it mandatory for deposit money banks to disclosure the environmental cost. Okere et al (2022) results from the regression indicate that environmental internal failure cost and environmental external failure cost have a positive and significant effect on the financial performance of oil and gas companies in Nigeria. However, the following prior studies disagree with the finding by indicating insignificant Akinleye (2022) results of findings indicated that internal environmental cost in term of legal regulation had a significant negative effect on return on asset. Bukar (2022) study found that environmental accounting has a negative impact on the financial performance proxies ROCE and ROA. As results of environmental cost is statistically insignificant.

5. CONCLUSION AND RECOMMENDATIONS

This study investigated the effect of environmental cost reporting on financial performance among listed agricultural companies in Nigeria. Based on the data analysis, and discussion of findings, and summary of findings above, the study concluded that there is a significant effect of environmental cost reporting on financial performance of listed agricultural companies in Nigeria. Others sub-variables includes the following;

1. Waste management cost negatively affects return on investment among listed agricultural companies in Nigeria.
2. Health and safety cost negatively affects return on investment among listed agricultural companies in Nigeria.

3. Legal regulations fees positively affects return on investment among listed agricultural companies in Nigeria.

Based on the summary of findings and conclusions above, the following recommendations were made:

1. Management of listed agricultural companies in Nigeria should ensure adequate compliance with the guidelines of waste management cost as this portrays a good image of their firm financial performance.
2. The study recommended that payment of health and safety costs should be sustained, as safe and secure environment enhances the financial performance of agricultural companies in Nigeria.
3. Listed Agricultural companies in Nigeria and others counties should increase their participation in legal regulation fess to their host communities which will in turn improve the financial performance in their companies.

References

Abubakar, R. B. ,& Sadiq, R. A. (2023). Impact of environmental disclosure on financial performance of cement manufacturing companies in Nigeria. *Nigerian Journal of Management Sciences, 24*(2), 382-388.

Adegbie, F. F., Ogidan, A. A., Siyanbola , T., & Adebayo, A. S. (2020). Environmental accounting practices and share value of food and beverages manufacturing companies quoted in Nigeria. *Journal of Critical Reviews, 7*(13), 2256- 2264.

Akinadewo, I. S, Olusola, B. A., Oluyinka, I. O., Omobolade, S. O., Adebola, A. J. (2023). Sustainability reporting practice and financial performance of listed industrial goods firms in Nigeria. *European Journal of Science, Innovation and Technology, 3*(3), 40-55.

Akinleye, M. J. (2022). Internal environmental cost and financial performance of Selected listed firms in Nigeria. *Fuoye Journal of Accounting and Management, 5*(2), 95-114.

Ali, M., Wang, W., Chaudhry, N. & Geng, Y. (2017). Hospital waste management in developing countries: A mini review. *Waste Management Research, 35*, 581–592.

Amahalu, N. N, Obi, C. J., Abiahu, M. C., & Okosuogwe, O. A. (2015). Effect of the adoption of International Financial Reporting Standard (IFRS) on the financial performance of selected Banks Quoted on the Nigerian Stock Exchange (2007-2014). *Research Journal of Finance and Accounting, 4*(1) 28-42.

Bukar, M. (2022).The impact of environmental accounting on financial performance of quoted companies in Nigerian extractive industry. *Timbou-Africa academic publications International Journal, 11*(7), 183-196.

Chijioke, L. O. & Nestor, N. A. (2023). Effect of environmental accounting on profitability of listed oil and gas firms in Nigeria. *International Journal of Advanced Academic Research, 9*(3), 47-61.

Chinedu, I. E., & Ofili, M. U., & Benjamin, D. U. (2023). Effect of environmental costs on the financial performance of listed oil and gas companies in Nigeria. *International Journal of Accounting Research, 8*(1), 31-36.

Clement, O. O. & Oluwaseun, R. A. (2023). Green accounting practices and business health of listed oil and gas firms in Nigeria (2012-2021). Asian journal of economics, business and accounting, 23(18), 73-88.

Daniel, M. M. & Ambrose, J (2013). Environment accounting and firm profitability: An empirical analysis of selected firms in Bombay stock exchange, India. *International Journal of Humanities and Social Science, 3*(18), 248 -255.

Derila, C. P., Evana, E., & Dewi, F. G. (2020). Effect of environmental performance and environmental costs on financial performance with csr disclosure as intervening variables. *International Journal for Innovation Education and Research, 8*(1), 37–43.

Dunia, J. J. A. (2023). The role of environmental management accounting information in the design process of environmental and sustainable products. *International Journal of Engineering Business Management, 15*(2), 1–14.

Endiana, I. D. M., Dicriyani, N. L. G. M., Adiyadnya, M. S. P., & Putra, I. P. M. J. S. (2020). The effect of green accounting on corporate sustainability and financial performance. *Journal of Asian Finance, Economics and Business, 7*(12), 731–738.

Ezenwaka, F. A ., Nwaorgu, I. A. & Ifurueze, M. (2022). Effect of pollution and health safety costs on the financial performance of listed oil and gas firms in Nigeria. i*nternational Journal of Contemporary Accounting Issues-IJCAI (formerly International Journal of Accounting & Finance, IJAF), 11*(2), 1-16.

Ezeokafor, F. C., & Amahalu, N. N. (2019). Effect of sustainability reporting on corporate performance of quoted oil and gas firms in Nigeria. *Journal of Global Accounting, 6*(2), 217-228.

Giami, I. B. (2021). Environmental cost reporting and performance of Nigerian oil and gas downstream. *African Journal of Accounting and Financial Research 4*(2), 26-54.

Gray, R. H. (1995). Corporate social and environmental reporting: A review of the literature and a longitudinal study of United Kingdom disclosure. *Accounting, Auditing, & Accountability Journal, 8*(12), 47-54.

Haleem, A., Nazar, M. C. A., & Hilal, M. I. M. (2021). A systematic review on environmental accounting. *Academy of Entrepreneurship Journal, 27(4*), 1–13.

Ifurueze, M. S. K; Lyndon, M.E & Bingilar, P.F (2013). The impact of environmental cost on corporate performance: A study of oil companies in Niger Delta State of Nigeria. *Journal of Business and Management, 2*(2), 1 – 10

Ighoroje, E. J. & Ozigbo, S. A. (2023). Effect of environmental performance disclosure on the profitability of the oil and gas industry in Nigeria. *Finance & Accounting Research Journal, 5*(7), 135-149.

Iheduru, N. G., & Okoro, C. U. (2019). Sustainable reporting and profitability of quoted Firms in Nigeria: A multi-dimensional panel data study. *Australian Finance & Banking Review, 3*(1), 1-10.

Ihenyen, J. C. & Ikegima, A. C. (2022). Environmental accounting and organisational performance of listed industrial sector companies in Nigeria. *International Journal of Management & Entrepreneurship Research, 4*(4), 202-212.

Ilelaboye, C. S. & Alade, M. E. (2022). Environmental accounting and financial performance of listed family-owned companies in Nigeria. *International Review of Business and Economics, 6*(1), 71-81.

Iliemena, R. O. (2020). Effect of environmental accounting practices on corporate performance of listed oil and gas companies in Nigeria. *Journal of Resources Development and Management, 53*, 28–34.

Ishmael, W., Andrew, O. A. & Samuel, Y. A. (2023). Does green accounting influences ecological sustainability? Evidence from a developing economy. *Cogent Business & Management, 10*(2), 1-25

Johnson, K. O., Abiodun, A. T., & Ayuba, O. O. (2021). Environmental accounting disclosure practices and financial performance of listed cement companies in Nigeria. *Gusau Journal of Accounting and Finance, 2*(2), 1-12.

Jonah, N. M. (2022). Environmental cost accounting and profitability of publicly traded consumer goods companies in Nigeria. *International Journal of Academic Accounting, Finance & Management Research(IJAAFMR), 7*(10), 20-28.

Kansilembo, F. A., Anrusha, B. & Sachin, S. (2023). The impact of environmental costs on financial performance: An explorative analysis of two plastic companies. *Environmental Economics, 14*(1), 13-23.

Kornom-Gbaraba, M. E. & Chukwuemeka, J. (2021). Impact of waste management cost disclosure on corporate financial performance of quoted oil companies in Nigeria. *British International Journal of Applied Economics, Finance and Accounting, 6*(02), 21-29.

Lawrence, U. E., & Bernard, E. E. (2023). Environmental costs and financial performance of selected industrial goods firms in Nigeria: A moderated regression analysis approach. *Fuoye Journal of Finance and Contemporary Issues, 4*(1), 83-97.

Lyndon, M. E., & Harmony L.J. (2021). Environmental accounting and performance of listed financial services sector firms in Nigeria. *IOSR Journal of Economics and Finance (IOSR-JEF), 12*(4), 52-58.

Major, I. H. & Nwdighoha, L. E. (2023). Environmental accounting cost and financial performance of listed natural resource firms in Nigeria. *Innovative Journal of Banking and Finance, 8*(2), 99-115.

Major, I. H. & Nwdighoha, L. E. (2024). Environmental costs and financial performance of listed food and beverage firms in Nigeria. *Journal of Advancement in management and Accounting Research, 10*(1), 109-131.

Mazahrih, B. (2019). Integration of environmental costs into accounting information system. *Academy of Accounting and Financial Studies Journal, 23*(4), 1–20.

Mohd, S., Aamir, A., & Anam, A. (2022). Environmental accounting disclosure practices: A Bibliometric and systematic review. *International Journal of Energy Economics and Policy, 12*(4), 226-239.

Murti, C. D. (2023). What is known about environmental cost accounting? Systematic literature review. *Journal of Accounting and Investment, 24*(1), 84-100.

Naji, A. F. & Hawkar, A. H. (2022). The Impact of Environmental Accounting on Financial Performance: Evidence from oil companies in Iraq. *Qalaai Zanistscientific Journal, 7*(4), 1106- 1122.

Ngatia, C.N. (2015). Exploring sustainability reporting for financial performance of selected companies listed at the Nairobi securities exchange in Kenya. *International Academic Journal of Economics and Finance, 1*(4), 32-48.

Nwaimo, E. (2020). Effect of environmental cost on performances of quoted firms in Sub-saharan Africa. *European Journal of Accounting, Auditing and Finance Research, 8*(7), 97-120.

Nwaiwu, N. J. & Oluka, N. O. (2018). Environmental cost disclosure and financial performance of oil and gas in Nigeria. *International Journal of Advanced Academic Research Financial Management, 4*(2), 1-23.

Nwanwu, P. O. (2022). Waste management cost and financial performance of oil and gas companies in Nigeria: An empirical analysis. *International Journal of Business & Law Research, 10*(2), 72-84.

Nwdighoha, L. E. (2024). Environmental expenditures and financial sustainability of quoted food and beverage manufacturing companies in Nigeria. *International Journal of Innovations in Accounting an Economics Management, 12*(1), 140-154

Nyahuna, T. & Doorasamy, M. (2022). The nexus between environmental management accounting practices and financial sustainability of cement and mining companies in South Africa. *International Journal of Environmental Sustainability and Social Sciences, 4*(1), 18 – 26.

Obara, L. C., Ohaka, J. Nangih, E. & Odinakachukwu, I. O. (2017). The effect of accounting for waste management expenditure on the profitability of oil and gas companies in Nigeria. *International Journal of Economics, Commerce and Management, 5*(3), 68-81.

Obiora, F. , Onuora, J. K. J. & Sandra, E. C. (2022). An assessment of the impact of environmental accounting disclosure on profitability of firm In Nigeria. *International Journal of Innovative Finance and Economics Research, 10*(1), 92-103.

Obiora, F., Onuora, J. K. J., & Okoye, O. C. (2022). Environmental accounting practices, social responsibility disclosures and firm value; evidence from listed oil and gas firms in Nigeria. *IIARD – International Institute of Academic Research and Development, 8*(1), 29-42.

Ofoegbu, G. N. & Megbuluba, A. (2016). Corporate environmental accounting information disclosure in the Nigeria manufacturing firms. *International Journal of Management Science and Business Research, 5*(12), 208 – 220.

Ofurum, C. O., & Iwunna, A. S. (2022). Environmental cost disclosure and financial performance of listed oil and gas companies in Nigeria. *IOSR Journal of Business and Management, 24*(7), 67-74.

Ogbonna, G., Onuora, E., Chioma, I., & Friday, O. (2020). Environmental accounting and sustainability development in Nigeria. *West African Journal of Business and Management Sciences, 9*(4), 62-89.

Ojo, O. O., & Balogun, S. B. (2022). Environmental accounting disclosure and firms profitability in Nigeria. *Ilaro Journal of Environmental Research & Development, 3*(1) 80–93.

Okafor, T.G (2018). Environmental costs accounting and reporting on firm financial performance: A survey of quoted Nigerian oil companies. *International Journal of Finance and Accounting, 7*(1), 1 – 6.

Okere, O. C. Nwite, S. C., & Agana, O. J., (2022). Environmental accounting costs and financial performance of selected quoted oil and gas companies in Nigeria. *International Journal of Research and Innovation in Social Science (IJRISS), 6*(10), 175-187.

Okezie, B. N.; Ibe, S. U. & Kanu, C. I. (2019). Environmental costs and financial performance of listed firms in Nigeria. *Ae-Funai Journal of Accounting, Business And Finance(FJABAF), 5*(1), 98-112.

Okore, A. O. (2021). Effect of environmental cost on performance of manufacturing firms in Nigeria. *Journal of Accounting and Financial Management, 7*(5), 19-33.

Olowokere, J. K., Adeniran, A. T. & Onifade, A. O. (2021). Environmental accounting disclosure practices and financial performance of listed cement companies in Nigeria. *Gusau Journal of Accounting and Finance, 2*(2), 1-12.

Olusola, E. I., Festus, T. S., Sunday, A. A., Muyiwa, E. A., & Wale, H. A. (2021).Environmental accounting disclosure and financial performance of listed multinational firms in Nigeria. *Global Journal of Management and Business Research: D Accounting and Auditing, 21*(2), 17-28.

Omaliko, E., Uzodimma, A., & Ogbuagu, N. (2018). Comparative analysis of environmental disclosures in oil and gas industries in Nigeria: A study of selected oil and gas industries on the Nigerian stock exchange. *World Educators Forum, 10*(1), 1-13.

Oshiole, S., Elamah, A. F., Ndubuisi, A. N. (2020). Effect of environmental cost disclosure on profitability of listed oil and gas firms in Nigeria. *International Journal of Academic Research in Accounting, Finance and Management Sciences, 10*(2), 157-170.

Raymond, A. E., John-Akamelu, R. & Chigbo, C. B. E. (2016). Effect of sustainability environmental cost accounting on financial performance of Nigerian corporate organisations. *International Journal of Scientific Research and Management (IJSRM), 4*(8), 4536 –4549.

Sengottuvel, C. (2018). Environmental accounting and firms' profitability. *International Journal of Innovative Research in Management Studies, 3*(1), 22-27.

Suchman, M. C. (1995). Managing legitimacy: Strategic and institutional approaches. *Academy Management and Review, 2*(20), 571–610.

Suleiman, I. L. (2007). The environmental and environmental laws in Nigeria. *Journal of Environmental Watch, 1*, 232-241.

Syarief, G. P. & Julia, S. (2023). The effect of environmental management accounting on financial performance and working capital management as mediation Variables in the Textile Processing Industry in Bogor Regency. *Journal Manajemen (Edisi Elektronik), 14*(1), 14-29

Temitope, M. W. (2021). Impact of environmental cost on the profitability of quoted manufacturing companies in Nigeria. *Independent Journal Of Management & Production (IJM&P), 12*(5), 1518- 1536.

Thi, K. X. D., Thanh, D. N. &Thu, H. N. (2022). Factors affecting the application of environmental accounting in manufacturing enterprises in Vietnam. *Journal of Accounting, Finance and Auditing Studies 8*/3 (22), 115-140.

Tiamiyu, M. A., Oyedokun, G. E. & Adeyemo, K. A. (2021). Environmental accounting disclosure and financial performance of listed manufacturing companies in Nigeria.*Benin Journal of Accounting, Finance and Forensic Science Research, 1*(1), 113-130.

Ulupui, I. G. K. A., Murdayanti, Y., Marini, A. C., Purwohedi, U., Mardi, & Yanto, H. (2020). Green accounting, material flow cost accounting and environmental performance. *Accounting, 6*(5), 743–752.