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ENVIRONMENTAL EXPENDITURES AND FINANCIAL SUSTAINABILITY OF QUOTED FOOD AND BEVERAGE MANUFACTURING FIRMS IN NIGERIA

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ABSTRACT
This study investigated 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 in Nigeria 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.

Keywords: Earnings Per share, Environmental Expenditures, Financial Sustainability, Net Profit Margin.

INTRODUCTION
It is widely believed that firms that have imbibed the culture of environmental expenditures reporting, are regarded to be responsible, and enjoy relative peace within their domain (Mufee, 2021).According to Naji and Hawker (2022), Environmental investments are no longer seen as an additional cost but they are seen as part of corporate social responsibility, therefore environmental reports are seen as necessary in communicating with stakeholders to address their environmental concerns(Fasua & Osifo 2020; Polycarp 2019; Emuebie et al., 2021; Sari et al., 2020; Ibrahim &Kurfi, 2021; Olusola et al., 2021). It is expected that consumer goods manufacturers should have the institutional capacity to implement sustainable solutions to protect the environment. The research investigated by Lyndon and Harmony (2021) acknowledged that environmental accounting involves the identification, measurement and allocation of environmental costs, and the integration of these costs into business, encompasses the way of communicating such information to the company's stakeholders. (Mayndaro & Augustine 2021; Che-Ahmed et al., 2019; Emmauel et al., 2019; Karakus & Erdirencelebi; 2019; Major & Zarakpege, 2021) Food and Beverage manufacturing companies are yet to realize that it is their corporate responsibility to achieve sustainable development whereby they meet the present needs of the society without compromising the ability of future generations to meet their needs. Economic growth is important for both shareholders and stakeholders alike in that it provides the condition in which protection of the environment can best be achieved (Hamid, 2018). The operations of confectionery sectorial activities in Nigeria have resulted in the massive environmental pollution in the country. Nigeria has been identified as one of such country, with high level of environmental pollution that

contributes significantly to global environmental problems, especially in the context of the activities of oil prospecting companies that result to environmental degradation. Currently, there is an on-going crusade against the harmful effect of economic activities on climatic change; a case where ocean levels keep rising, global warming threatening, deforestation on the increase and environmental pollution going on unabated (Damiebi, 2023). Consequently, concern for climate change, pollution, oil spills, gas flaring and deforestation. (Asamoal et al., 2020) This present study seeks to investigate environmental expenditures and financial sustainability of quoted food and beverage manufacturing companies in Nigeria.

Statement of Problem

It is necessary to state here the wreckages caused by the economic activities of Food and Beverage manufacturing companies in Nigeria with particular reference to their products which mostly are packaged in nylon sachets and cans (plastic and metal) or bottles to the immediate environment and beyond, is of great concern to our society. The attitude of the consumers in disposing the used sachets and cans, plastics and the unconcerned disposition of the firms and other stakeholders in sustaining the environment leaves little to be desired. A cursory look at our environmental regulators, reveals a system where proper refuse disposal is lacking; the drainages and water ways appear to be moribund and in a state of disuse, resulting to over-flooding as the drainages/water ways are blocked by used rappers of sweets and other confectioneries such as Tom-Tom, Hacks, Trebor, Buttermint, Biscuits, Boumvita, cans and plastic bottles and breakable bottles which are indiscriminately disposed. Improper disposal of these used confectioneries disrupts the free-flow of drainages and water ways, constituting an eye-sore to the aesthetic value of our cities; various health challenges are the end-product of this practice(Okezie et al., 2019; Tze et al., 2018; Utile et al., 2017).Notwithstanding, the avowed global effort, in maintaining a clean environment by the corporate world, it appears that the environment is not getting any better. A striking aspect of the third stage of environmental accounting which is "measuring the environmental impacts of the firm's activities and products" is of essence here (Damieibi, 2023; Norhasimah, 2018). The researcher initiated this study aimed at analysing the effect of environmental expenditures and financial sustainability of quoted food and beverage manufacturing companies in Nigeria.

Conceptual Framework

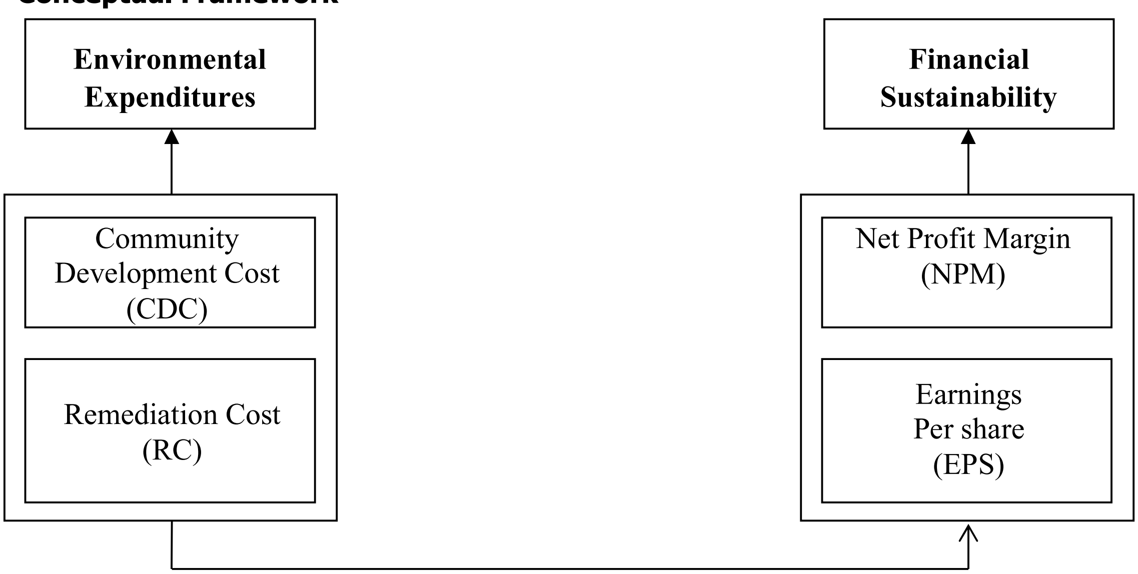

Fig.1: A conceptual framework showing the effect of environmental expenditures and financial sustainability of quoted food and beverage manufacturing companies in Nigeria.

Sources: Newstyle and Opuene (2022); Damiebi (2023); Iliemenaetal (2023); Ogunode and Adegbie (2020); Bockevis and Rogossnig (2023)

Aim and Objectives of the Study

The purpose of this study is to determine the effect of environmental expenditures and financial sustainability of quoted food and beverages manufacturing firms in Nigeria.Specifically, the objectives of the study were to:

i. ascertain the effect of community development cost and net profit margin of quoted food and beverages manufacturing firms in Nigeria.
ii. determine the effect of community development cost and earnings per share of quoted food and beverages manufacturing firms in Nigeria.
iii. evaluate the effect of remediation cost and net profit margin of quoted food and beverages manufacturing firms in Nigeria.
iv. investigate the of effectof remediationcost and earnings per share of quoted food and beverages manufacturing firms in Nigeria.

Research Questions

In order to achieve the aim and objectives of this study, the following research questions were raised:

i. What is the effect of community development cost and net profit margin of quoted food and beverages manufacturing firms in Nigeria?
ii. What is the effect of community development cost and earnings per share of quoted food and beverages manufacturing firms in Nigeria?
iii. What is the effect of remediation cost and net profit margin of quoted food and beverages manufacturing firms in Nigeria?
iv. What is the of effect of remediationcost and earnings per share of quoted food and beverages manufacturing firms in Nigeria?

Hypotheses

The following null hypotheses were derived for the study;

H_{o1}: Community development cost has no significant effect on net profit margin of quoted food and beverages manufacturing firms in Nigeria.
H_{o2}: Community development cost has no significant effect on earningsper share of quoted food and beverages manufacturing firms in Nigeria.
H_{o3}: Remediation cost has no significant effect on net profit margin of quoted food and beverages manufacturing firms in Nigeria.
H_{o4}: Remediation cost has no significant effect on earnings per share of quoted food and beverages manufacturing firms in Nigeria.

Significance of Study

The result of this study would be highly useful to the business community, government, the management of food and beverage companies and future researchers. The investing public would appreciate the need for environmental accounting to sustain business growth and expansion. Also, it keeps them updated or informed of various companies which are abreast of the recent developments in environmental matters. Regulator of companies, government can use the result of this study to strengthen the implementation of environmental expenditures policies/guidelines of various companies. The study would also be useful to the management of various food and beverage companies. The management would identify the relevance of corporate governance dynamics in enhancing profitability of companies. Finally, the findings of this study could function as a basis for more future researches and as a reference in the academia.

REVIEW OF RELATED LITERATURE
Conceptual Review
Concept of Environmental Expenditures
According to IIelaboye and Alade(2022) environmental expenditures is the identification, measurement and allocation or environmental expenditures, the integration of these environmental expenditures into business decisions, and the subsequent communication of the information to a company's stakeholders. Identification includes a broad examination of the impact of corporate products, services and activities on all corporate stakeholders. After companies identify the impacts on stakeholders as far as they can, they measure those impacts (costs and benefits) as precisely as possible in order to permit informed management decision-making. Measurements might be quantified in physical units or monetized equivalents. Naji and Hawkar (2022) posit that organizations use environmental expenditures for several reasons, including the following: to help managers make informed decisions. This will reduce or eliminate their environmental expenditures; to better track environmental expenditures that may have been previously obscured in overhead accounts or otherwise overlooked. To gain a better understand of the environmental expenditures andfinancial sustainability of quoted food and beverage manufacturing companies,the processes and products must be evaluated accurately. This will enhance costing and pricing of products and further broaden and improve the investment analysis and appraisal process to include potential environmental impacts. Similarly, Mayndarto and Agustine (2021) averred that environmental impacts are identified and measured, companies develop reporting systems to inform internal and external decision makers. The amount and type of information needed for management decisions will differ substantially from that required for external financial disclosures and for annual environmental reports.To this end support the development and operation of an overall environmental management system. Emuebie et al. (2021) viewed environmental accounting as a tool that can be employed to determine less tangible and external costs for projects and activities, such as bio-diversity, human health and aesthetic values. It is also aimed at broader issues such as implementing sustainable business practice to conserve natural resources for future generations.

Environmental expenditures are rarely disclosed separately, unless they represent an exceptional item, and there is often no reason to treat such expenditures in a different way from other expenditures (Li, et al 2022). The recognition of environmental liabilities may require greater clarity in identifying and defining the underlying expenditures, since they often involve uncertainty as regards their timing and measurement. The disclosure of such information, together with an appropriate explanation, is likely to be expected by users in view of the increasing importance of the environment. Where environmental expenditures are disclosed, the way in which such expenditures are identified should also be explained, in order to ensure that comparisons between enterprises do not result in misleading conclusions.

IAS 1 also require the separate disclosure of environmental expenditures and liabilities where these are material to the enterprise, where the effect of the information on the financial position, performance and changes in financial position of the enterprise could influence the economic decisions of a wide range of users of the financial statements. Where environmental expenditures are separately disclosed, the accounting policies should state what these expenditures represents, the accounting treatment adopted and, in the case of environmental expenditures that are capitalized, where the amount concerned is derived from an allocation of total expenditures, or is restricted to those expenditures that relate "wholly and exclusively" to environmental factors.

Dimensions of Environmental Expenditures
Community Development Cost
There is a high level of pollution and degradation in the society due to business operations of food and beverage companies, which significantly impact the host communities' natural resources. Ifurueze et al. (2013) studied the impact of environmental expenditures on corporate

performance. They concluded that environmentally friendly companies attract more investors and, by extension, build more investors' confidence. Their finding is consistent with Fabian and Emeka (2022) and (Herbert et al., 2020). According to Herbert et al. (2020) in their "Sustainability Reporting and Performance of Listed Upstream Oil and Gas Firms in Nigeria," environmental problems arise from the interactions between the environment and economic activities. They argued that there is a direct relationship between these interactions and the environmental impact. The communities' farmlands are affected by these companies' business operations (Okafor, 2018). In addition, in these host communities, people who depend on farming for their survival and livelihood can no longer use their natural resources for agriculture because of chemical reactions that have affected the soil and water (Oraka, 2021).

Remediation Cost

Environmental Remediation costs means all costs and expenses of actions or activities to cleaning up or removal of hazardous materials from the environment; preventing or minimizing the further movement, leaching or migration of hazardous materials in the environment; preventing, minimizing, or mitigating the release or threatened release of hazardous materials into the environment, or injury or damage from such release, and comply with the requirements of any environmental laws. Environmental remediation costs include, without limitation, costs and expenses payable in connection with the foregoing for legal, engineering or other consultant services, for investigation, testing, sampling, and monitoring, for boring, excavation, and construction, for removal, modification or replacement of equipment or facilities, for labor and material, and for proper storage, treatment, and disposal of hazardous materials (Burnett & Hansen 2017). Remediation cost means all costs associated with performing work to remediate contamination of real property or groundwater, including engineering and other professional fees and expenses, costs to remove, transport and dispose of contaminated soil, costs to "cap" or otherwise contain contaminated soil, and costs to pump and treat water and monitor water quality (Vasilachi et al (2021).

Concept of Financial Sustainability

Financial sustainability can be described as the level of performance of a business over a specified period of time, expressed in the terms of overall profits and losses during the time. Evaluating the financial performance of a business allows decision-makers to judge the results of business strategies and activities in objective monetary terms. Wikipidia (2017) define financial sustainability as the act of performing financial activity, the degree to which financial objectives are being accomplished and the process of measuring the results of firm's policies and operations in monetary terms. It is used to measure firm's overall financial health over a given period of time and can also be used to compare similar firms across the same industry. According to Emmanuel and Glays(2021) companies are expected to prepare annual reports which disclose both qualitative and quantitative information about their operations and performance (economical, financial, social or otherwise) to be presented to their stakeholders (owners, shareholder, government, employee etc). The information content requirements of these stakeholders are diverse and as such firms must not only disclose information about their performance but prepare other reports as Environmental Expenditure s Reports Sustainability Report, Human Resources Accounting Report, Good Corporate Governance Report etc.

Measures of financial sustainability

Net Profit Margin

Net profit is widely accepted as the financial and operational performance. Net Profit is a measure of probability that constitutes the sum left to a firm following the deduction of all of expenditures incurred in production of a good or service. Adegbie, et al (2020) describes net profit as a summary measure of the overall effectiveness of management because it reflects the quality of managerial decision put forth findings that are in line with Adegbie, et al (2020) position of the use of the net profit as a performance measure but acknowledges that the nature of a firm's business affects the choice of the metric to be used the use of net as opposed to gross profit is suggested by Kumar and Kaur (2016) as a means of increasing the comparative value of analysis because net profits take into consideration the differences in inter-industry tax treatment at least within the national context. In the latter group, net profit was used as the most appropriate measure of enterprise performance especially in developing economics such as Nigeria where the metrics available for describing growth are still nascent. The aforementioned studies honed in on performance from a quantitative analysis lens regressing various variables against net profit to make conclusions about the performance of small business, earlier studies including Ayu, et al (2020) employed net profit to explore the relationship between organization size, board composition and financial performance. The study found that both correlations were related to net profit as a measure of financial performance.

Earnings per Share

Earnings per share is calculated in order to indicate each shareholder's proportionate share in the company's earnings. An absolute increase in net income is not, in itself, an adequate indicator because net income may go up as a result of increased investment. For example, a company may issue more shares for each. Igbodo et al (2019) averred that increased investment would be expected to generate additional earnings for the company, but for an individual shareholder, the real question is whether net income increased enough to compensate for the increased number of shares outstanding. If the proportionate increase in outstanding shares, then earnings attributable to each share will decline. The Canadian Institute of Chartered Accountant (CICA) handbook recommends that companies report two EPS numbers, each based on different measures of earnings and outstanding shares. The first EPS statistic is basic earnings per share, calculated on; earnings before discontinued operations and extraordinary item, and net income. The EPS effect of discontinued operations and/or extraordinary items must also be shown separately. Emeka-Nwokeji and Osisioma (2019) opined that basic EPS is useful for comparing a company's current performance with its past record. However, many companies have significant amounts of convertible securities and/or stock options outstanding which pose the possibility of potentials substantial change in the corporation's capital structure. Therefore, in order to provide the basis for useful forward comparisons, diluted EPS that could occur of all potentially available common shares were issued that is, if all stock options were exercised, and all convertible debt and convertible preferred shares were converted to common shares.

Theoretical Framework

Environmentalism theory

According to wikipidia, (2017) environmentalism or environmental rights is a broad philosophy, ideology and social movement regarding concerns for environmental protection and improvement of the health of environment, particularly as the measure for health seeks to incorporate the impact of changes to the environment on humans, animals, plants and non-living matter. Environmentalism advocates the preservation, restoration and improvement of the natural environment and may be referred as a movement to control pollution and protect plants and animal diversity. It is an attempt to balance relations between humans and the various natural systems on which they depend in such a way that all the component are accorded proper degree of sustainability. Though the exact measures and outcomes of this balance is controversial. This study has a lean on this theory because it will encourage firms to carry out environmental practices.

Environmental Ethics and Law Theories

According to Wikipedia, (2017) environmental ethics is a discipline in philosophy that studies the moral relationship of human beings to the value and moral status of the environment and its nonhuman contents. It covers the preservation of biodiversity as an ethical goal, and sustainability and climate change. Li, et al (2022), stated that Environmental law is a collective term describing the network of treaties, statutes, regulations, and laws addressing the effects of human activities on the natural environment. The core environmental law addresses environmental pollution, and other natural resources such as forests, minerals, fisheries, etc.

Stakeholder Theories: This study is anchored on the stakeholders' theory. It was first propounded by Mitroff in (1983) and formulated by Edward Freeman (1984) in his book "Strategic Management." Freeman (1984) characterized stakeholders as any individual or group who has an interest in the firm because he or shecan affect or is affected by the firms' activities. Similarly, Ibrahim and Kurfi (2021) affirmed that stakeholders are any individual or group who can affect or is affected by the actions, decisions, policies, practices, or goals of the organization. The stakeholders can be identified by the legitimacy of their claims, which is substantiated by a relationship of exchange between themselves and the organization. Nevertheless, stakeholders include bankers, creditors, managers, employees, customers, suppliers, local communities, and the general public. The stakeholder theory assumes that an organization will respond to the concerns and expectations of powerful stakeholders, and some of the responses will be in the form of strategic disclosures. Organizations need to take care of the environment in which they draw resources from by ensuring that the environment is conducive and healthy. There is always a conflict between the stakeholders and the public interest. Stakeholders are interested in profit, while the public is interested in a conducive and healthy environment.

Empirical Review

This section analyzes empirical studies, makes attempt to identify gaps not filled by previous studies and fill identified gaps. This present research study seeks to bridge the knowledge gap. However, several empirical studies over the years have shown the effect of environmental accounting and financial performance of food and beverage firms in Nigeria.

Damieibi (2023) investigated the effect of environmental accounting practices on profitability of quoted oil and gas companies in Nigeria. The study used pollution cost, waste management cost and drainage cost to represent environmental accounting practices. The study adopted ex-post facto research design. The annual audited financial accounts of quoted oil and gas companies in Nigeria for ten (10) years (2012-2021) were used as key data. The study used multiple regression estimation to test the hypotheses formulated in the study. The results obtained from the empirical analyses show that pollution cost accounting has positive significant effect on net profit of quoted oil and gas companies; that waste management cost accounting has insignificant effect on net profit of quoted oil and gas companies; and that drainage cost accounting has negative significant effect on net profit of quoted oil and gas companies in Nigeria. The study concluded that environmental accounting practices affects net profit of quoted oil and gas companies; and with a view to nudging oil and gas firms towards organizational transformation, recommends that management of oil and gas companies in Nigeria should pay particular attention to waste management accounting to enhance their operating environment and their net profit.

Iliemena et al. (2023) examined the effect of environmental disclosure on financial performance of manufacturing firms in Nigeria. The study adopted ex-post-facto research design while data were gathered from annual reports and sustainability reports of the 23 sampled companies from the period 2012 to 2021, which represents the international financial reporting standards reporting period in Nigeria as at the time of the study. Multiple regression analysis of ordinary least square estimation was used. The finding from the regression analysis showed there is significant positive effect of social disclosure on gross profit margin. However, no significant effect of environmental disclosure was observed on return on capital employed. The study recommended that business organizations incorporate sustainability reports as part of their reporting policy to reap the associated benefit on gross profit margin with high hopes that other things being equal, constant increase in gross profit margin will influence the return on capital employed to increase significantly at a point.

Cletus et al. (2022) investigated the effects of environmental accounting costs on the financial performance of selected quoted oil and gas firms in Nigeria. Secondary source of data was used in the study and sourced from companies' annual report on Nigeria Stock Exchange covering the period 2010-to-2020. The study adopted the descriptive and inferential statistics in analysing the panel data. The study applied multiple regression models involving ordinary least square method was used to test hypotheses formulated. The results from the regression indicated 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. Also, environmental pollution prevention costs and environmental detection costs revealed an insignificant effect on the financial performance of oil and gas companies in Nigeria. The study concluded that the environmental accounting costs have significantly affected the general financial performance of oil and gas industry in Nigeria. The study recommended that the management of petroleum companies should continue to put funds on environmental internal failure cost to ensure continuous reduction of contaminants in the environment to the level that complies with environmental standards.

Molokwu et al. (2022) investigated the effect of environmental accounting on financial performance of selected oil and gas companies in Nigeria. The study specifically investigates the effect of environmental remediation and cost of pollution control on earnings per share of oil and gas firms in Nigeria. The study used ex-post- facto research design. Secondary data were collected from the selected firms and analysed, using Multiple Regression analysis. Findings from the analysis suggested that environmental remediation cost has a positive and significant effect on earnings per share of oil and gas firms in Nigeria. The study also disclosed that cost of pollution control on earnings per share of oil and gas firms in Nigeria is positive and significant. The study recommended that management of the companies should channel effort on engaging in adequate spending on the environment and its revelations as way of increasing stakeholders' confidence and showing more transparency in their operations.

Ezenwaka et al. (2022) investigated the effect of pollution and health safety costs on the financial performance of listed oil and gas firms in Nigeria. The study used ex post facto research design. The study used a purposive sampling method using descriptive statistics and Panel regression approach. The study findings revealed that the cost of pollution and health safety cost has a significant positive effect on financial performance (Revenue, Profit after tax & Cash flow from operations) of listed oil and gas companies in Nigeria. The study recommended that, Nigeria's listed oil and gas companies continue their current efforts to address the costs associated with pollution remediation, as well as the health and safety concerns of both the host community and their personnel.

Kaine and Womenazu (2022) investigated the relationship between environmental degradation cost and financial performance of listed oil and gas companies in Nigeria. The research design used was the ex-post facto design. Data used, were drawn from the Nigerian Stock Exchange (NSE) for the period 2010-2020. The data analysis technique used was descriptive and multiple regression technique. The findings indicated that environmental conservation cost is positively related to return on equity; and has a positive but insignificant relationship with return on asset of listed oil and gas companies in Nigeria.

Agbo and Gina (2021) evaluated the environmental accounting and financial reporting quality of quoted companies in Nigeria. The study used descriptive and field survey research methods. Data were collected from the conduct of administration of questionnaire and financial statements of the selected quoted companies. The data collected were analysed using Kendall's Coefficient of Concordance (KCC), Pearson's Chi-square technique, and the use of tables and percentages. The study established that the value relevance of financial reporting of quoted service companies in Nigeria will be improved by the application of the developed model. The study recommended that quoted service companies in Nigeria should imbibe the culture of capitalizing and reporting all expenditures/investments on environment that can improve their quality and productivity.

Giami (2021) examined the relationship between environmental cost reporting and performance of oil and gas downstream companies in Nigeria. The study adopted historical data design and census sampling techniques was used in studying the entire population. The hypotheses were tested using multiple regression analyses. The findings revealed that, amount spent on waste management /remediation has a negative and insignificant relationship with growth in sales volume and also with return on asset. The study disclosed that amount spent on compensation also has negative and insignificant relationship with both growth in sales volume and return on assets. The study recommended that oil and gas companies continue to manage their waste and include community development in their decision making in line with global best practices to keep them socially acceptable as these will ensure a symbiotic relationship among the various stakeholders.

METHODOLOGY

Research Design

This study adopted ex-post facto study design as the researcher examined past events, which deals with the determination, evaluation and explanation of past events, for better understanding of the future. The choice of this survey approach is because it will scientifically look at the situation on ground and will empirically analyze it to totally get result that can attributable to the accessible population.

Population and Sample Size

The target population of this study was the entire quoted companies in the food and beverage sector. However, the sample size includes ten (10) quoted food and beverages manufacturing firms in Nigeria which include, Nigeria Bottling Company Plc, Gunnies Plc, Nigeria Breweries Plc, Dangote Sugar Refinery Plc, Flour Mill of Nigeria Plc, Flour Mills Plc, Honeywell Flour Mills Plc, National Salt Company Plc, Northern Nigeria Flour Mills Plc, Cadbury Nig. Plc, and Nestle Nigeria. Plc.

Data Collection Procedure The secondary means of data collection was adopted. The relevance data were collected from the financial statements of the ten sampled quoted food and beverage firms in the Nigeria Stock Exchange from 2013 – 2022.

Data Analysis Techniques

For effective data analysis and findings, a descriptive statistic which comprises of percentages and tables was used. The researcher adopted multiple regression techniques in testing the hypotheses assisted by the use of SPSS version 20 software.

Model Specification

Y = f (X1, X2)

Where Y is the dependent variable (financial performance) and (X1, X2) are independent variables – environmental accounting.

As such; Therefore;

NPM = f(RC, CDC)……………………………………1

$NPM = \beta_0 + \beta_1 RC + \beta_2 CDC + \varepsilon$ ……………………………2

EPS = f(RC, CDC)……………………………………3

$EPS = \beta_0 + \beta_1 RC + \beta_2 CDC + \varepsilon$ ……………………………4

Where;

EPS = Earnings per share

RC = remediation cost

CDC = community development cost

NPM = net profit margin

E = error term
$\beta_1\beta_2$ = Coefficient or slop
Decision Rule: Reject null hypothesis when the significance is less than 0.05% and accept the null hypothesis when the significance is greater than 0.05

Result Analysis and Discussion of Findings

Table 1: Regression Results on the Effect of Environmental Expenditures on Net Profit Margin

Variable	Coefficient	Std. Error	t-Statistic	Prob.
		The Fixed Effect Regression Results		
CDC	3.827310	6.042710	0.632157	0.5289
RC	3.290309	3.052709	1.978947	0.0236
C	0.096402	0.016953	5.686549	0.0000
				Effects Specification
Cross-section fixed (dummy variables)				
R-squared	0.787374	Mean dependent var		0.115455
Adjusted R-squared	0.509916	S.D. dependent var		0.123249
S.E. of regression	0.102385	Akaike info criterion		-1.606947
Sum squared resid	0.911988	Schwarz criterion		-1.292387
Log likelihood	91.54387	Hanna-Quinn criter.		-14.79675
F-statistic	5.001059	Durbin-Watson stat		0.561566
Prob(F-statistic)	0.000005			
		Correlated Random Effects – Hausman Test		
Test Summary		Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random		6.319674	2	0.0069

Source: Computed from E-view 9.0, 2024

As the result found that the results of this test were significant (p-value = 0.0069). Hence, we reject the null hypothesis and conclude that the fixed effects model is the most appropriate of the one models. Also, based on the validity of fixed effect model from the Hausman test result, the analysis of result is drawn from the fixed effect result. Evident from the result proved that 50 percent variation on net profit margin of the food and beverage manufacturing firms is traceable to variation on the independent variables in the study which are community development cost and remediation cost. The f-statistic and probability validate the reliability of the model. The Durbin-Watson statistic proved the presence of negative serial autocorrelation. The regression coefficient found that community development cost has positive and no significant effect on net profit margin of the food and beverage firms while remediation cost have positive and significant effect on the earnings per share of the quoted food and beverage firms.

Table 2: Regression Results on the Effect of Environmental Expenditures on Earnings per share

Variable	Coefficient	Std. Error	t-Statistic	Prob.
		The Fixed Effect Regression Results		
CDC	2.265308	6.096608	0.370633	0.7118
RC	4.212407	3.083607	1.966545	0.0353
C	5.126870	1.708856	3.000177	0.0035
		Effects Specification		
Cross-section fixed (dummy variables)				
R-squared	0.553942	Mean dependent var		7.239394
Adjusted R-squared	0.497544	S.D. dependent var	14.55981	0.123249
S.E. of regression	10.32060	Akaike info criterion		7.619373
Sum squared resid	9266.786	Schwarz criterion		7.933933
Log likelihood	-365.1590	Hanna-Quinn criter.		7.746645
F-statistic	9.821989	Durbin-Watson stat		2.010240
Prob(F-statistic)	0.000000			

Correlated Random Effects – Hausman Test

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	8.327499	2	0.0049

Source: *Computed from E-view 9.0, 2024*

As the result found that the results of this test were significant (p-value = 0.0049). Hence, we reject the null hypothesis and conclude that the fixed model is most appropriate of the two models.

Also, based on the validity of fixed effect model from the Hausman test result, the analysis of result is drawn from the fixed effect result. Evident from the result proved that 49.9 percent variation on earnings per share of the food and beverage manufacturing firms is traceable to variation on the independent variables in the study which are community development cost and remediation cost. The f-statistics and probability validate the reliability of the model. The Durbin-Watson statistics proved the presence of negative serial autocorrelation, The regression coefficient found that community development costhas positive and no significant effect on earnings per share of the food and beverage firms while remediation cost have positive and significant effect on earnings per share of the listed food and beverage firms.

Discussion of Findings

The first hypothesis was formulated to study the relationship between community development cost and net profit margin, the estimated regression model found that community development cost has positive and insignificant effect on the net profit margin of the listed food and beverage firms within the periods covered in the study. The regression coefficient indicates that a 1 percent increase on the variable can add 3.8 percent on the net profit margins of the quoted firms. The positive effect of the variable confirms our a-priori expectations and justifies theories such as legitimacy theory and in line with the objective of corporate social responsibility. Empirically, the finding confirms the findings of Etale (2021) The second hypothesis was formulated to study the relationship between community development cost and earnings per share. the estimated regression model found that community development cost has positive and insignificant effect on the net profit margin of the listed food and beverage firms within the periods covered in the study. The regression coefficient indicates that a 1 percent increase on the variable can add 2.3 percent on the earnings per share of the quoted firms. The positive effect of the variable also confirms our a-priori expectations and justifies theories such as legitimacy theory and in line with the objective of corporate social responsibility. Empirically, the finding confirms the findings of Ezeagba et al (2017) who suggested firm's size as a factor influencing pollution control,Omodero and Ihendihu (2016) found that larger corporations tend to disclose more information. The third hypothesis was formulated to study the relationship between remediation cost and net profit margin, the estimated regression model found that remediation cost has positive and significant effect on the net profit margin of the listed food and beverage firms within the periods covered in the study. The regression coefficient indicates that a 1 percent increase on the variable can add 2.5 percent on the net profit margin of the listed firms. The positive effect of the variable also confirms our a-priori expectations and justifies theories such as legitimacy theory and in line with the objective of corporate social responsibility. Empirically, the finding confirms the findings of Ezeagba et al (2017) who suggested firm's size as a factor influencing pollution control, Olushola(2020) found that larger corporations tend to disclose more information. The fourth hypothesis was formulated to study the relationship between remediation cost and earnings per share, the estimated regression model found that remediation cost has positive and significant effect on the net profit margin of the listed food and beverage firms within the periods covered in the study. The regression coefficient indicates that a 1 percent increase on the variable can add 3.3 percent on the earnings per share of the quoted firms. The positive effect of the variable confirms our a-priori expectations and justifies theories such as legitimacy theory and in line with the objective of corporate social responsibility. Empirically, the finding confirms the findings of Effiong and Akpan (2019).

CONCLUSION AND RECOMMENDATIONS

Conclusion

This study examined the effect of environmental expenditures on financial performance of quoted food and beverage companies in Nigeria. Cross sectional data were sourced from financial statement and annual reports of 10 quoted food and beverage firms from 2010 to 2022. Net profit margin and earnings per share were used as proxies for financial performance, while community cost and remediation cost were employed as proxies for independent variables. Ordinary Least Square method used to examine the extent to which environmental accounting affect the performance of food and beverage Effect of Environmental Accounting and Financial Performance of Food and Beverage Manufacturing firms. The regression coefficient found that community development cost have positive and insignificant effects on net profit margin while it has significant effect on earnings per share. Overall, the study revealed that environmental expenditures practice had significant effects on financial performance of the listed food and beverage firms in Nigeria.

Recommendations

1. Government should make environmental reporting in annual reports compulsory since most organization hardly report their environmental activities in their report and corporate organizations on their part should ensure that they comply with the environmental laws of the nation as it will go a long way in enhancing their performances.
2. The study recommends the need for food and beverage companies to report environmental costs and liabilities in their annual statements as this will help to reduce the rate of risks of environmental liabilities and increase the value added by the companies in Nigeria.
3. Furthermore, functional and intractable environmental accounting units should be created by each food and beverage manufacturing firms to ensure that the companies maintain their guidelines in reporting environmental issues in their annual reports and accounts, this way stakeholders would access this information and even vouch for them as socially responsible and this could bring about more investors to the companies.
4. Companies should show fines and penalties paid by the company, environmental liabilities of the company, environmental provisions, and environmental costs capitalized in the notes to the accounts in their annual reports which is the performance indicators and non-financial indicators.

Contribution to Knowledge

This study examined the effect of environmental expenditures and financial sustainability of quoted food and beverage manufacturing firms in Nigeria. Findings of the study have given insight to corporate managers on the relevance of environmental expenditure as a major determinants of corporate financial sustainability. Extensive review of previous literature showed a population gap as prior studies focused mainly on the oil and gas sector, manufacturing sector and financial services sector in Nigeria, without given much considerations to food and beverage firms, the reason is that many are unlisted, this makes it difficult for their data to be accessed.

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