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Effect of Environmental Cost on Financial Performance of Listed Construction and Real Estate Companies in Nigeria

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ABSTRACT

This study examined the effect of environmental cost on financial performance of listed construction and real estate companies in Nigeria. The ex post facto research design was adopted for the study with a population of six (6) listed construction and real estate companies in Nigeria as listed by the Nigerian Exchange Group in 2022. Data were retrieved from the annual reports of the selected construction and real estate companies for the period 2017 to 2021. Multiple regression analysis was used to analysed the data gathered with the aid of Stata12 statistical software. The study revealed a positive and significant effect of employee health and safety cost on return on assets. Also, it revealed a positive and significant effect of donations and corporate social responsibility cost on return on assets. The study recommended that more measure should be put in place by regulatory bodies to ensure that listed construction and real estate companies in Nigeria are environmentally friendly in their operation and make full disclosure. Finally, management should establish clear lines of responsibility on environmental matters and give a board member overall responsibility for such issues.

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1. Introduction

Organizations are constantly seeking for new and improved processes, strategy and organizational structures that will reduce their cost of production, satisfy customers demands and generate profit. There are expectations by stakeholders towards the company in its operating environment. These has impacted on the company’s strategy to align with the changes in the environment so as to enhance financial performance. The financial performance of an entity relates to the resultant effect of the operations undertaken by that entity in relation to its economic resources and claim against those resources in a given period. Companies approach to the environment is regarded as one of the major factors influencing corporate performance in Nigeria. The financial performance of an organization is not only the single parameter to understand how it is doing, rather the contributions towards preserving and upgrading the environment (Belal 2015). So, firms with good financial performance need to build a good reputation to be highly valued by the investors.

According to Environmental Protection Agency (EPA, 1995), Environmental cost has at least two major dimensions:

i. It can refer solely to cost that directly impact a company’s bottom line (here termed “Private cost”) or

ii. It also can encompass the cost to individual, society, and the environment to which a company is not accountable (here termed “social cost”).

Environmental accounting involves the identification, measurement and allocation of environmental costs and the integration of these costs into business and communicating such information to companies’ stakeholders. It helps firms disclose to the outside world their ability to be environmentally friendly (Arong et al., 2014).

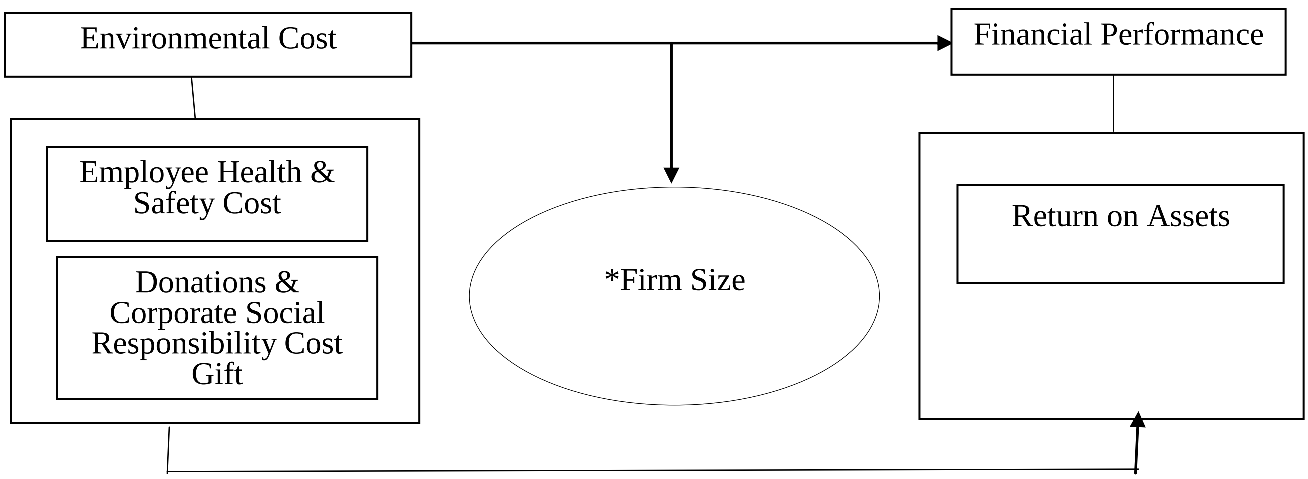
The movement towards environmental reporting has therefore become particularly obvious within both develop and developing nation due to demands from stakeholders and other interested parties for information regarding corporate social and environmental responsibility (Gray et al., 2001; Sekerez, 2017). This view is in line with the assertion of Rodriguez and Cruz (2017) that people are increasingly shifting their purchase habits towards more environmentally conscious and socially conscious behaviour. Qiu et al. (2014) asserts that firms that prepare environmental disclosures tend to have a good reputation and are able to build investors’ positive perception of their financial performance. Fernandez-Gamez et al. (2016) opined that firms with a good reputation tend to have a high market value.

There are positive indicators of environment accounting practices in companies and business organizations in Nigeria, yet the practice of environment accounting is not serious enough, as there are no specialized activities in companies or factories to apply it, nor is there planning or research to specially target and define the consumers, public, or owners‘ needs. Rather, the practice is carried out in an improvised and random manner (Ironkwe & Success, 2017). The physical environment is being disturbed by numerous problems, including those caused by the construction activities, such problems impacts on the environment right from the initial stage, operational and to the end of the life span of the built structure (Ofori, 2015). The construction industry has a major impact on the environment in its consumption of energy, both directly and embodied in the materials that is uses. It relies heavily on the natural environment for the supply of raw materials such as timber, sand and aggregates for the building process. The construction activities and raw materials extraction also contribute to the accumulation of pollutants in the atmosphere.

The increasing concern about environmental degradation, resources depletion and the sustainability of economic activity has made the development of environmental cost accounting and reporting an area of significant interest in Nigeria of which the construction and real estate sector play a significant role. This study there examines the effect of environmental cost on financial performance of listed construction and real estate companies in Nigeria.

Operational Framework

Figure 1: Operational Framework of Environmental Cost and Financial Performance



The following research hypotheses were stated in a null form;

$H_0$1 There is no significant effect of employee health and safety cost on return on assets of listed construction and real estate companies in Nigeria.

$H_0$2 There is no significant effect of donations and corporate social responsibility cost on return on assets of listed construction and real estate companies in Nigeria.

2. Literature Review

Environmental Cost

According to EPA (1995), environmental costs are cost incurred to comply with environmental laws. These costs include cost of environmental remediation, pollution control equipment and noncompliance penalties. Other costs incurred for environmental protection are likewise clearly environmental costs, even if they are not explicitly required by regulations or go beyond regulatory compliance level. Environmental accounting allows managers reappraise the relative significance of social, environmental, and economic benefits and risks in the conventional corporate accounting system (Nuzula, 2019).

Financial Performance

A company operating in a level of performance restore the confidence of owners and prospective investors. Performance is a difficult concept, in terms of both definition and measurement. It has been defined as the result of activity, and the appropriate measure selected to assess corporate performance is considered to depend on the type of organization to be evaluated, and the objectives to be achieved through that evaluation. Financial performance reflected in profit maximization, maximizing ROA, maximizing ROE and maximizing ROI is based on the firm's efficiency (Mohammed, 2015). The firm's level of goal achievement in terms of shareholders wealth maximization is well articulated by the information presented in the financial statements (Chimaleni et al., 2015). Financial performance is compared using ratio analysis like net profit margin, return on asset, return on equity etc. but in this study return on asset is used as a measure for financial performance.

Theoretical framework

This study is anchored on the stakeholder theory. The proponent of the stakeholder theory is Edward Freeman, a professor at the University of Virginia, in his landmark book, "Strategic Management" in 1984. Theory stakeholder theory states that the company has a social responsibility that requires them to consider the interests of all parties affected by their actions. This theory illustrates how certain activities which corporate organizations are engaged in can be sustained without undermining the interest of resource owners and the environment. Thus, this theory recognizes that, in order for corporate organizations to maintain a good relation, the interest of all stakeholders must not be infringed or undermined.

Empirical Review

Nuzula (2019) examined the effect of environmental cost on performance of Japanese firm. The study focused on chemical industry in Japan. Twenty-seven (27) listed chemical companies were selected for a period 2013-2015. Regression analysis was used to analyse the data gathered. The study revealed that environmental cost is negatively affecting ROA; environmental cost has no effect on ROE; environmental cost is negatively affecting NPM.

Iheduru and Chukwuma (2019) examined the effect of environmental and social cost on performance of manufacturing companies in Nigeria. Data were extracted from annual reports and accounts of fourteen (14) randomly selected manufacturing companies in Nigeria. Multiple regression model was used in data analysis. The study revealed that there is significant negative relationship between Environmental and social costs and Return on Capital Employed (ROCE) and Earnings per share (EPS) and a significant positive relationship between environmental and social costs and Net Profit Margin (NPM) and Dividend per Share (DPS).

Yantiana (2020) examined the influence of green accounting on corporate financial performance in IDX, Indonesia. The study population comprised of 148 listed manufacturing companies on Indonesia Stock Exchange within the period of 2014 to 2018. While a sample size of fifty-nine (59) companies was arrived at using purpose sampling method. Multiple linear regression was used in data analysis. The results revealed that the influence of environment cost to corporate financial performance is negative and significant.

Aliyu et al. (2019) examined the impact of construction practices on the environment in Nigeria. Data for the study were collected from questionnaires and interviews survey administered to stakeholders of construction industry in Kano State. Data collected were analysed and ranked using Relative Importance Index (RII). The study revealed that construction activities significantly affect the environment thereby causing environmental degradation.

Agboola and Oroge (2019) examined the effect of environmental cost on financial performance of cement companies in Nigeria. Two cement company were chosen as the population of the study. Structured questionnaire and annual report were used to extract data for the study. Regression analysis was adopted for data analysis. The study revealed that environmental cost significantly relates to the financial performance of quoted cement companies.

Okafor (2018) examined the effect of environmental costs on firm performance of quoted Nigerian oil companies. Financial reports of Oil and Gas Companies quoted in the Nigerian Stock Exchange Market for 2006-2015. Regression analysis was used for data analysis. The study revealed that better environmental performance positively impacts business value of an organization.

Ohaka and Ogaluzor (2018) examined corporate social responsibility accounting and the effect of donations on profitability of oil and gas companies in Nigeria. A cross sectional survey design was used and the population of the study comprised of all the oil and gas companies in Nigeria. Data collected were analysed through the Simple Regression Analysis and Partial Correlation. Results of the study revealed that there is a strong positive relationship between CSRA and profitability. And that; Donation significantly affects the Return on Assets of the oil and gas companies in Nigeria.

Ironkwe and Success (2017) examined the influence of environmental accounting on sustainable development of Niger delta area of Nigeria. Quasi experimental research design was employed. Data were gathered using questionnaires which were distributed to gather opinion from accountants, auditors, environmentalist, and community leaders in six states in Niger Delta area. Of 400 questionnaires distributed 388 were retrieved out of which 8 were invalid. Chi-square and Spearman's coefficient correlation were used to analyse the data and test the hypotheses. The result revealed that there is significant relationship between Environmental accounting, Sustainable development and Economic Stability in Nigeria.

Agbo et al. (2017) examined the effect of environmental cost on financial performance of Nigerian brewery. Data were obtained from the annual report of Nigerian brewery Plc for the period 2011 to 2015. Multiple regression was used for the analysis. The study revealed that both donation and medical expenses have a negative and insignificant relationship with return on assets (ROA) respectively. It further revealed that Trainings, Recruitment and Canteen Expenses (TRC) have a positive insignificant relationship with the return on assets of Nigerian brewery Plc.

3. Methodology

Ex-post facto research design was adopted for this study with a population of six (6) listed construction and real estate companies in Nigeria as listed by the Nigerian Exchange Group in 2022. The entire population was used as the sample size of the study using the census approach. Data were retrieved from the annual reports of the selected listed construction and real estate companies for the period 2017 to 2021. However, Roads Nig Plc. did not have a complete set of data for the period and was excluded resulting in 50 firm year observations. Multiple regression analysis was used to test the formulated hypotheses computed with the aid of Stata12 statistical software.

Model specification

Panel Regression Model

FP= f(EHSC+ DCSRC+ FSZ+μ)………………………(3.1)

ROA= f(EHSC+ DCSRC+ FSZ+μ)………………………(3.2)

Therefore, the model is

$ROA_{it} = \alpha_0 + \alpha_1 EHSC_{it} + \alpha_2 DCSRC_{it} + \alpha_3 FSZ_{it} + \varepsilon_{it}$ ----------(3.3)

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Operational Definition of Variables

Return on Assets (ROA): Return on Asset is proxied by the effectiveness of the company in generating profits by exploiting its assets. It is calculated as

Return on Assets = $\frac{\text{Profit Before Tax}}{\text{Total Assets}} * 100$

Environmental Health & Safety Cost (EHSC): It is measured in terms of cost incurred to ensure that company's personnel are in good frame of mind and body to work.

Donations & Corporate Social Responsibility Cost (DCSRC): It is measured in terms of cost of donations, charitable gifts and corporate social responsibility activities carried out by the company. This value is extracted from the annual report of selected companies.

Firm Size (FSZ): It is measured as the natural logarithm of total asset.

4. Results/findings

Table 1: Descriptive Statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
ehsc	50	50676.84	188222.8	0	1211930
dcsrc	50	35751.4	115666.5	0	575753
roa	50	.6672	9.18136	-46.27	15.88
fsz	50	16.72971	1.695361	14.64753	19.93543

Source: Output from STATA version 12

The table 1 above shows that the average mean of employee health and safety cost (ehsc) generated by the sample firms is 50677 million with a minimum of 0 and maximum of 1211930 million, and a standard deviation of 188223. This shows how relevant employees health and safety is to an organization. Table 1 above also shows that the average mean of donations and corporate social responsibility cost (dcsrc) generated by the sample firms is 35751 with a minimum of 0 and maximum of 575753 million and a standard deviation of 115666. Also, table 1 above shows that return on assets (roa) has an average mean of 0.67% with a minimum of 46.27% and maximum of 16% with a standard deviation of 9.18%. This shows that a low return on assets as represented by its minimum and maximum values. Furthermore, table 1 showed that the average mean of firm size (fsz) generated by the sample firms is 16 with a standard deviation of 1.69 and a minimum of 15 and maximum of 20 approximately.

Table 2: Test of Multi-Collinearity

Variable	VIF	1/VIF
fsz	1.60	0.625478
dcsrc	1.43	0.698454
ehsc	1.17	0.854087
Mean VIF	1.40	

Source: Output from STATA version 12

In table 2 above on the test of multicollinearity among the independent variables, it revealed that the variance inflation factor value is well below 10. Therefore, independent variables used in this study do not suggest multicollinearity problem.

Table 3 below explains hypotheses one, two and three

Table 3: Regression Result on $ROA_{it} = \alpha_0 + \alpha_1 EHSC_{it} + \alpha_2 DCSRC_{it} + \alpha_3 FSZ_{it} + \varepsilon_{it}$ ----------(3.3)

Linear regression

Number of obs	= 50
F(3, 46)	= 2.01
Prob > F	= 0.1251
R-squared	= 0.0658
Root MSE	= 9.159

roa	Coef.	Robust Std. Err.	t	P>|t|	[95% Conf.	Interval]
ehsc	8.96e-06	4.06e-06	2.21	0.032	7.89e-07	.0000171
dcsrc	.0000174	8.13e-06	2.14	0.038	1.02e-06	.0000338
fsz	-1.585855	.6933001	-2.29	0.027	-2.981395	-.1903139
_cons	26.12203	10.46002	2.50	0.016	5.067097	47.17696

Source: Output from STATA version 12

Hypothesis One

$H_0 1$: There is no significant effect of employee health and safety cost on return on assets of listed construction and real estate companies in Nigeria.

Table 3 above reveals a positive and significant effect of employee health and safety cost on return on assets (p-value=0.032). This implies that that a 1% increase in employee health and safety cost will bring about 8.9% increase in return on assets. This led to the rejection of (**Ho1**) and conclusion that there is a significant effect of employee health and safety cost on return on assets of listed construction and real estate companies in Nigeria.

Hypothesis Two

$H_0 2$: There is no significant effect of donations and corporate social responsibility cost on return on assets of listed construction and real estate companies in Nigeria.

Table 3 above reveals a positive and significant effect of donations and corporate social responsibility cost on return on assets (p-value=0.038). This implies that that a 1% increase in donations and corporate social responsibility cost will bring about 0.0000174% increase in return on assets. This led to the rejection of (**Ho1**) and conclusion that there is a significant effect of donations and corporate social responsibility cost on return on assets of listed construction and real estate companies in Nigeria.

5. Discussion of Findings

The study revealed a positive and significant effect of employee health and safety cost on return on assets which led to the rejection of (Ho1) and conclusion that there is a significant effect of effect of employee health and safety cost on return on assets of listed construction and real estate companies in Nigeria. This finding is in line with the finding of Iheduru and Chukwuma (2019) that revealed a significant positive relationship between environmental and social costs and financial performance. This finding is further corroborated by the work of Yantiana (2020) that concluded that the influence of environment cost to corporate financial performance is negative and significant. This finding implies that environment cost comprising employee health and safety cost is relevant to survival of the company. This is inline with the assertion of Rodriguez and Cruz (2017) that people are increasingly shifting their purchase habits towards more environmentally conscious and socially conscious behaviour. This finding is in contrast with the Umoren et al. (2018) that revealed an insignificant relationship between environmental accounting reporting and financial performance.

Also, the study revealed a positive and significant effect of donations and corporate social responsibility cost on return on assets that led to the rejection of (Ho2) and conclusion that there is significant effect of donations and corporate social responsibility cost on return on assets of listed construction and real estate companies in Nigeria. This finding is in line with the finding of Ohaka and Ogaluzor (2018) that revealed that there is a strong positive relationship between CSRA and profitability. And that; Donation significantly affects the Return on Assets of the oil and gas companies in Nigeria but it contradicts the finding of Agbo et al. (2017) that revealed that both donation and medical expenses have a negative and insignificant relationship with return on assets (ROA) respectively.

6. Conclusion

The increasing concern about environmental degradation, resources depletion and the sustainability of economic activity has made the development of environmental cost accounting and reporting an area of significant interest in Nigeria. environmental cost accounting helps firms disclose to the outside world

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their ability to be environmentally friendly. This is vital as for the firm's survival within the environment it operates. Therefore, this concluded from the analysis and findings that environment cost has significant effect on financial performance of listed construction and real estate companies in Nigeria.

7. Recommendations

The following recommendation were made in respect to the findings;

1. More measure should be put in place by regulatory bodies to ensure that listed construction and real estate companies in Nigeria are environmentally friendly in their operation and make full disclosure.
2. Management should establish clear lines of responsibility on environmental matters and give a board member overall responsibility for such issues.

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