

# The Effect of Environmental Cost on Financial Performance of Nigerian Brewery

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## Abstract

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

**Keywords:** Environmental cost, performance, Donations, Medical expenses, Trainings, Recruitment and Canteen expenses

## 1. Introduction

The quest for sustainability and the preservation of existing resources mandates that organizations must develop new ways and attitudes of doing business in terms of environmental sustainability. Environmental sustainability has become a pressing issue across the globe. The world population has been over-exploiting the available planetary resources (Porritt, 2005; Gray, 2006 cited by Aggarwal, 2013). The increase in global environmental awareness and the campaign for sustainable economic development is redirecting the attention of business organizations towards environmental conservatism (Acti Ifurueze, Lyndon and Bingilar, 2013). This environmental 'cost' assumption has been tested against a wide range of financial measures within the plethora of literature. Recent empirical and analytical research shows that there is a clear correlation between environmental performance and corporate profitability (Murphy, 2002). Currently it is widely believed that social responsibility reporting, sustainable development reporting and environmental-protection reporting constitute an effective and efficient way to understand environmental performance and environmental risks, which naturally seek the goodwill of neighbouring communities, employees, stockholders, investors, financial institutions, local government and citizens (Kai, 2015). Such characteristics according to the author need to be communicated to the stakeholders of the company in an environmental report. The report come in different areas such corporate social responsibility (CSR report), social performance report (SPR), and sustainability report (SR). The reports have quantifiable environmental disclosures that lead to better environmental performance and economic performance (Baroto, 2013).

Many corporations take as much responsibility for social and environmental issues as they do for economic issues. One reason for this is that corporations are beginning to understand the growing social responsibility expectations and stakeholder concerns. The implications of corporate social and environmental responsibility are both anchored in organizational stakeholder theory. Organizational responsibility is reflected in disclosures made by the organizations (Muttanachai, 2012 cited by Ohaegbu, 2014). Sustainable development focuses on incorporating a forward - thinking approach by businesses toward shearing up world sustainability. A company whose mission is to be sustainable does not merely make the statement as it takes appropriate actions needed to move toward that goal and preserves such actions to continue on a sustainable path. It is vital to seek input from different internal and external stakeholders to gather ideas on how the organization can make use of nature's resources without exploiting those resources. The need for well-being and the opportunity for innovation are key attributes to re-building the corporate environment. These changes, which are necessary for sustainable survival. The changes will become essential building blocks by which the company thrives (Jackson, 2011). Sustainability has become a buzz word for corporate businesses, non-for-profits and government organizations. The donors agencies demands how a program is going to be sustained if they withdrew their services, and to what extent can it measure the degree to which an organization is being sustainable or pursuing sustainable growth. To create a company whose mission is true sustainability, all engaged individuals need to have a better understanding of what sustainability entails. Against this backdrop the quest for the effect of environmental cost on financial performance of Nigerian Brewery Plc. was initiated.

### 1.1 Research Questions

1. What is the relationship between donation and return on assets of Nigerian breweries Plc.?

2. What is the relationship between medical expenses and return on assets of Nigerian breweries Plc.?
3. What is the relationship between trainings, recruitment and canteen expenses and return on assets of Nigerian Breweries Plc.?

### 1.2. Hypotheses

1. There is no significant relationship between donation and return on assets of Nigerian Breweries Plc.
2. There is no significant relationship between medical expenses and return on assets of Nigerian Breweries Plc.
3. There is no significant relationship between trainings, recruitment and canteen expenses and return on assets of Nigerian Breweries Plc.

## 2. Review of Relevant Literature

Acti Ifurueze (2013) examined the impact of environmental cost on corporate performance in oil companies in the Niger Delta States of Nigeria and recommended that the management of oil companies in the Niger Delta States of Nigeria develop a well-articulated environmental costing system in order to guarantee a conflict free corporate atmosphere needed by managers and workers for maximum productivity and eventually improve corporate performance. Organizations should take accountability for the impacts of their operations on environment and should disclose the same in their annual and sustainability reports (Aggarwal, 2013). Various theoretical, review and empirical researches according to Aggarwal (2013) have been conducted in past years for examining the relationship between environmental responsibility and financial performance all indicating that further research will be needed.

Kai (2015) viewed environmental performance and propensity disclosure as important for stakeholders to estimate firms' incentives in environmental management practices, which explore the impacts of environmental performance and propensity disclosure on financial performance using unbalanced panel data of eight heavy-pollution industries in China, The author noted the effect of corporate environmental performance and propensity on financial performance has a significantly increase under the period of study. The researcher recommends that environmental regulators should evaluate the implementing effect of voluntary environmental policy that could spur increase in business market expectations.

Anna and Emelie, (2015) investigated whether corporate social responsibility (CSR) engagement has a direct impact on financial performance in the form of stock returns and found that a top ranking does not have an effect on stock returns, whereas a bottom ranking has a negative impact. This negative impact according to the authors has been consistent over the years, and has increased over time, even though top-performers within the area of CSR are not rewarded, companies are still punished for poor CSR performance. Also, their results show that the number of companies not engaging in CSR at all has decreased.

Dietrich and Lubomir (2010) studied the effect of corporate environmental performance on financial performance in a transition economy and found out that profitability improves with better environmental performance by driving down production costs. Executives can decrease their firms' environmental costs, through effective investment in corporate environment responsibility (CER), thereby enhancing CFP (Hoje, Hakkon, Bong-Soo and Kwangwoo, 2013). The authors suggest that the reduction of environmental costs is related to higher firm performance. It equally observed that lowering environmental costs tends to precede the enhancement on return on assets (ROA) by at least two years.

Wishnu (2013) saw a connectivity between environmental responsibility and financial performance in the Japanese automotive spare-parts, and chemical companies. Automotive companies exhibit the most virtuous cycle in the relationship of financial performance and environmental responsibility while other industries show more evidence to support the slack availability of resources. Bala and Yusuf (2003) posited that current practices demonstrate that no track for environmental costs was available as it was changed randomly. Therefore, there is a need for proper charging and allocation. Distinguishing between environmental costs and other costs will lead to a proper cost allocation of these costs and thus more precise and will help to develop sustainability indicators. Companies that are apathetic to their environmental costs or responsibility might experience eventual crashes on their stock price if their investors are rational in considering the future value of the firm based on its present state of environmental responsibility (Holm and Rikhardsson, 2008).

## 3. Methodology

Multiple regression analysis was employed for the study. Multiple regression is a statistical tool used to derive the value of a criterion from several other independent, or predictor, variables. The multiple linear regression is used to explain the relationship between one continuous dependent variable and two or more independent variables

#### 4. Results

This study used annual data for the period 2011-2015, which was collected from the Nigerian Brewery Plc. The analyzed independent variables include Donation, Medical expenses and Training, recruitment and canteen expenses. While Corporate Performance is measured by Return on Assets (ROA), which is defined as earnings before interest and tax (EBIT) divided by total assets. The independent variables are Donation (DN), Medical expenses (ME) and Trainings, Recruitment and Canteen expenses (TRC) while dependent variables is Return on Asset (ROA) which serves as a proxy for financial performance. For the purpose of this study, a regression model is specified to capture the relationship between the independent and dependent variables are thus:

$$\begin{aligned} \text{ROA} &= \alpha_0 + \alpha_{\text{DN}} + \varepsilon \dots\dots\dots 1 \\ \text{ROA} &= \alpha_1 + \alpha_{\text{ME}} + \varepsilon \dots\dots\dots 2 \\ \text{ROA} &= \alpha_0 + \alpha_{\text{TRC}} + \varepsilon \dots\dots\dots 3 \\ \text{ROA} &= f(\text{DN} + \text{ME} + \text{TRC}) \dots\dots\dots 4 \\ Y &= f(\alpha_0 + \alpha_1 X_1 + \alpha_2 X_2 + \alpha_3 X_3 + \varepsilon) \dots\dots\dots 5 \end{aligned}$$

Where

- Y = ROA- Return on Asset
- X1 = DN - Donation
- X2 = ME – Medical expenses
- X3 = TRC - Trainings, Recruitment and Canteen expenses
- A0 – α3= Constant
- ε = error estimate (5%)

The Statistics Package for Social Sciences (SPSS) 22 for windows is the statistical computer software used to run the analysis.

#### Analysis and test of Hypotheses

The test of the hypotheses in respect of the dependent and independent variables was conducted in this section.

##### 4.1 Test of Hypothesis one

Hypothesis one seeks to ascertain if there is no significant relationship between donation and Return on Assets of Nigerian Breweries Plc. Data generated from the financial statement of Nigerian Breweries Plc for five years for donation and Return on Assets is shown in the table 4 .1. The result of the table revealed that there was a negative relationship between Donation and ROA which implies that any unit increase in DN then ROA decreases by 2.070 units. The coefficient of DN was not statistically significant at 5% probability level. This was also collaborated by correlation coefficient in table 4.3 which revealed that there was a negative relationship between ROA and DN as indicated by  $r = -0.068$ . The ANOVA table (4.2) above showed that Donation has no significant impact on the financial performance of Nigerian Breweries Plc since the F calculated value of 0.005 is relatively very low as also indicated by sig value of 0.950 which is greater than 0.05 probability level.

##### 4.1 Data Presentation and Analysis

Dependent Variables (Performances)	Independent Variables (CSR) cost
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Year	ROA (%)	DN (₦'MILLION)	ME (₦'MILLION)	TRC (₦'MILLION)
2011	0.0265	40,400,000	413,855,000	1,371,452,000
2012	0.0255	81,674,450	633,468,000	1,944,958,000
2013	0.0274	207,193,655	645,676,000	2,109,478,000
2014	0.0191	140,203,543	659,316,000	1,884,807,000
2015	0.0264	131,064,450	849,388,000	2,219,500,000

##### Regression for Equation 1

###### Model Summary

Model	R	R. Square	Adjusted R. Square	Std. Error of the Estimate
1	.039 <sup>a</sup>	.002	-.331	.00387

a. Predictors: (Constant), DN

**Table 4.2 ANOVA<sup>a</sup>**

Model	Sum of Squares	Df	Mean Square	F	Sig.
1 Regression	.000	1	.000	.005	.950 <sup>b</sup>
Residual	.000	3	.000		
Total	.000	4			

a. Dependent Variable: ROA

b. Predictors: (Constant), DN

**Regression coefficients of ROA on DN**

**Table 4.3 Coefficients<sup>a</sup>**

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1 (Constant)	.025	.004		6.199	.008
DN	-2.070E-006	.000	-.039	-.068	.950

a. Dependent Variable: ROA

**4.2 Test of Hypothesis Two**

Hypothesis two seeks to ascertain if there is no significant relationship between medical Expenses and Return on Assets of Nigerian Breweries Plc. Data generated from the financial statement of Nigerian Breweries Plc for five years for medical expenses and Return on Assets. The result of the table revealed that there was a negative relationship between Medical Expenses and ROA which implies that any unit in ME then ROA decreases by 1.568 units. The coefficient of ME was not statistically significant at 5% probability level. This was also collaborated by correlation coefficient in table 4.6 which revealed that there was a negative relationship between ROA and ME as indicated by  $r = -0.072$ . The ANOVA table (4.5) above showed that Medical Expenses has no significant impact on the financial performance of Nigerian Breweries Plc since the F calculated value of 0.016 is relatively very low as also indicated by sig value of 0.908 which is greater than 0.05 probability level.

**Regression for Equation 2**

**Table 4.4 Model Summary**

Model	R	R. Square	Adjusted R. Square	Std. Error of the Estimate
1	.072 <sup>a</sup>	.005	-.326	.00386

a. Predictors: (Constant), ME

**Table 4.5 ANOVA<sup>a</sup>**

Model	Sum of Squares	Df	Mean Square	F	Sig.
1 Regression	.000	1	.000	.016	.908 <sup>b</sup>
Residual	.000	3	.000		
Total	.000	4			

a. Dependent Variable: ROA

b. Predictors: (Constant), ME

**Regression Coefficients of ROA on ME**

**Table 4.6 Coefficients<sup>a</sup>**

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1 (Constant)	.026	.008		3.171	.050
X2	-1.568E-006	.000	-.072	-.125	.908

a. Dependent Variable: ROA

**4.3 Test of Hypothesis three**

Hypothesis three seeks to ascertain if there is no significant relationship between Trainings, Recruitment and

Canteen expenses and Return on Assets of Nigerian Breweries Plc. Data generated from the financial statement of Nigerian Breweries Plc for five years for Trainings, Recruitment and Canteen expenses and Return on Assets.

The result of the table revealed that there was a positive relationship between Trainings, Recruitment and Canteen expenses and ROA which implies that any unit in TRC then ROA increases by 6.316 units. The coefficient of TRC was statistically significant at 5% probability level. This was also collaborated by correlation coefficient in table 4.9 which revealed that there was a positive relationship between ROA and TRC as indicated by  $r = 0.062$ . The ANOVA table (4.8) above showed that Trainings, Recruitment and Canteen expenses has significant impact on the financial performance of Nigerian Breweries Plc since the F calculated value of 0.011 is relatively very low as also indicated by sig value of 0.922 which is greater than 0.05 probability level.

**Table 4.7 Model Summary**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.062 <sup>a</sup>	.004	-.328	.00387

a. Predictors: (Constant), TRC

**Table 4.8 ANOVA<sup>a</sup>**

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	.000	1	.000	.011	.922 <sup>b</sup>
	Residual	.000	3	.000		
	Total	.000	4			

a. Dependent Variable: ROA

b. Predictors: (Constant), TRC

### Regression Coefficient of ROA on TRC

**Table 4.9 Coefficients<sup>a</sup>**

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.024	.011		2.085	.128
	X3	6.316E-007	.000	.062	.107	.922

a. Dependent Variable: ROA

## 5.0 Discussion

There was a negative relationship between Donation and ROA in this study that contradicts hypothesis (Ho1). There was a negative relationship between Medical Expenses and ROA that affirmed (Ho2), while there was a positive relationship between Trainings, Recruitment and Canteen expenses and ROA that agreed with (Ho3) and Aggarwal (2013).

### 5.1 Summary of findings

- Given the f-statistics of 0.005 and a significant value  $0.950 > 0.05$  indicates that donation has a negative relationship with return on asset, also ANOVA shows that donation as part of environmental cost has no significant impact on Nigerian Breweries Plc.
- Given the f-statistics of 0.016 and a significant value  $0.908 > 0.05$  indicates that medical expenses has a negative relationship with return on asset, also ANOVA shows that medical expenses as part of environmental cost has no significant impact on Nigerian breweries plc.
- Given the f-statistics of 0.011 and a significant value  $0.922 > 0.05$  indicates that Trainings, Recruitment and Canteen expenses has a positive relationship with return on asset, also ANOVA shows that Trainings, Recruitment and Canteen expenses as part of environmental cost has an impact on the financial performance of Nigerian Breweries Plc.

### 5.2 Conclusion

The findings of this study revealed that the environmental cost has significant implications on financial development on business outfits such a Nigerian Breweries Plc. It was found that a unit increase in donation, medical expenses and Trainings, Recruitment and Canteen expenses brings about 2.070, 1.568 decrease and 6.316 units increase respectively in return on asset of Nigerian Breweries Plc.

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