EFFECTS OF ENVIRONMENTAL PROTECTION COST ON PRODUCT PRICE IN NIGERIA: STUDY OF BREWING INDUSTRY

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Abstract
Industries need to comply with environmental regulatory law and manage their waste to protect the environment. Some industries rarely report the costs incurred in complying with environmental law and waste management. We assume that it may mislead the management in fixing their product prices. This study examine the effect of environmental protection costs on product price in Nigeria. A survey design was used for the study. Questionnaire was administered to generate data. Researcher employed purposive sampling technique in selecting the sample frame. The study focus on Brewing Industry located in Lagos State. The population of the study consists of Management Accountants in Nigeria Brewing Plc, Guinness Plc, Coca-Cola Plc and Seven-Up Plc. The data was collected from the questionnaire administered. The study discovered that there was negative relationship between environmental regulatory cost and product pricing decision. We recommend that company should design accounting system that will capture expenses incur on environmental matters. This will enable the firm to appreciate the amount they have invested in managing firm’s waste and the cost incur to comply with environmental protection rules and regulations.

Keywords: Waste management, Environmental cost, Product price

INTRODUCTION
Manufacturing firms stimulate Nigeria economic growth despite the economy going through recession period. In the process of manufacturing products, a lot of waste are been produced into the environment and it affect the environment negatively. In order to protect the environment, government created Federal Environmental Protection Agency that enact rules and regulations to control environmental problems in the country. While each states of the federation have their environmental protection agency. The agencies require all companies whose activities have significant impact on the environment to obtain operational license and permit as a way of complying with the environmental regulations. Walley and Whitehead (1994) observed that this serve as a threat because manufacturing firms have to invest in installing prevention and waste management technologies. Therefore, manufacturing firms are now contending with costs of environmental law compliance. Company have to paid for permit, annually, from environmental protection agency as sign that the firm comply with environmental law. However, some machines have to be installed by the firm to
reduce toxic waste; organising workshop for their employees on how to maintain healthy environment and engaging waste management consultants for proper management of their waste.

Despite some measures taken by manufacturing companies to comply with environmental law, sometimes they run foul of the law and they may be compel to pay fines or penalty. At times, it may lead to litigation in which the company have to be represented in competent court of law. All these expenses are incurred in order to maintain healthy environment. Crowther (2004) said environmental costs are traditionally lumped into overhead accounts, and because of their less tangible and difficult-to-quantify nature, environmental costs are particularly susceptible to disconnection from the products, processes or activities, responsible for their creation. The expenses incurred to maintain healthy environment will have to be spread on the products produced by the company. However, most of cost incurred lost their identity to overhead or administrative cost. It appear difficulty to trace cost incurred on maintaining the environment on specific production process. Once all the cost incurred on the environment are not captured with other production cost, it may distort product price decision.

The objective of the study is to examine how fines and penalties with legal expenses to maintain healthy environment affect product pricing decision, and. to ascertain the influence of waste management fees on product pricing decision.

The hypotheses for the study are:
Ho1. Fines, penalties and legal expenses incurred for protecting the environment does not affect product pricing decision.
Ho2. Waste management fees does not influence firm product pricing decision.

Scope of the study
The study will focus on Brewing Industry located in Lagos State and are listed in Nigeria Stock Exchange Market as at 31st December, 2015. Lagos State was chosen because it serves as a commercial headquarter for Nigeria. We are going to examine how environmental protection cost, for example; administrative charges and fines and penalties, influence Brewing Industry product price decision in Nigeria.

REVIEW OF RELATED LITERATURE
Theoretical Framework
Instrumental Stakeholders Theory
This theory is formed from two theories and suggests that there is positive relationship between Corporate Social Performance (CSP) and Corporate Financial performance (CFP). In the first place, instrumental theory is an economic theory that predicts what results will occur as a result of management decisions (Chain, 1996). The second theory is an ethical theory that proposes managers have a duty to put stakeholders’ needs first than to increase the value of the firm. This theory is broader than the shareholders theory, which argues managers, only have a duty to maximize the value of shareholders (Watts and Zimmerman, 1978). The instrumental stakeholders’ theory suggests Corporate Social Responsibility increases stakeholders’ satisfaction and financial performance.
Conceptual Framework
Waste management cost
Waste management involves sensing what is there, sorting, separating, transforming, returning to service what can be used and properly disposing what is left (Rose, 2002). Expenses incurred for proper disposition of toxic waste, hazardous gas or industrial waste in the environment. Firms spent millions of Naira on installing machines that will reduce pollution within an environment.

Fines and penalty
Fines and penalties often arise or become applicable when firms fail to act timely on and/or report promptly on their environmental responsibility (Deegan and Gordon, 1996). This serve as a deterrent for organizations who do not want to comply, promptly, with the rules and regulation enacted by environmental protection agency.

Product pricing decision
This is a situation whereby the management have to fix price for their final products. Fixing of final products price is based on the information derived from firms costing system. Guilding, Drury and Tayles (2005) suggested cost plus mark up in product pricing decision. However, it is crucial to ascertain the total expenses incurred during production process before the management will fix the product price.

Empirical Studies
Daniel (2013) carried out a study on effect of Environmental regulations on financial performance of manufacturing companies in Tanzania. The study used regression analysis with a sample of five (5) selected listed manufacturing companies. The finding shows that Environmental compliance has no significant effect on the financial performance of listed financial companies in Tanzania.

Peter, Sunday and Tapang (2012) studies environmental costs and its implication on the returns on investment. Their finding shows that investment in social and environmental responsibilities are related to improved return on investment. Agbiogwu, Ihendinhu and Okafor (2016) shows that environmental cost significantly affect Net profit margin, Earnings per share and Return on capital employed of manufacturing companies. Satish, Ranjani and Lester (2001) discovered that costs incurred for environmental compliance are likely to distort cost.

Most of the studies on cost incurred on maintaining healthy environment focused on developed economy. To the knowledge of researcher, there is no empirical research that focused specifically on the implications of environmental cost on firm's product price decision in Nigeria.

DESIGN AND METHODS
Investigative approach usually uses survey data to test hypotheses. A survey design was used for the study to facilitate a quicker and systematic collection of reliable primary data through the administration of hard-copy questionnaire to judgmentally selected professional accountants. The researcher employed the purposive sampling technique in selecting respondents for the study. This sampling technique was used for convenience sake. The rationale behind the use of the purposive sampling technique was due to the fact that the researcher wishes to target only
accounting employee of the organizations. Four Likert Scale was used for questionnaires. The score was assigned to Likert scale as follows: Very Correct (4), Correct (3), Don’t know (2), and Not Correct (1). Out of 100 questionnaires administered 70 were returned.

The focus was Brewing Industry located in Lagos State and is listed in Nigeria Stock Exchange Market as at 31st December, 2015. The key research elements involved in the study were accounting departments of Nigeria Brewing Plc, Guiness Plc, Coca – Cola Plc and Seven - Up Plc. The justification for selecting the above firms was based on the fact that these firms are responsible for 80 % of brewing products in Lagos State that serve as a commercial headquarter of Nigeria.

The data collected from the questionnaire administered and hypotheses formulated have been statistically tested.

The model for the study are:

\[ Ppd = f (Wmgti, Rcoj) \]

The model to be used to confirm the first hypothesis is:

\[ Ppd = B0 + B1 Wmgti + ei \]

\[ Bi > 0; R2t > 0. \]

The Bi is a measure of the impact of fines and penalties with legal expenses on product pricing.

The second null hypothesis is:

Waste management fees does not influence firm product pricing.

The model to be used to confirm this proposition is presented below:

\[ Ppd = B0 + B1 Rcoj + ej \]

\[ Bi > 0; R2Q > 0 \]

Bi measures the influence of waste management fees on product pricing.

Where:

- \( Ppd \) = Product Price Decision
- \( Wmgti \) = Waste Management Fees
- \( Rcoj \) = Regulatory Cost;
- \( e \) = Error term;
- \( B0 \ldots \ldots B3 = Coefficient. \)

**DATA ANALYSIS**

<table>
<thead>
<tr>
<th>S/N</th>
<th>Respondents (Management Accountants)</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>01</td>
<td>Nigeria Breweries (NB) Plc.</td>
<td>25</td>
</tr>
<tr>
<td>02</td>
<td>Guinness Nigeria Plc.</td>
<td>25</td>
</tr>
<tr>
<td>03</td>
<td>Seven Up bottling Company plc.</td>
<td>25</td>
</tr>
<tr>
<td>04</td>
<td>Coca – Cola Nigeria Plc.</td>
<td>25</td>
</tr>
<tr>
<td></td>
<td><strong>Total</strong></td>
<td><strong>100</strong></td>
</tr>
</tbody>
</table>

Source: field survey 2016

One hundred copies of questionnaires was judgmentally administered by the researcher to selected management accountants. Seventy copies were successfully retrieved from respondents. This represents 70% of the number of questionnaire administered.
Test of Hypotheses
H0i. There is no significant relationship between environmental fines, penalties, legal expenses and product pricing.

Table 3: Regression co-efficient for regulatory cost on product pricing decision

<table>
<thead>
<tr>
<th>Model</th>
<th>B</th>
<th>Beta</th>
<th>T = test</th>
</tr>
</thead>
<tbody>
<tr>
<td>Constant</td>
<td>271.290</td>
<td>.248</td>
<td>T=.445, P=.686</td>
</tr>
<tr>
<td>Regulatory cost</td>
<td>.128</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: $r^2 = .62$, $f(1,3) = .199$, $p=.686$
Source: SPSS version 20.0

b. Dependent variable: product price decision

Table 4: Anova result for regulatory cost on product pricing decision

<table>
<thead>
<tr>
<th>Model</th>
<th>Sum of square</th>
<th>d.f</th>
<th>Mean square</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regression</td>
<td>97.820</td>
<td>1</td>
<td>97.820</td>
<td>.199</td>
</tr>
<tr>
<td>Residual</td>
<td>147.980</td>
<td>3</td>
<td>492.327</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>154.800</td>
<td>4</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

a. Dependent variable: Product price decision
b. Predictor: Regulatory cost
Source: SPSS version 20.0

Regulatory cost explain 62 per cent of the variation experienced in taken product price decision, but it is not significant because $P > 0.05$. Decision: Based on the analysis above, it shows that there is no significant relationship between regulatory cost and product price.

H02. Waste management fees does not influence firm product pricing.

Table 5: Regression co-efficient for waste management fees on product pricing decision

<table>
<thead>
<tr>
<th>Model</th>
<th>B</th>
<th>Beta</th>
<th>T = test</th>
</tr>
</thead>
<tbody>
<tr>
<td>Constant</td>
<td>281.699</td>
<td>.186</td>
<td>T=.596, P=.081</td>
</tr>
<tr>
<td>waste management fees</td>
<td>.183</td>
<td></td>
<td>T=.327,p=.764</td>
</tr>
</tbody>
</table>

Note: $r^2 = .35$, $f(1,3) = .108$, $p=.764$

b. Dependent variable: product price decision
Source: SPSS version 20.0
Table 6: ANOVA result for waste management fees on product pricing decision

<table>
<thead>
<tr>
<th>Model</th>
<th>Sum of square</th>
<th>d.f.</th>
<th>Mean square</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regression</td>
<td>54.713</td>
<td>1</td>
<td>54.713</td>
<td>.108</td>
</tr>
<tr>
<td>Residual</td>
<td>1520.087</td>
<td>3</td>
<td>506.696</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>1574.800</td>
<td>4</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

a. Dependent variable: Product price decision  
b. Predictor: waste management fees  
Source: SPSS version 20.0

Waste management fees explain 35 per cent of the variation experienced in taken product price decision, but it is not significant because P >0.05.  
Decision: The analysis shows that there is no significant relationship between waste management fees and product price. Therefore, waste management fees do influence firm product pricing decision.

DISCUSSION AND CONCLUSION  
To protect the environment, environmental protection agencies was created by government to regulate the activities of firms in controlling their waste and become friendlier with the environment. Rules and regulations were made by these Regulatory Agencies in which manufacturing firms must comply. Industries need to comply with environmental regulatory law and manage their waste to protect the environment. Accounting system design by the firms often fails to identify separately the incremental cost incurred in order to comply with environmental protection law. In fact, some industries rarely report the costs incurred in complying with environmental law and waste management. We assume that it may mislead the management in fixing their product prices.

The result of the study shows that company incur expenses in order to comply with environmental rules and regulation but the cost are not well capture because the expenses cannot be directly traced to a particular product in production process. However, expenses incur on environmental documentations, legal services and so on are lump into administrative expense. Environmental information costs are not appropriate to products. This makes it difficult for managers to separate the money spent to maintain the environment from the cost of materials, labour and overhead. It can be observed from the analysis that 62 per cent of the variation experienced in taken product price decision is caused by regulatory cost, but it is not significant because P >0.05. Therefore, there is no significant relationship between regulatory cost and fixing product prices.

In the same vein, production process cannot be completed without waste. Therefore, company incurs cost to manage their waste. The study shows that there is negative relationship between waste management and product pricing decision. Waste management fees explain 35 per cent of the variation experienced in taken product price decision, but it is not significant because P >0.05. This shows that there is no significant relationship between waste management fees and product price.

In conclusion, this analysis shows that the product price did not reflect the actual worth of the product because some costs are not included when the company is computing the cost of the
goods available for sale. Environmental information costs are not appropriate to products. This leads to distortion in product pricing.

RECOMMENDATIONS
The company should design accounting system that will capture expenses incur on environmental matters. This will enable the firm to appreciate the amount they have invested in managing firm’s waste and the cost incur to comply with environmental protection rules and regulations. More importantly, in this age, firms should embrace voluntary sustainability reporting to enhance their image and induce effective product pricing decision.

REFERENCES.