

CORRELATION BETWEEN ENVIRONMENTAL INFORMATION AND FINANCIAL PERFORMANCE IN MANUFACTURING INDUSTRY

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ABSTRACT

This study therefore, critically examined the effect of environmental information on financial performance in the manufacturing sector of Nigeria economy. To achieve this objective, two manufacturing firms in the country were purposively selected for the study. Glenn sample size formula was adopted to administer the questionnaire on four hundred and forty eight (484) respondents sampled from both companies; of these, about 84% responded appropriately. Data were also sourced from annual financial reports and accounts of the two companies. Regression analysis was adopted with the aid of Statistical Package for Social Sciences (SPSS) to determine the correlate between the two variables. Environmental Information can take either monetary or non-monetary form. The study found that Environmental Information ($r=0.291$, $P\leq 0.05$) was significantly related to Financial Performance of the quoted firms. The study concluded that Environmental Information positively impacted on the business value of the companies and therefore recommends that continued investment in Environmental Information will yield a stronger relationship to financial performance of the companies and should be considered as significant stimulant of financial performance.

KEYWORDS

Environmental Information, Financial Performance, Profitability.

1. INTRODUCTION

The need for adequate environmental information, awareness and disclosure has become the concern and focus of responsible corporate management. Environmental information is seen as a key subject of increasing importance as stakeholders within the manufacturing industry have started to provide information regarding the environmental implications of their operations leading to increased trend in environmental awareness.

Prinyanka (2013) held that in today's era of environmental degradation and pollution, and continual depletion of the ozone layer, global warming and climate change as a result of manufacturing activities. Manufacturing companies are in dire need of environmental information for management decision making and policies. Environmental Information can be of any form; written, visual, acoustic, electronic, audio, printed, graphical, photographic or any other substantial form.

Environmental Information is any material information on energy usage, noise, radiation, waste, emissions, discharge and other releases into the environment, affecting or likely to affect the elements of the environment such as water, soil, landscape, air, coastal and marine areas, biological diversity and its components, including genetically modified organisms and the interaction among these element (ICO, 2016).

The United Nations Conference on Trade and Development in her convention on accounting and financial reporting for environmental costs and liabilities held in Geneva in the year 2002 postulated that environmental information is the term now frequently used to describe the disclosure by an entity on environmentally related data, verified or not regarding environmental risks, environmental impacts, policies, strategies, targets, costs liabilities or environmental performance to those who have an interest in such information as an aid to enabling and enhancing decision making.

Additionally, environmental information has to do with material information on cost benefit and other economic analyses and assumptions used within the framework of policies, legislations, plans and programmes affecting or likely to affect the constituent elements of the environment.

Accounting today is now faced with the challenge of accounting for the environment not only through its traditional role of recording and reporting financial information, but also by managing environmental information to enhance financial performance. A major concern arising from this is the challenge for companies to adjust production capacity to accommodate and maintain an environmentally friendly green production yet remaining cost competitive. Accountants are expected to take a proactive role in the environmental information process with the advent of liberalization, removal of trade barriers makes it logical that the costs of environmental degradation due to industrial activities should be internalized in corporate account to the extent possible (Pellegrino & Lodhia, 2012).

The implementation of environmental responsibilities can be reported in annual report. The annual financial report from firms remains a major source of information disclosure by a company and a key line to disclosure of environmental responsibilities. Belkaoui & Karpik (1989) & Ullman (1985) stated that disclosure is very important dimension from company accounting quality. They further held that the more sustainability report disclosure by company, the higher disclosure quality, which is expected, will get response from stakeholders, and in the end may increase financial performance.

Financial performance is a major key in all economic decision making relating to public and private companies to identify the difficult and hidden cost (Chashim & Fadaee 2016). Financial performances are a quantitative ration of how well a firm uses assets from its business operations and generate revenues. The Financial performance is also seen as a measure of a firm's overall financial health over a given period of time.

Analyzing environmental information to determine the extent of effect it has on financial performance in a manufacturing firm includes analysis and interpretation of financial statements in such a way that it undertakes full diagnosis of the profitability and financial soundness of the firm.

A good number of scholars have contributed to the wealth of knowledge on environmental information and financial performance but with concentration on the industrialized nations and in most part of Asia with very few studies conducted in Africa and particularly Nigeria. This study examined the correlation between environmental information and financial performance by exploring what manufacturing firms are doing to promote effective environmental disclosure. Furthermore, the research contribution is expected to be helpful to firms, so as to increase their awareness in environmental management and to prevent environmental damages that will cause disadvantage to itself and for investors.

2. LITRATURE REVIEW

Underlying theory

Stakeholder Theory is a view that postulates that there exists a connecting relationship between a business, its customers, suppliers, employees, investors, communities and others who have a stake in the organization. The theory strongly holds that firms should create value for all stakeholders and not just shareholders.

The stakeholder theory is a theory of organizational management and business ethics that addresses morals and values in managing an organization, such as those related to corporate social responsibility, market economy, and social contract theory. It has been greatly relied upon by many researchers in the field of accounting, management and finance (Adekanmi, Adedoyin & Adewole, 2015).

Oyedokun et al. (2019) held that the major crux of the stakeholders theory is a firm's success; financial and otherwise is dependent on the management of all the associations that it has with all groups without whose support the firm may cease to exist.

Empirical Review

Scholarly research works have been carried out on the area of environmental information and financial performance with varying outcomes.

Hsuehen (2017) in his work on the correlation of environmental information disclosure and corporate financial performance for the steel industry used 68 steel industry listed companies in Shanghai Stock Exchange from 2010 to 2014. The environmental information disclosure includes environmental financial and non-financial information. The study shows that there is a negative association between environmental financial information disclosure and firm performance.

Brammer, Brooks & Pavelin. (2006) used disaggregated approach and observed negative correlation between environmental and financial performance (as measured by stock returns). They further found that negative relation between aggregate social performance and stock returns can be largely attributed to environmental dimension due to large amount of expenditures involved in it.

Abiola & Ashamu (2013) with the aid of chi-square test examined the effect of environmental management accounting practices in Nigeria National Petroleum Corporation. The study supports the fact that Nigeria National Petroleum Corporation identifies, collects and analyzes monetary information on environment-related costs, earnings and savings for internal decision making.

Gray and Bebbington (2001) carried out a research work with the caption “environmental accounting, managerialism and sustainability: Is the planet safe in the hands of business and accounting?” The work adopted multiple regression analysis. The analytical result indicates strongly that if business cannot deliver sustainability and accounting including environmental accounting which seeks to serve business then accounting (including environmental accounting) is almost certainly acting against the interests of a sustainable future.

Gibson, Collins and Cosmas (2014) concluded in their work titled environmental management practices and firm performance in a South African mining firm that there is no significant relationship existing between environmental management practices and its return on equity.

In the work; Environmental accounting and firm profitability: An empirical analysis of selected firms listed in Bombay Stock Exchange, India, Daniel and Ambrose (2013) postulated that there is significant negative relationship between Environmental Accounting and Return on Capital Employed and a significant positive relationship between Environmental Accounting and Net Profit Margin.

3. METHODOLOGY

Population and sampling

Two cement manufacturing companies quoted on the Nigerian Stock Exchange were purposively selected going by the availability of their annual financial report and the fact that the two companies constitute over 70% of the cement production capacity of the country.

Sample size of four hundred and eighty four (484) respondents were selected using stratified sampling technique, this being in line with Bailey (1994) who recommended a minimum sample size of one hundred (100) respondents being sufficient for most researches. It is also in line with Roscoe Rule of Thumb that states that a sample size between thirty (30) and five hundred (500) is sufficient. After which simple random sampling will be employed for selection of items for the sample from each stratum.

The sample size was arrived at by using Glenn, 2005 formula;

$$n = \frac{N}{1 + N(e)^2}$$

Where: n = Sample Size

N = Population Size

e = level of precision/ sampling error

Data collection method

Both primary and secondary data were sourced for this study. Primary data was obtained from management and other workers of the cement companies. A questionnaire with closed ended questions was applied for collecting data. Secondary data was collected from audited annual reports and accounts. This was used in investigating the state of financial performance.

4. DATA ANALYSIS

This study made use of both descriptive and inferential statistics. Data was collected, coded, edited and input in a Statistical Package for Social Science (SPSS). Altman Z- Score model was employed to determine the state of financial health of the cement companies.

The model is specified below:

$$Z = 1.2X1 + 1.4X2 + 3.3X3 + 0.6X4 + 1X5$$

Where:

X1 = Working Capital / Total Assets

X2 = Retained Earnings / Total Assets

$X3 = \text{Earnings Before Interest and Taxes} / \text{Total Assets}$

$X4 = \text{Market Value of Equity} / \text{Total Liabilities}$

$X5 = \text{Sales} / \text{Total Assets}$

The expectation is that Environmental Management Accounting has a positive relationship with the Z- Score index.

5. RESULTS

Environmental Information

Table 1 below shows the distribution of respondents by their perception about environmental information. Based on the result, about 97.8% of the respondents agreed with the fact that information on environmental management is readily available in the company. The statement is ranked first with WMS of 4.47. The fact that management effectively responds to communications from other stakeholders on environmental impacts associated with company operations is ranked second with WMS of 4.44. Moreover, the statement that our company effectively maintains communication between employees and management on environmental issues is ranked third with WMS of 4.08. The fact that the process of recording environmental management information is very efficient in firm is ranked fourth with WMS of 3.79 while the statement that information on environmental management is always direct and simple to understand is ranked lowest with the WMS of 3.73. Based on the finding, it was revealed that environmental information management is readily available in the companies which could help the staff to adopt as their daily activities in carrying out their operations.

Environmental Information	Strongly Agree	Agree	Not Sure	Disagree	Strong Disagree	WMS	Rank
Information on environmental management is readily available in our company	141	130 (46.9)	6 (2.2)	0(0.0)	0(0.0)	4.47	1 st
Information on environmental management is always direct and simple to understand	131 (47.3)	22 (7.9)	41(14.8)	83 (30.0)	0(0.0)	3.73	5 th
The process of recording environmental management information is very efficient in our company	123 (44.4)	51 (18.4)	26 (9.4)	77 (27.8)	0(0.0)	3.79	4 th
Our company effectively maintains communication between employees and management on environmental issues	120 (43.3)	72 (26.0)	73 (26.4)	12 (4.3)	0(0.0)	4.08	3 rd
Management effectively responds to communications from other stakeholders on environmental impacts associated with our company operations	122 (44.0)	155 (56.0)	0(0.0)	0(0.0)	0(0.0)	4.44	2 nd

Financial Performance

The result in Table 2 shows the absolute financial performance of the companies, the result is generated with the aid of Altman Z Score. It was found from the result that the year 2014 with the Z- Score of 2.598, 2015 (2.832), 2017 (2.203) and 2018 (2.284) were all in the Gray Zone coverage of Altman Z- Score. The year 2013 (3.850) and 2016 (3.133) were both in the safe zone of Altman Z- Score. This may be due to higher demand for cement and its by-products or as a result of change in government policies and that of the industry regulatory agencies. The average Z- Score for the cement industry in Nigeria was found to be 2.817 which are in the Gray Zone coverage of Altman Z- Score. This shows that the cement manufacturing sector of Nigeria's economy needs adequate monitoring and support from all stakeholders so as to avoid collapse or going bankrupt.

INPUT	FINANCIAL RATIO	YEAR 2013	YEAR 2014	YEAR 2015	YEAR 2016	YEAR 2017	YEAR 2018
X1	Working Capital/Total Assets (WC/TA)	0.006	(0.025)	(0.022)	(0.022)	(0.117)	0.038
X2	Retained Earnings/Total Assets (RE/TA)	1.188	0.505	0.764	0.824	0.264	0.269
X3	Earnings Before Interest and Tax/Total Assets (EBIT/TA)	0.851	0.757	0.680	0.747	0.754	0.705
X4	Market Value of Equity/Total Liability (MV/TL)	1.206	0.904	0.957	1.126	0.904	0.829
X5	Sales/Total Assets (S/TA)	0.599	0.458	0.453	0.458	0.398	0.443
Z- SCORE	2.817	3.850	2.598	2.832	3.133	2.203	2.284

Relationship between Environmental Information and Financial Performance

The result of linear regression shows that environmental information ($t=5.045^{***}$) was significantly ($P \leq 0.05\%$) related with company financial performance. The relationship is positive which implies that any increase in the predictor will lead to a corresponding increase in the explanatory variable. The R for the relationship was found to be 68% which is an indication that the predictor variable had 68% influence on the financial performance of the quoted cement company. This development connotes that Environment Information is an integral determinant of financial performance in the cement industry.

REGRESSION

Model summary

Model	R	R-square	Adjusted R square	Std. Error of the estimate
1	.291 ^a	0.85	.081	1.244

a. Predictors: (Constant), index EI

ANOVA^a

Model	Sum of squares	Df	Mean square	F	Sig
1 Regression	39.382	1	39.392	25.457	.00 ^b
Residual	435.532	275	1.547		
Total	464.924	276			

a. Dependent Variable: FP index

b. Predictors: (Constant), index EI

Coefficients^a

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig
	B	Std. Error	Beta		
1. (constant index EI)	15.256	.458		33.339	.000
	.111	.022	.291	5.045	.000

a. Dependent variable : FP index

6. DISCUSSION ON FINDINGS

The process of recording environmental information and the maintenance of communication between employees and management on environmental issues in the manufacturing firms in Nigeria are efficient and simple to understand. The findings are consistent with the work of Isabel, Jeffrey, Manuel & Jose 2013 which states that a firm's reputation for being committed to sustainability is an intangible resource that can increase the value of a firm's expected cash flows and/or reduce the variability of its cash flows. Information is required by management to control the result of environmental impact such as gas emission, waste and quantity of recycled waste treatment and also target waste reduction (Schaltegger, Bennet, Burrit & Jasch, 2008). Environmental information allows companies to prioritize prevention of environmental damage before it occurs, as handling environmental damage will involve greater cost than prevention (Mohammad, Sutrisno, Prihat & Rosidi, 2013). The findings therefore imply that good environmental information will have a positive effect on the firms' financial performance.

7. CONCLUSION

Sequel to the findings of this study, it was concluded that environmental information is significant and positively related to financial performance of the manufacturing industry in Nigeria.

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