https://doi.org/10.61143/umyu-jafr.2(1)2021.004
Text ISSN: 2795-3831
E-ISSN: 2795-3823

ENVIRONMENTAL ACCOUNTING, FIRMS CHARACTERICS AND PERFORMANCE OF LISTED CEMENT MANUFACTURING COMPANIES IN NIGERIA

Nura Ibrahim[1] & Shafi'u Abubakar Kurfi[2]
[1]Bursary Department, Umaru Musa Yar'adua University Katsina-Nigeria
[2] Department of Accounting, Umaru Musa Yar'adua University Katsina-Nigeria
Corresponding author: abubakarkurfishafiu@gmail.com, +2348034810371

ABSTRACT

The study examines the relationship between environmental accounting, firm characteristics and performance of the cement manufacturing companies in Nigeria. The study adopts longitudinal research design covering a period of seven (7) years from 2012 – 2018. The data for the study were sourced from the annual reports of the sampled companies. Descriptive and inferential statistics were used for data analysis. The findings show that environmental accounting has negative effect on financial performance of cement manufacturing companies in Nigeria. Firm characteristics (proxy by firm size, leverage and taxation) have positive relationship on performance of the cement companies in Nigeria. The study therefore recommends that firms shall pay more attention to environmental issues there by enlighten the people surrounding the environment on the company's effort toward securing their environment from any harmful effect that might arises due to the nature of their production; companies should reduce the amount of leverage in their capital structure, they should also strive to improve their turnover through the use of marketing strategies.

Keywords: Environmental accounting, financial performance, Nigeria

1. INTRODUCTION

The environmental dilapidation due to various types of pollution (such as air, water and sound), soil erosion, deforestation, among others is a worldwide phenomenon at it spoils human health, reduces economic productivity and leads to loss of amenities. The growing concern about environmental degradation, resources diminution and the need for sustainability of economic activity have made the development of environmental accounting and reporting an area of significant interest in Nigeria. The success or failure of a company may be determined not only by the products or services it deals with but also by the intricacy of environment it operates (Adediran &

Text ISSN: 2795-3831
E-ISSN: 2795-3823

Alade, 2013). Nigeria and like countries involved in industrial activities such as refining, manufacturing, mining, many of which generate waste with potential constituents. The ultimate disposal of such waste leads to environmental problems such deforestation, drought and desertification, soil and coastal erosion, oil and industrial pollution, flooding, land degradation etc. thereby constituting environmental problems (Srinivasa, 2014).

The interest of accounting in the environment emerged from the reality that management needs financial information on environmental expenditures due to the increasing demand by different stakeholders such as; government, investors, lenders, general public, customers, etc. to have financial data on environmental performances of different organizations reported in financial statements (Ali, 2002). Consequently, the absence of these comprehensive and verifiable information on environmental practices by companies may lead to point where companies can pollute the environment and yet appear more economic efficient than others which incur costs to protect the environment. (Charles, John-Akamelu & Umeoduagu, 2017)

Firm Characteristics have become a focus of attention in research and investment (Dogan, 2013). Firms can be distinguished from one another on the basis of different financial and non-financial characteristics including size, value, profitability, structure, leverage, liquidity etc. These characteristics are unique to specific companies and raise a perception in the mind of the users of that information regarding the performance and future of the company (Onyekwelu, Nwajei & Ugwu, 2017)

Financial performance of a company being one of its major characteristics defines the competitiveness of the operation of the business, economic interests of the company's management and serves as a measure of reliability by present and future investors. Financial performance principally reflects business sector outcomes and results that show an overall financial health of the sector over a specific period of time. It indicates how well an entity is utilizing its resources to maximize the shareholders wealth and profitability. Although complete evaluations of a firm's financial performance take into account different kind of measures but most common performance measurement used in the field of finance and statistical inference is financial ratios (Farah, Farrukh & Faizan, 2016).

Profitability as well as corporate financial performance was used by a number of researchers (Choi, 1998; Roberts, 1992; and Patten, 1991) as an explanatory performance variable for differences in disclosure level. However, the relationship between corporate financial performance and corporate environmental cost is arguably one of the most controversial issues yet to be solved; The empirical review

Text ISSN: 2795-3831
E-ISSN: 2795-3823

reveals that several studies were conducted on the environmental accounting/firm characteristics and financial performance in and outside Nigeria: Charles, John-Akamelu & Umeoduagu (2017) conducted a research on Environmental Accounting Disclosures and Financial Performance on selected Food and Beverage Companies in Nigeria from 2006-2015. Tochukwu (2018) conducted a survey on Environmental Costs Accounting and Reporting on Firm Financial Performance of Quoted Nigerian Oil Companies. Adediran &, Alade (2013) study the impact of environmental accounting on corporate performance on fourteen (14) randomly selected quoted companies in Nigeria. Ofoegbu. & Megbuluba (2016) examined the influence of firm characteristics on the quality of corporate environmental accounting Information Disclosure in the Nigerian Manufacturing Firms. Nyamiobo, Muturi, Okibo, & Olweny, (2018) examined the relationship between firm characteristics (firm size) and profitability, Jensen and Meckling (1976), Brandes and Lewis (1986), and Grossman and Hart, (1983) examined the relationship between firm characteristics (leverage) and firm performance.

From the above studies, most of the researchers focused on either environmental accounting or firm characteristics only they dwell more on oil sector of the economy; this study intends to merge the two major independent variables (Environmental accounting and Firm characteristics) and fill in the research gap by examining their relationship with financial performance of cement manufacturing companies in Nigeria. Therefore the objective of the study is to examine the relationship between environmental accounting, Firm characteristics (firm size, leverage and taxation) and financial performance of cement companies in Nigeria.

2. LITERATURE REVIEW

2.1 Empirical Studies

Several studies have been conducted in the area of environmental accounting, firm characteristics and financial performance. Adediran and Alade (2013) investigated the relationship between environmental accounting and corporate performance in Nigeria. The researcher uses data from 2010 annual report and accounts of fourteen (14) randomly selected companies quoted in Nigeria stock exchange market, using multiple regression analysis. The result shows that there is significant negative relationship between environmental accounting and return on capital employed (ROCE) and earnings per Share (EPS) and a significant positive relationship between Environmental Accounting and net profit margin and dividend per share. Similarly, Makori and Jagongo (2013) undertook a study to establish whether there is any

Text ISSN: 2795-3831
E-ISSN: 2795-3823

substantial relationship between environmental accounting and profitability of some selected firms listed in India. Using the 2017 annual reports and accounts of 14 quoted company selected; the result of the analysis indicated that there is positive and significant relationship between environmental accounting and net profit margin and dividend per share. There is also a negative and significant relationship between environmental accounting and return on capital employed and earnings per Share.

Beredugo (2014) assessed environmental accounting and social responsibility on the earning capacity of selected manufacturing companies in Nigerian. Data were collected from three manufacturing firms situated in Lagos State of Nigeria through the use of questionnaires. The ordinary least square regression, population t-test and multivariate statistics analysis were used in the analysis. The finding indicated that environmental cost proxy such as pollution abatement cost, waste management cost, and fines and penalty cost significantly affect earning capacity of the selected companies. While Azar, Shahbazi, Abdi and Seyed (2014) evaluate the relationship between environmental accounting information and management performance of companies in the pharmaceutical industry of the Tehran stock exchange. The result shows that such relationship exists between management performance and environmental accounting information disclosure of the companies accepted in Tehran stock exchange.

Musa, Peter and Bukar (2015) analysed environmental accounting disclosures practices of Eight (8) quoted companies selected out of 19 consumer goods companies listed on the Nigerian stock exchange. The study used year 2013 annual report with the aid of content analysis to obtain the data from the selected firms. One-way analysis of variance (ANOVA) was used to analyse the data. The result shows that accounting standards do not significantly affect environmental accounting. The study recommends that accounting standards setters should give priority to development and formation of a standard on environmental accounting information disclosure so as to ensure uniformity in the disclosure. Ezechukwu and Amahalu (2017) assessed the extend at which firm characteristics affect financial performance of quoted deposit money banks in Nigeria. Time-series data was adopted and the data were sourced from annual report and accounts of the listed money deposit bank for the period from 2010 – 2015. The result shows that a firm characteristic (proxy by Size) has a positive and statistically significant effect on financial performance (proxy by ROA, ROE & ROCE).

Charles John-Akamelu and Umeoduagu (2017) investigated the relationship of environmental accounting disclosures and financial performance of food and beverage companies in Nigeria. Data for the study were collected from the annual reports and accounts of the selected companies for period of ten (10) years from 2006 -2015. The study revealed that there is a significant relationship between environmental accounting disclosures and return on equity of selected companies; and a negative relationship between environmental accounting disclosures and return on capital employed and net profit margin of selected companies. The study recommends environmental disclosures should be made mandatory on firms so as to give a true and fair view of corporate financial performance and position.

Nwaiwu and Oluka (2018) empirically examined the effect of environmental cost disclosure and financial performance measures of quoted oil and gas companies in Nigeria. Time series data were collected from the annual CBN reports and financial statements of 2011-2015. The econometric result shows adequate disclosures on environmental cost. ROA is not significantly affected by environmental cost disclosure; it also discovered that environmental cost disclosure does not significantly affect return on capital (ROCE) as observed in the overall model. Environmental cost disclosure enhances the earnings per shares (EPS) of the oil and gas companies. Tochukwu (2018) ascertained the effect of environmental costs on firm performance; The study covers a period of ten years from 2006-2015 using only secondary data. The data for analysis were sourced from published financial reports of quoted oil companies listed in the Nigerian Stock Exchange. The results indicate that better environmental performance positively impact business value of an organization.

Nyamiobo, Muturi, Okibo, and Olweny (2018) examined the effect of firm characteristics on financial performance of listed firms at the Nairobi Securities Exchange (NSE). Questionnaires were used to collect primary data for the study, the findings revealed that variables (Company Age, Company Size, Leverage and Liquidity) contributed 68.8% to the Financial Performance. Also, Abubakar, Sulaiman, & Haruna (2018) examined the Effect of Firms Characteristics and Financial Performance of Listed Insurance Companies in Nigeria. The data for the study were collected from the annual reports and accounts of Insurance companies quoted in the Nigeria Stock Exchange (NSE) within the period of 2007 and 2016. The results of the study revealed that liquidity and Age have significant negative impact on financial performance of insurance companies in Nigeria.

To achieve the above objectives, the following hypotheses were tested.

2.2 Theoretical Framework

There is no universal theory on environmental accounting, firm specific characteristics and financial performance that could be used to underpin this study but

Text ISSN: 2795-3831
E-ISSN: 2795-3823

there are several useful conditional theories that attempt to approach the determination of financial performance. These theories include.

2.2.1 Political Economy Theory:

Political economy theory explicitly recognizes the power conflicts that exist within society and the various struggles that occur between various groups within the society. The political economy is defined as the social, political and economic framework within which human life takes place (Gray, Owen & Adams 1996). The political economy perspective perceives accounting disclosures as social, political and economic documents (Guthrie & Parker, 1990). They serve as a tool for constructing, sustaining and legitimizing economic and political arrangements, institutions and ideological themes which contribute to the corporation's private interests. Disclosures have the capacity to transmit social, political and economic meanings for a pluralistic set of report recipients.

2.2.2 Institutional Theory:

According to institutional theory, organizational behaviour is conditioned by the expectations stemming from the institutional environment. Ali and Rizwan (2013) said that institutional theory provides explanation for the adaptation of particular organizational practices from within a specific organizational field (Deegan, 2009). This theory is slowly but steadily emerging as a useful theoretical framework in relation to the environmental implications of an organization's operations and behaviour. The institutional framework emphasizes the importance of regulatory, normative and cognitive factors that affect firms' decisions to adopt a specific organizational practice (Che-Ahmad, Osazuwa and Mgbame)).

3. METHODOLOGY

The study adopted quantitative data via longitudinal research design covering a period of seven (7) years. This study adopts census method because there are three (3) cement manufacturing firms listed on the Nigerian Stock Exchange (NSE) as at July, 2019; the population of this study is all the Cement Manufacturing Companies in Nigeria. The sample size was derived using a non-probabilistic sampling technique in the form of purposive sampling technique which was influenced by the availability of data. The source of data used for this study is secondary. The data was collected from the annual reports and accounts of three cement manufacturing companies listed on the Nigerian Stock Exchange. The data covered seven-year period from 2012 - 2018.

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E-ISSN: 2795-3823

The dependent variable of this study is financial performance. The financial performance is proxied by Gross Profit Margin Ratio. It expresses the profit of the firm relative to sales. It is calculated as Gross profit/Sales x 100. Other independent variables include: Environmental Accounting which implies costs of complying with environmental laws which includes environmental remediation costs, pollution control costs, non-compliance penalty cost and cost of restoring depleted environment to its normal position. However, this study used cost of restoring depleted environment as a measure of environmental accounting. This is used by the studies of Ahmad, Waseer, Hussain & Ammara (2018). Firm Size: According Serrasqueiro and Nunes (2018), increased company size can contribute towards increased performance because larger companies are more able to take advantage of economies of scale, concerning operating costs and the costs of innovation and greater size means the possibility of more diversification of activities. firm size is measured by total revenue/sales of the firm as used by the studies of Ahmad, Waseer, Hussain & Ammara (2018) and Abbas, Bashir, Manzoor & Akram (2013). Leverage is a technique involving the use of debt (borrowed funds) rather than fresh equity in the purchase of an asset or improvement in the working capital, with the expectation that the after-tax profit to equity holders from the transaction will exceed the borrowing cost. It is measured by Total Debt divided by Total Assets (Yahaya, 2018; and Abbas, Bashir, Manzoor & Akram, 2013); and Taxation being a compulsory levy on entities by governments. It measured by current year's tax (Abbas, Bashir, Manzoor & Akram, 2013)

3.2 Model Specification

In order to find out the relationship among the variables, this study specified functional model as:

GPM = f (CRDE, FIZ, LEV, TAX)

However, the econometric model of the equation is given as:

$$GPM_t = \beta_0 + \beta_1 CRDE_{t-1} + \beta_2 FIZ_{t-1} + \beta_3 LEV_{t-1} + \beta_4 TAX_{t-1} + \mu_t$$

Where:

GPM = Gross Profit Margin (i.e. financial performance)

CRDE = Cost of Restoring Depleted Environment (Environmental Accounting) FIZ = Firm Size

LEV = Leverage

TAX = Taxation

B_0 - β_4 = Coefficients of the explanatory variables

μ = Error term or White noise.

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3.3 Techniques for Data Analysis

Two techniques of data analysis were used in analysing the data generated for the study. These are Descriptive Statistics and Inferential Statistics. Descriptive statistics used to compute the summary statistics that describe the central tendency, as well as how the data spread out around the value. The tool is used to describe the dependent and independent variables of the study by computing the mean, median and the standard deviation of the variables. In Inferential Statistics analysis, this study used fixed effects and Random effects. In fixed effects model, the constant is treated as a group-specific. This means that the model allows for different constants for each group. On the other hand, an alternative model of estimation is random effects model. The difference between fixed effects and random effects models is that, the latter handles the constants for each section not as fixed, but as random parameters. Hence the model is given as:

$$GPM_t = \beta_0 + \beta_1 CRDE_{t-1} + \beta_2 FIZ_{t-1} + \beta_3 LEV_{t-1} + \beta_4 TAX_{t-1} + \mu_t$$

H_0: Random effects are independent of explanatory variables

H_a: H_0 is not true

The decision rule is that, reject the null hypothesis if the probability value is statistically significant at 5% level or if the probability value is less than or equal to 5%, therefore use fixed effects estimator to run the analysis otherwise use random effects estimator.

4. RESULTS AND DISCUSSION

4.1 Descriptive Statistics Result

Table 1: Summary Statistic of Variables Used for Estimation

	GPM	CRDE	FIZ	LEV	TAX
Mean	0.451	3.260	1.901	7.381	1.331
Median	0.394	1.220	1.061	5.171	3.990
Maximum	0.724	1.680	6.181	2.761	8.921
Minimum	0.262	960.0	1.301	1.401	3.480
Std. Dev.	0.163	4.990	1.921	7.931	2.581
Skewness	0.544	1.852	0.868	1.102	2.470
Kurtosis	1.693	4.945	2.493	3.475	7.574
Jarque-Bera	2.531	15.327	2.864	4.444	39.67
Probability	0.281	0.005	0.239	0.108	0.000
Sum	9.480	6.840	4.001	1.551	2.791
Sum Sq. Dev.	0.536	4.991	7.362	1.262	1.332
Observations	21	21	21	21	21

Source: Author's Computation using E-views version 9.

Text ISSN: 2795-3831
E-ISSN: 2795-3823

This study begins its estimation by examining the properties of the raw data and the result of the descriptive nature of the raw dataset is presented in Table 1. From the result, it could be noticed that the mean values of financial performance measured as gross profit margin, environmental accounting, firm size, leverage and taxation of the cement manufacturing companies in Nigeria are 0.45, 3.26, 1.90, 7.38 and 1.33 respectively. During the period of estimation, the financial performance measured as gross profit margin, environmental accounting, firm size, leverage and taxation of the cement manufacturing companies have the standard deviation of 0.16, 4.99, 1.92, 7.93 and 2.58 respectively. This means that leverage of the cement producing companies in Nigeria experience high episode of fluctuation while financial performance recorded low level of deviation during the estimation time.

Also, a close examination of the skewness of the raw dataset reveals that financial performance, environmental accounting, firm size, leverage and taxation of companies were all positively skewed (skewed to the right of the distribution). Meaning that, their means are concentrated to the right of the distribution. The coefficients of the kurtosis of the variables indicate that financial performance and firm size were platykurtic below 3.000 relative to the normal distribution. Meaning that, the distribution provides fewer and less extreme outliers than does the normal distribution. Environmental accounting, leverage and taxation of the companies were leptokurtic because of the coefficients of the kurtosis are above 3.000. This also explains that the distribution produces more outlier than the normal distribution. The Jarque-Bera values of 2.53, 2.86 and 4.44 for financial performance, firm size and leverage with their respective probability value of 28%, 23% and 10.8% means that the variables are normally distributed. However, the Jarque-Bera values of 15.32 and 3.99 for environmental accounting and taxation with their probability values less than 5% suggest that the variables are not normally distributed.

4.2 Regression result

This section concerns with the analysis of the connection between environmental accounting, firm size, leverage, taxation and financial performance of the cement manufacturing companies (measured by gross profit margin).

Table 2: Results of the Regressions models

Dependent Variable				Financial Performance (LGPM)		
Fixed Effects Regression				Random Effects Regression		
Variables	Coef.	St. Error	P-val.	Coef.	St. Error	P-val.
LCRDE	-0.124	0.084	0.168	-0.128	0.058	0.044
LFIZ	0.148	0.148	0.34	0.215	0.103	0.053
LLEV	1.033	1.411	0.943	6.323	1.212	0.608
LTAX	0.164	0.109	0.163	0.078	0.065	0.248
CONSTANT	-5.924	1.776	0.007	-5.699	1.588	0.003
Hausman Test						
Coef.	20.986		P-val.	0.912		

Source: Author's Computation Using E-views Version 9.

Table 2 contains the results obtained from fixed effects and random effects models. from the results of the Hausman Test presented in Table 2, the probability value associated with Hausman test for Fixed effects and Random effects is greater than 0.05 or 5% hence, random effects regression is more appropriate.

The study discovered that environmental accounting (i.e., cost of restoring depleted environment) has negative effect on financial performance (GPM) of cement manufacturing companies in Nigeria. An increase (decrease) in environmental accounting cost will lead to decrease (increase) financial performance of the cement manufacturing companies; this in line with the work of Ahmad, Waseer, Hussain & Ammara (2018); But contrary to the findings of Rakiv, Fakhru & Rahman (2016) and Ingumba (2017). This means that when companies increase their spending on environmental accounting related issues by at least 10%, their financial performance will decrease by 1.28%. From the result, it is indicated the hypothesis which stated there is no significant relationship between Environmental Accounting and financial performance of cement companies in Nigeria is failed to be rejected, this is because the probability value is 0.044.

Similarly, firm size has positive and statistically significant influence on the financial performance of the target firms. The result is in line with the work of Yahaya (2018); Ahmad, Waseer, Hussain & Ammara (2018); Ingumba (2017) and Serrasqueiro & Nunes (2008). This indicates that as long as there is expansion in the size of the firm through an increase in the production activities, the financial performance of such firm

Text ISSN: 2795-3831
E-ISSN: 2795-3823

will rise positively. It further stated that a 10% increase in the turnover of the sampled cement manufacturing companies will produce 1.22% rise in the financial performance of the cement manufacturing firms. The justification is that the bigger the size of the company, the more they can afford to invest their resources into corporate environmental technologies since they tend to be more concerned with firms' environmental reputations and vice versa. And it could also be due the economies of scale a large family enjoyed in their operations.

Furthermore, the result indicated that there is positive and statistically insignificant relationship between leverage and financial performance of the cement companies in Nigeria. This result is in tandem with the work of Yahaya (2018); Ingumba (2017) and theory of capital structure founded by Modigliani Miller in 1963. The theory stated that leverage is inconsequential in the financial performance determination of a firm. This is also implying that an increase or decrease in leverage of the companies will lead to increase or decrease in the financial performance of the target companies because when the company secure loan to finance the working capital, it will definitely increase the turnover and vice versa. It also clarifies that 10% rise or decline in the leverage of the companies will generate about 60.32% rise or decline in the cement companies' financial outcomes; the result is not statistically significant even at 10% level. This is due to probability value of 0.6086.

The result further reported that taxation of these companies has insignificant positive effect on the companies' financial outcome. This is in agreement with the work of Smith, Yahya and Amiruddin (2007). An upward change in taxation will lead to positive influence of the financial performance of the sampled firms. A positive or negative change in taxation will lead to positive or negative change in the financial viability of the sampled companies. This finding is in agreement with the behaviour of some of the firms, because when government increases the rate of its tax, the companies will compensate such tax increment with the increase in the price of its products. Sometimes the increase in the price will be greater than the increase in taxation and that will generate more profit to the firm vis-à-vis financial performance.

5. CONCLUSIONS AND RECOMMENDATIONS

The aim of environmentally-sensitive companies is to manufacture goods efficiently at competitive prices without harming the environment in which they operate. This will enhance sustainable development by reducing the environmental impact while increasing the value of the firm, satisfying human wants, contributing to the quality of life, and resource intensity through reporting of their environmental activities.

Text ISSN: 2795-3831
E-ISSN: 2795-3823

The study examines the relationship between environmental accounting, firm characteristics and financial performance of the cement manufacturing companies in Nigeria. Environmental accounting was measured by cost of restoring depleted environment, firm characteristics were firm size, leverage and taxation while financial performance was measured by the gross profit (GPM). The study adopts longitudinal research design covering a period of seven (7) years from 2012 – 2018. The data for the study were sourced from the annual reports of the sampled companies. Descriptive and inferential statistics were the two techniques used for data analysis. The findings show that environmental accounting (i.e., cost of restoring depleted environment) has negative effect on financial performance (GPM) of cement manufacturing companies in Nigeria; firm size has positive and statistically significant influence on the financial performance of the target firms. Also, there is positive and statistically insignificant relationship between leverage and financial performance of the cement companies in Nigeria and that taxation of these companies has insignificant positive effect on the companies' financial outcome.

The study therefore recommends that firms shall pay more attention to environmental issues there by enlighten the people surrounding the environment on the company's effort toward securing their environment from any harmful effect that might arises due to the nature of their production, The government should enforce an environment protection policy and ensure its adherence since the findings shows that environmental cost negatively affect financial performance, these company may tend to reduce their spending in the restoration of depleted environment.

The study further recommends that companies should reduce the amount of leverage in their capital structure since it shows no any significant in financial performance, and also, they should strive to improve their turnover through the use of marketing strategies and discount so as to improve their performance.

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