CLIMATE CHANGE, ENVIRONMENTAL SUSTAINABILITY ACCOUNTING AND CORPORATE PERFORMANCE IN NIGERIA

SUNDAY OTUYA& LYNDON M. ETALE

Abstract

This study examined the relationship between climate change, environmental sustainability accounting disclosures and corporate performance in the manufacturing sector in Nigeria. The study which was anchored on the stakeholders' theory used secondary data obtained from the annual reports of 73 manufacturing companies quoted on the floor of the Nigeria Stock Exchange for the years 2013- 2017. The ordinary least square (OLS) regression method was used as the basic technique of data analysis. Findings of the study indicate a significant positive relationship between corporate performance and environmental sustainability disclosures in the manufacturing sector of Nigeria. However, the findings of the study also indicated that environmental sustainability accounting in Nigeria is still developing and that manufacturing sector organizations report very little information about the impact of their operations on the environment. The study recommended, amongst others, that the relevant authorities and regulatory bodies in the country formulate statutory environmental requirements for manufacturing sector organizations to comply with in order to facilitate environmental sustainability practices.

Keywords: Environmental Sustainability Practices, Accounting Disclosures, Corporate Performance, Climate Change.

Introduction

Climate change and environmental sustainability reporting issues have been a subject of debates among scholars and corporate managers in recent times. Questions are now being asked about the damage caused to the environment through air, soil and water pollution as a result of industrial activities. These concerns have brought to the public fore the need for corporate organizations to incorporate environmental information in their reports. As far back as 1972, a world conference of different Heads of States and Governments was held in Stockholm, Sweden to discuss the state of the environment. It was at this meeting that United Nations Environmental Program (UNEP) was founded as a special United Nations agency to deal with environmental issues. In 1992, another United Nations Conference on Environment and Development (UNCED) was convened in Rio de Janeiro, Brazil. In this conference, also known as the 'Earth Summit', participating countries agreed and signed four documents one of which is the 'Agenda 21'. This document stipulates the 'dos' and 'don'ts' regarding issues about protection of the environment (UNEP, 2010).

There have been many other conventions and agreements on environmental issues at the global level, some of which are: The 1997 Kyoto Protocol, World Bank Global Gas Flaring Reduction (GGFR) Public-Private Partnership of 2002, Bali Climate Declaration by Scientists in 2007, the United Nations Climate Change Conference 2009 in Copenhagen and Earth summit in Durban, South African in 2011.

In Nigeria, during the past two decades, there have been increased public awareness and outcry on corporate social environmental impact. This is attributable to the publicity and dissemination of information by some non-governmental organizations (NGOs) and the Federal Environmental Protection Agency (FEPA) of Nigeria, for the preservation and conservation of the environment. It has become imperative for companies especially the oil exploration and manufacturing companies who either exploit the natural resources or emit wastes in the process of production to account for the environment when giving account of their operations.

According to Enahoro (2009), businesses and the world at large need to evaluate, assess and affect accounting reporting for raw materials, energy consumption and use of natural resources which have systematically depleted the environment. Stressing further on environmental reporting and sustainability, Micah, Ironkwe&Olangunju (2011), are of the opinion that, the pursuit of sustainable development as an object of policy is now much in vogue; and governments of different countries have long been engaged in setting up regulatory, voluntary, incentive-based, informational and cooperative instruments of policy geared towards promoting sustainable development. In view of the fact that environmental accounting is attracting wider attention and focus in the corporate world, coupled with the increasing damage and pollution being done to the environment by manufacturing and oil producing companies, this study, guided by the stakeholders' theory, examined the relationship between climate change, environmental sustainability disclosures and corporate performance in the manufacturing sector of the Nigerian economy.

Statement of the Research Problems

Destruction of the environment is one of the greatest challenges facing the world. Until recently, little was known of the environmental depletion and degradation of the natural environment. However, some researchers and environmentalists from the developed countries such as United States, United Kingdom, Norway and Canada realized that it was of no use companies making huge corporate profits at the expense of the ecosystem which was being damaged (Uwalomwa&Uadiale, 2011).

There is lack of sufficient environmental sustainability accounting disclosures among manufacturing sector companies in Nigeria to reflect the level of damage sustained in the natural environment where these organizations operate. Since current requirement for reporting on environmental sustainability accounting issues in Nigeria is voluntary, it is observed that most financial statements of manufacturing sector organizations totally exclude environmental issues. The assessment of environmental impacts on company's financial situation requires improvement in external reporting of environmental data (Salomone& Galluccio, 2001).

The focus of this study is the manufacturing sector in Nigerian which is recognized as one of the major sectors whose operations cause high level of environmental degradation and pollution. The underlying challenge therefore is that the Nigerian business environment and laws have not yet designed any framework for environmental sustainability accounting disclosures, hence the lack of sufficient information provided in the financial reports of corporate entities on the impact of their business operations on the environment. Therefore, the study investigated the relationship between climate change, environmental sustainability accounting disclosures and corporate performance in the manufacturing sector of Nigeria to fill that research gap. The study employed environmental sustainability disclosures (SUS) based on the Global Reporting Initiative (GRI) Reporting Guidelines as the dependent variable, while corporate performance proxy by return of total assets (ROTA) and firm size (SIZE) as the independent variables.

Objectives of the Study

The broad objective of the study was to examine the relationship between climate change, environmental sustainability accounting disclosures and corporate performance. However, the specific objectives were to:

- (i) ascertain to what extent return on total assets influenced environmental sustainability accounting disclosures; and
- (ii) investigate whether the size of firms had any impact on environmental sustainability accounting disclosures.

The above objectives formed the rationale for the research questions this study addressed as well as guided the hypotheses tested. The rest of the paper is structured as follows: section two provides the literature review; followed by the research methodology in section three. Section four provides the analysis of data and the results of the study as well as the discussion of the findings; while the conclusion and the recommendations of the study are presented in section five.

Literature Review

The review of related literature for this study covered the concept of environmental sustainability, change, corporate performance, the stakeholder theory and some past research studies to provide a theoretical foundation and justification for the investigation of the relationship between climate change, environmental sustainability accounting disclosures and corporate performance in the manufacturing sector of the Nigerian economy.

Conceptual Clarifications

Climate Change

Climate change, also called global warming, refers to the rise in average surface temperatures on Earth. Sustainability (2016) defines climate change as a change in global or regional climate patterns, in particular a change apparent from the mid to late 20th century onwards and attributed largely to the increased levels of atmospheric carbon dioxide produced by the use of fossil fuels.

An overwhelming scientific consensus maintains that climate change is due primarily to the human use of fossil fuels, which releases carbon dioxide and other greenhouse gases into the air.

The gases trap heat within the atmosphere, which can have a range of effects on ecosystems, including rising sea levels, severe weather events, and droughts that render landscapes more susceptible to wildfires (Palmer & McNeall, 2014; Hulme, 2016).

The global increase in temperatures can influence the physical, biological and human systems. First, variations in the physical systems of the planet can be observed in the melting of the poles, which at the same time cause glacial regression, snow melting, warming and thawing of permafrost, flooding in rivers and lakes, droughts in rivers and lakes, coastal erosion, sea level rise and extreme natural phenomena. In the biological systems, there is death of flora and fauna in terrestrial and marine ecosystems, wildfires and flora and fauna displacement searching for better life conditions. In human systems, climate change affects and destroys crops and food production, causes disease and death, destruction and loss of economic livelihoods (Hulme, 2016).

Environmental Sustainability

The UN Commission on Environment and Development defined sustainable development as the development that meets the needs of the present without compromising the ability of future generations to meet their own needs (UNIDO, 2007). For sustainability to be achieved, the three core elements that need to be harmonized are- economic growth, social inclusion and environmental protection. The demand for environmental information on the part of external and internal users of financial statements has contributed to the development of a concept called “green accounting”, “environmental accounting”, “eco-accounting”, and even “sustainability accounting” (Adams, 2004). Environmental sustainability is a rapidly developing and diverse field of practice. According to Sustainability/UNEP (1998), it relates to the collation and communication of data -financial, quantitative and/or qualitative - about an organization’s interactions with society.

In the view of Gray, Jawad, Power and Sinclair (2001) and Ijeoma (2014), sustainability reporting can be in form of standalone triple bottom line reporting for management use or it may be for external consumption as a published corporate social responsibility report.

Corporate Performance

Shareholders are the primary stakeholders of a company and as such the company is expected to be responsible to the shareholders (owners). Maximization of shareholders wealth therefore becomes the main objective of the company. In this regard, wealth of the shareholders can only be maximized if the company makes and continues to make profit. Friedman is one of the proponents of this maxim ‘profit maximisation is the goal of any businesses’ (Gavrea, Ilies&Stegerean, 2011). Thus, the financial bottom line has been the measure of corporate performance. But recently, there has been prompting from stakeholders for more accountability and transparency in the reporting method used by companies. This has led to the spread, acceptance and implementation of the sustainability or triple bottom line concept by some, and mostly large international companies, and the growing interest globally. This is achieved by considering not only the economic bottom line, but introducing the social and environmental bottom line to corporate reporting.

Underpinning Theory: Stakeholders' Theory

The stakeholders' theory is considered suitable for this study for the fact that it is one of the most important conceptual frameworks in the field of Social Accounting. The analysis of social information disclosures by organizations through the relations that they maintain with their stakeholders has brought important questions to light, such as the limited usefulness to stakeholders of environmental information voluntarily revealed by large firms in their annual accounts (Ite, 2004). The backbone of environmental sustainability accounting is the explicit recognition that every organization has a wide range of stakeholders - those who are influenced by and/or, in turn, influence the organization. In addition to shareholders and other financial participants, the most important of the other stakeholders are usually taken to be the employees, the local community(ies), customers, suppliers, the environment and government (O'Dwyer, 2002). From society's point of view, each of these stakeholders has rights to, amongst other things, information about the activities of the organization - whether or not the organization chooses to recognize those rights. From the organization's point of view, it has a range of stakeholders that it must manage and whose interests it must balance if it is to remain a successful enterprise. According to Gray et al (2001), the stakeholder theory asserts that the firm's success is dependent upon the successful management of all the relationships that a firm has with its stakeholders.

Review of Past Research Studies

Ekwueme, Egbunike and Onyali (2013) examined the relationship between sustainability reporting and corporate performance in Nigeria using primary data obtained through a structured questionnaire based on the five-points Likert scale. The study employed descriptive statistics, Kolmogorov-Smirnov (K-S), One Sample T-test and Multiple Regression Techniques for data analysis, and found that corporate performance was positively connected to sustainability reporting. They therefore recommended the adoption of sustainability reporting practices by corporate organizations in Nigeria. In a similar study, Onyali, Okafor and Onodi (2015) investigated the effectiveness of Triple Bottom Line (TBL) disclosure practices of corporate firms in Nigeria. Primary data for their study was obtained through the use of a structured questionnaire based on a five-points Likert scale. The study adopted descriptive statistics and One Sample Z-test procedure using SPSS version 22 for data analysis. Their study revealed dissatisfactory level of TBL disclosure practices among firms in Nigeria, recommending that companies should disclose quantifiable TBL indicators.

In a related study, Ifurueze, Etale and Bingilar (2013) examined the impact of environmental cost on corporate performance in Nigeria, using a sample of twelve oil companies quoted on the Nigerian Stock Exchange (NSE). Three indicators of environmentally sustainable business practices were used as proxy for environmental cost, while ROTA was used as proxy for corporate performance. Multiple regression technique was employed to analyze secondary data obtained from the annual reports of selected companies for the eleven years period covering 2001 to 2011. The study found significant relationship between sustainable business practices and corporate performance.

Assessing the sustainability reporting in Nigeria, Owolabi, Taleatu, Adetula&Uwaigbe (2016) examined the extent of sustainability reporting by Lafarge Africa Plc, a high environmental-impact company operating in the building materials and quarrying sector; also, winner of both the Environmental Sustainability and Stakeholder Engagement in Social Enterprise Report Awards (SERAs) in 2015. Data sourced from the 2014 annual report of the company examined through content analysis using the Global Reporting Initiative (GRI) guidelines as basis of assessment. The study revealed low sustainability reporting practice by the company (that is, no disclosures on human right issues, 3% environmental disclosures, and 30% disclosure based on 169 indicators). They recommended the regulation of sustainability reporting practices among firms in the country.

Also, Asaolu, Agboola, Ayoola and Salawu (2011) carried out an assessment of the level of sustainability reporting in the oil and gas sector of Nigeria. Data were obtained for their study through content analysis of the annual reports of six multinational oil and gas companies. They found arbitrary and incompatible sustainability reporting disclosures among the selected oil and gas companies, therefore, recommended the introduction of sustainability reporting framework in the oil and gas sector of Nigeria.

Cortez andCudia (2011) examined the impact of environmental sustainability practices disclosures on financial performance in Japan. The study used data generated from the annual reports of sampled electronics companies listed on the Tokyo Stock Exchange, covering nine years period from 2001 – 2009. These ten global electronic giants publish annual sustainability reports a year after the annual financial reports in line with a format and classification code prescribed by the Japanese Ministry of Education (MOE). The study adopted content analysis method following a theoretical review and literature survey of past empirical studies. The findings of the study indicated that environmental innovations impacted positively on revenue generation and minimize risks; and in the face of declining global demand for electronic products the financial conditions of these companies would have worsened had they not engaged in environmental sustainability practices.

Alshehhi, NobaneeandKhare (2018) investigated the relationship between corporate sustainability practices and financial performance through a systematic survey and content analysis of past empirical literature on the subject. The study involved a total of 132 research articles from around the World published between 1984 and 2017 in top-tier peer-reviewed journals. The time period distribution indicated that 20% of these papers were published between 2012 and 2013, 27% between 2014 and 2015 and 28% between 2016 and 2017. The study revealed that 78% of the research findings indicated positive connection between financial performance and corporate sustainability. They however noted the scarcity of research studies on this subject from developing countries and recommended further research to facilitate the understanding of the relationship between financial performance and corporate sustainability practices.

Methodology

This study adopted the content analysis approach. According to Kothari and Garg (2014), content analysis is a research procedure used to make replicable and valid inferences by

interpreting and coding textual material. This study involves the analysis of corporate financial statements hence this research design is considered suitable for this study. The population of the study is made up of all manufacturing sector companies quoted on the Nigerian Stock Exchange. There are 168 listed companies on the floor of the Nigerian Stock Exchange (NSE) by an online listing, NSE (2018). However, for the purpose of sampling, all 73 companies from the manufacturing sectors were chosen. Convenience sampling procedure was employed in choosing firms, while judgmental sampling method was used in choosing the manufacturing sector.

The study used data from secondary sources. The data were gotten from the financial statements of the selected manufacturing companies for the period 2013 - 2017. Ordinary Least Square (OLS) regression analysis was deployed as the data analytical method, using the Statistical Package for Social Sciences (SPSS) software.

To be able to empirically analyze the relationship between corporate performance and climate change, environmental sustainability accounting disclosures, a multiple regression analysis model by Mohammed (2013) was modified and adapted as indicated below:

$$SUS_{it} = f(ROTA_{it}, SIZE_{it}) \dots \dots \dots (i)$$

This can be stated in econometric form as:

$$SUS_{it} = \beta_0 + \beta_1 ROTA_{it} + \beta_2 SIZE_{it} + U_{it} \dots \dots \dots (ii)$$

Where:

SUS= Environmental Sustainability Accounting Disclosure Index. In assessing the amount of environmental and social sustainability reporting in annual reports, the Global Reporting Initiative (GRI) Reporting Guidelines (2002) was adopted in this study. These disclosure procedures include sixty items to determine the magnitude of sustainability disclosure relating to economic, social, and environmental perspectives (twenty items for each perspective).

Data Analysis and Results

Table 1: Regression Result

Dependent Variable: SUS				
Method: Least Squares				
Date: 10/02/18 Time: 17:23				
Sample: 2013-2017				
Included observations: 73				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	5124504.	8689620.	0.589727	0.0016
ROTA	3.733452	0.413840	9.021476	0.0000
SIZE	114539.0	89975.37	1.273004	0.0001
R-squared	0.683740	Mean dependent var		212.432

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Adjusted R-squared	0.573577	S.D. dependent var	101.897
S.E. of regression	1850753.	Akaike info criterion	32.52242
Sum squared resid	3.63E+13	Schwarz criterion	32.8760
Log likelihood	-101.669	Hannan-Quinn criter.	31.49707
F-statistic	73.20147	Durbin-Watson stat	2.809771
Prob(F-statistic)	0.000001		

Source: E-View Version 9 Data Analysis Output 10/02/18

The index uses a binary coding system which assigns 1 if item is disclosed and 0 if it is not disclosed (Hossain & Hammami, 2009). As such, a sampled company could score sixty points highest and zero score at the lowest; ROTA= Return on total assets indicates firms profitability and is calculated as the profit before interest and tax scaled by total assets as at the end of the financial year under investigation; SIZE= the firm's size as measured by Total Assets. U describes stochastic error term, while t is the time dimension of the variables, β_0 represents Constant and β_1 and β_2 are coefficients of the independent variables to be estimated. The variables ROTA and SIZE (proxy for Corporate Performance) meet apriori expectation as they have positive link with the SUS (Environmental sustainability accounting disclosures). The impact of the explanatory variables return on total assets and firm size on environmental sustainability accounting disclosures is statistically significant as shown by the respective probability values of (0.000), and (0.0001) that is lower than the (0.05) critical value.

The model shows an R^2 stat of 0.683 which implies a 68.3% explanatory ability of the model for the systematic variations in the dependent variable with an adjusted R^2 value of 0.574. The F-stat (73.20) and p-value (0.0001) indicates that the hypothesis of a significant linear relationship between the dependent and independent variables cannot be rejected at 5% level. It means that the explanatory variables account for considerable variation in environmental sustainability accounting disclosures. The overall pooled effects of the explanatory variables are statistically significant as shown by the probability of the F-statistic. The Durban Watson statistic shows absence of any serial positive auto-correlation among the independent variables as the value approximates to 3.

Hypothesis Testing

In discussing the results, the multivariate regression estimates are utilized to examine the correlation between return on total assets, size of firm and level of environmental sustainability accounting disclosures.

SUS and ROTA

Hypothesis one examines the impact of return on total asset used as a proxy for profitability on environmental sustainability accounting disclosures. As observed, regression estimation reveals that a significant positive relationship exists between ROTA and SUS. ($t=9.021476$, $p=0.0000<0.05$) We therefore use this as some evidence to empirically state that profitability of the firm has an effect on the level of environmental sustainability accounting disclosures of firms given the period of study, and hence accept the alternative hypothesis.

SUS and Size of Firm

To test this hypothesis, we read off the regression result which reveals a significant positive relationship between SUS reporting and size of the firm. ($t=1.273$, $p=0.0001<0.05$). This implies that the level of environmental sustainability accounting disclosures is directly linked with the size of the firm with a positive T-statistics value at the 5 percent level of significance. Based on this, we therefore accept the alternative hypothesis that there is a significant positive relationship between environmental sustainability reporting and size of the firm using total asset.

Discussion of Findings

This study conducted an empirical analysis of the relationship between corporate performance (proxy by ROTA and firm SIZE) and environmental sustainability accounting disclosures (SUS). The study found that corporate performance is positively related to level of environmental sustainability accounting disclosures, and is statistically significant. This implies that the more profits a company makes will go a long way in boosting the environmental sustainability accounting disclosures the company would make in its financial statements.

The findings also revealed that environmental sustainability accounting disclosures is positively and significantly related to size of the firm using total assets as a proxy and statistically significant at 5% level. This implies that a large firm has the resources at its disposal to make sufficient environmental sustainability accounting disclosures.

Based on the analysis of data obtained from the selected companies' financial reports, the study also found that, companies only report what they feel comfortable to report hence most reports avoid negative side of corporate activities. Overall, the study discovered that environmental sustainability accounting disclosures in Nigeria is still at the developmental stages.

Conclusion and Recommendations

This study examined the relationship between climate change, environmental sustainability accounting disclosures and corporate performance in the manufacturing sector of the Nigerian economy, using secondary data obtained from the annual financial reports of companies listed on the Nigerian Stock Exchange from 2013 to 2017. The study discovered that there is no laid down standard format or regulation guiding environmental sustainability accounting disclosures in the country. Using empirical methods, the research study tested the relationship between return on total assets and firm size (proxy for corporate performance) and environmental sustainability accounting disclosures. The findings of this study, which are in line with previous studies (Onyali, Okafor & Onodi, 2015; Ekwueme, Egbunike & Onyali, 2013; Asaolu, Agboola, Ayoola and Salawu, 2011; Norman & MacDonald, 2004; Siebenbuner & Arnold, 2007), revealed the existence of a significant positive relationship between the level of environmental sustainability accounting disclosures and corporate performance. The results of the study indicated that larger companies with higher asset base and expanded profit margin have better quantity and quality of environmental sustainability information disclosed in the annual reports. The study therefore concludes that environmental sustainability accounting disclosures is still at the developing stage

in Nigeria because of the voluntary nature of disclosure requirements. The study therefore recommends that firms should formulate and implement economic, social, and environmental friendly policies to enhance their competitiveness and that the regulatory agencies should formulate and enforce the adoption of uniform reporting and disclosure of environmental sustainability practices by corporate entities for the purpose of control and measurements of performance.

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