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EFFECT OF ENVIRONMENTAL DISCLOSURE PRACTICES ON PERFORMANCE OF CHEMICAL MANUFACTURING COMPANIES IN NIGERIA AND SOUTH AFRICA

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ABSTRACT

This study evaluates the effect of environmental disclosure practices on performance of Chemical manufacturing companies in Nigeria and South Africa. The study comparatively evaluates the environmental disclosure level of chemical manufacturing companies in Nigeria and South Africa in 2017 financial year. The study adopted the ex post facto research design. The study adopts the environmental disclosure index of Fodio and Oba. Binary weight was assigned to the disclosure of these items in the financial report. The data was analyzed using multiple regression analysis. The finding reveals that environmental product disclosure has negative insignificant effect on the performance of chemical manufacturing companies in Nigeria and South Africa. The finding also shows that there is no statistical significant effect on the environmental disclosures of sustainability and pollution on the performance of chemical manufacturing companies in Nigeria and South Africa. The study recommends that chemical manufacturing companies quoted in Nigeria and South Africa should ignore the disclosure of environmental product as this will impact negatively on their performance. Also, the study recommends that Nigeria chemical manufacturing companies should increase their disclosure of environmental sustainability as this can enhance their performance. The South African chemical manufacturing companies should increase their disclosure on environmental pollution as this can enhance their performance.

Keywords: Environmental Disclosure, Performance, Sustainability, Pollution

INTRODUCTION

Over the last few years, environmental disclosure has grown due to increase environmental activities and issues such as environmental litigations and pollution in companies, especially operating in sensitive industries. These issues have become more prominent problems throughout the world (Joshi & Gao, 2009). The environmental disclosure has attracted international communities and environmental bodies for its role in increasing transparency and disclosure in organization. This has created the attention to international companies to environmental disclosure in order to demonstrate their activities and practice in particular with regards to the environment (Islam 2010). This has lead to a global debate which followed the celebrated public action of the club of Rome entitled "Limit to Growth" and the report of the Bruntland commission on environment have help change the focus from just economic development to sustainable economic development. It is increasingly becoming a common practice to see companies go extra mile to inform and explain the impact of some of their environmental activities and initiatives to their major stakeholder group (Wilmshurst & Frost, 2000). The relevance of incorporating societal needs into an organization's activities has been recognized to be very crucial to the very existence and survival of the organization (Deegan, 2002). According to Miles and Covin (2000), the extent of disclosure may be affected by the reporting culture prevailing in a country. Despite that the adoption of the same reporting standard in Africa, some firms disclosure culture are not limited to the standard while other may want to play by the minimum requirement of the standard.

Environmental disclosure practices of chemical manufacturing companies has attracted much attention from, government, academia and stakeholder in the past three decades following the global awareness on the impact of human on the environment. Yet most academic works on environmental disclosure practices have been concentrated on a few developed countries such as the China, U.S. and the U.K., mainly due to data availability. The few studies carried out in the context of developing nations in Africa focused on the cost aspect of environment management with less attention on the extent of disclosure by the firms, for instance; Ifurueze, Lyndon and Bingilar (2013), Shehu (2014), Raymond, John and Chigbo (2016), Mbame (2012) Bala and Yusuf (2003). Studies that evaluate the disclosure level in listed firms are scarce. Studies carried out are country specifics, for instance, Ifurueze et al (2013), Shehu (2014), Schniedor (2010), Mbame (2012) Sharfman and Fernandoi (2008) Chrisman (2000), Miles and Covin (2000)

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Bala and Yusuf (2003) etc. Studies on cross country comparative analysis of environmental disclosure in Nigeria and South African are scarce. The above issues created gap in the literature, which this study seek to fill. While the previous studies are countries specific, this study carries out a cross country comparative analysis of environmental disclosure in Nigeria and South African using disclosure index. The main objective of this study is to examine the environmental disclosure practices and performance of chemical manufacturing companies in Nigeria and South Africa.

LITERATURE REVIEW

Environmental Disclosures

Araya (2006) defines disclosures as the revelation of information to external audiences, internal audiences and the public release of sensitive information. Huang and Kung (2010) describe environmental disclosure as a means for firms to exhibit their social responsibility and obligation to meet the demands of the various stakeholder groups. Environmental disclosures have received much attention in literature (Al-Tuwaijri, 2004; Onayali, 2014; Kenedy, 2015). There has been a report of an increased level of public awareness and concern for the negative effect of the activities of firms on the environment (Ahmed & Sulaiman, 2004). The increase in the level of awareness has prompted a response from firms by making more environmental disclosures in their annual reports. The disclosures are supposed to provide information to market investors (Lang & Lundholm, 1993). They may be used as a tool to reduce the political risk and pressures exposed to firms. This has also been used in the past by firms as a tool to manage stakeholder's impression. This study used environmental pollution, environmental sustainability and environmental product as environmental disclosures practices.

Environmental Pollution Disclosure

This is the environmental disclosure activities of the firms that are directed toward ensuring that the stakeholders are aware of their effort in reducing the impact of its wastes and pollution in the environment.

The disclosure involved series of process and activities ranging from gathering and estimating the cost and benefit of the disclosure, environmental friendly activities initiatives like, green production process and restoration of the environment to its original state. The process according to Dasgupta, La plante, and Mamingi (1998) involved large investment which the firm must make to ensure its and environmental sustainability. the investment may be in the actions plan to reduce the use of physical resources, the adoption of a 'recycle waste, the use of renewable rather than deplete able resources, the redesign of production processes and products to eliminate the production of toxic materials, and the protection and restoration of natural habitats and environments valued for their livability or beauty.

Environmental Sustainability Disclosure

Brundtland Commission (1987) defines sustainability as development that meets the needs of the present generation without compromising the ability of the future generations to meet their own needs. This simple definition/sentence implicitly contains ideas of economic efficiency, carrying capacity, environmental preservation, and equity. In line with this, John (2011) define environmental sustainability as a condition of balance, resilience, and interconnectedness that allows human society to satisfy its needs while neither exceeding the capacity of its supporting ecosystems to continue to regenerate the services necessary to meet those needs nor by our actions diminishing biological diversity. Environmental sustainability disclosure can be seen as the disclosure of firm's action plans to contribute to the preservation of the environment which it operates. Organization formulates policy/action plans of how to ensure the replenishment and preservation of the natural environmental stock.

Legitimacy Theory

The legitimacy theory provides a very comprehensive viewpoint on corporate social disclosure as it clearly recognizes that organizations are bound by the social contract in which they agree to perform various socially desired actions in return for approval of their objectives which guarantees their continued existence and their successful operations (Guthrie and Parker, 1990; Brown and Deegan, 1998; Deegan, 2002).

From the forgoing Theoretical review, legitimacy theory suggests a relationship between corporate environmental disclosure and community concerns so that management must react to community expectations and changes. Therefore, this study is principally anchored on the legitimacy theory because management must react to environmental issues concerning the environment in which they operate so as to gain acceptance of the society and ensure the survival of their firm.

Stakeholder Theory

The community where the company operates has an interest in knowing the company's effort and concern towards improving and reducing the devastating effect of their operation on the environment. To meet this demand, it can only be satisfied through disclosure of environmental information in annual reports. Ong et al (2016) opine the corporate environmental disclosure is being used as a tool of strengthening good relations with stakeholders. Environmental disclosure is seen as dialogue between the corporation and stakeholders. Corporate social and environmental responsibility encourages strong relationship between firm and society where it operates (Aggarwal, 2013). He further states that where a company ignores the stakeholders' interest, it may contaminate the organizations image which would have a devastating effect on firm's financial performance.

Empirical Analysis of Environmental Disclosure and Firm Performance

Abubakar, Moses and Inuwa (2017) empirically assessed the impact of environmental disclosure on performance of listed cement and brewery companies in Nigeria. They collected data from annual reports of selected companies for the period of five years between 2011 and 2015. Ordinary Least Square regression technique was used to analyse the data. Content analysis was used for measuring quantitative environmental disclosure while unweight approach was used to rank environmental disclosure indices for measuring qualitative voluntary disclosure. The empirical results indicated that environmental disclosure has positive significant impact on firms' performance. The study recommended that cement and brewery companies should practice the disclosure of more environmental information. Nwaiwu and Oluka (2018) carried out a study to empirically examine the effect of environmental cost disclosure on financial performance of quoted oil and gas companies in Nigeria. Time series data were collected from annual financial reports of sample companies. The study used the Pearson Product Moment Coefficient of Correlation and Multiple Linear Regression Analyses. The econometric results revealed that adequate disclosure of environmental cost and compliance with corporate environmental regulations have positive significant effect on the financial performance of companies. The study recommended regulatory enforcement for adequate environmental cost disclosure and proper reporting.

METHODOLOGY

The study adopted the ex post facto research design. The content analysis using environmental disclosure index was adopted from study of Fodio and Oba (2012), and Othman and Ameer, (2009). The study was conducted using quoted chemical manufacturing companies as at December, 2017. It relies on the Global Sector Classification Index (GICS) developed by Morgan Stanley Capital International (MSCI) and Standard and Poor (S&P) in 1999 in choosing the chemical manufacturing companies. The index classified all industrial goods companies into two (2) sectors, the chemical and construction and building supplies. The population of the study is all the chemical manufacturing companies quoted in Nigeria and South Africa. A total of twenty companies were purposively sampled for the study. Ten chemical manufacturing companies each from Nigeria and South Africa. The study used equal number in other to ensure uniformity in terms of size of companies used for the sake of comparison.

Model Specification

The model for this study in premised on the main objective and anchored on the sub-objectives. The linear regression model was used

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to test the null hypotheses. The model was an improvement of the model of Ifurueze et al (2013), their model is ROE = (CDC, WMC, EHC). The model is modified to suite our variables used in this study. The model for the study is anchored on the objective.

Nigeria Model

ROA = f(ENVPDT, ENVSUS, ENVPTN)......................................1a

This can be econometrically expressed as

ROAi = d0 + d1ENVPDTi + d2ENVSUSi + d3ENVPTNi + μ 2a

SOUTH AFRICA MODEL

ROA = f(ENVPDT, ENVSUS, ENVPTN) 1b

This can be econometrically expressed as

ROAi = d0 + d1ENVPDTi + d2ENVSUSi + d3ENVPTNi + μ 2b

The equation is a linear regression model used in testing the hypotheses, where: ROA = Return on asset; ENVPDT = environmental product disclosure, ENVSUS = environmental sustainability disclosure, ENVPTN = Environmental Pollution disclosure; d0 = Constant; d1… d3 = are the coefficient of the regression equation. μ = Error term; i= is the cross section of firms used; t = is year (time series); log = Logarithm. The same model is used for South African chemical manufacturing companies.

Data Analysis

This study adopted the multiple regression analysis to identify the causal relationship that exists between environmental disclosures practices and firm performance. The study however conducted some preliminary analysis such as descriptive statistics, correlation analysis to ascertain the normality of the data and check for the presence of multicolinearity. However, when carrying out the comparative analysis the study adopted the approach of Fodio et al (2012). The Fodio et al (2012) approach used the simple mean of the disclosure weight of the firms in a given country as a base for the comparison. The table below shows the mean disclosure of environmental disclosure items among Nigerian and South African chemical manufacturing companies.

Table 1: The mean value of environmental disclosure

Items	Nigeria	South Africa
A. Environmental Product	0.194	0.146
B. Environmental Sustainability	0.373	0.359
C. Environmental Pollution	0.038	0.088

The mean value of each environmental disclosure item is determined using the simple average of all the disclosure (binary value) under each item. The result shows a low level of disclosure among chemical manufacturing companies in Nigeria and South Africa. From the result table, the study observed that the disclosure level in both countries varies along disclosure items. The result shows that Nigeria chemical manufacturing companies disclose more of environmental friendly product than chemical manufacturing companies in South Africa. Nigeria firms disclose more environmental friendly product than those of South Africa, however, the level of disclosure is made on the items under the environmental product disclosure is far below the average of disclosure requirement using the disclosure index. Secondly, it was observed that on the average South Africa chemical manufacturing companies disclose more of environmental sustainability and environmental pollution than their Nigeria counterpart. This indicates that some chemical manufacturing companies in South Africa has a deliberate environmental disclosure. The study also observed that South Africa firms have long run sustainability plans than their Nigeria counterpart. On the general note, out of the three disclosure items, the South African chemical manufacturing companies disclose more than Nigeria chemical manufacturing companies in two items.

Hypotheses Testing and Discussion of Findings

To examine the effect of environmental disclosure practices and performance of chemical manufacturing companies in Nigeria and

South Africa, the study used the multiple regression analysis. The result obtained is summarized in table 2 below.

Table 2: The return on assets model

		Nigeria	South Africa
	Coefficient value	-0.4932	-0.6322
ENVPDT	P. value	0.5446	0.6062
	Coefficient value	-0.8338	-0.3227
ENVPTN	P. value	0.4238	0.6268
	Coefficient value	0.2767	-0.1554
ENVSUS	P. value	0.4591	0.8026
	R. square	0.3687	0.3269
	R. square (adj)	0.2963	0.2915
	Wald F. stat	10.357	17.608
	Wald F. stat (P. value)	0.0393	0.0089
	Durbin Watson	1.5975	1.6701

In table 2 above, the study observed from the result the R. sq value of 36.87% and R-sq(adj) 29.63% this reveals that all the environmental disclosure variables used jointly has about 29.63% influence on the performance of chemical firms in Nigeria. While the South Africa chemical firms R. sq value of 32.69% and R-sq(adj) 29.15% this reveals that all the environmental disclosure variables used jointly has about 29.15% influence on the performance of chemical manufacturing companies. The Wald F-statistics value of 10.357 and its probability value of 0.0393 (Nigeria) and Wald F-statistics value of 17.608 and its probability value of 0.0089 shows that the models used are appropriate and statistically significant. The Durbin Watson statistics result was 1.5975 and 1.6701 for Nigeria and South Africa chemical manufacturing companies indicates the absence of autocorrelation in our model hence the model used is appropriate for the study.

Hypotheses 1: Environmental product disclosure has no significant effect on the performance of non financial chemical manufacturing companies in Nigeria and South Africa.

The analysis result shows that Environmental product disclosure has a coefficient value of -0.4932, and -0.6322 for Nigeria and South African chemical manufacturing companies respectively. The coefficient value indicates that Environmental policy disclosure negatively influences the performance of chemical manufacturing companies used in the study. The probability value 0.5446 and 0.6062 for both countries analysis reveals that Environmental product disclosure has no statistical significant effect on performance of chemical manufacturing companies in Nigeria and South Africa. Based on this result, the study rejects the alternate hypothesis and accepts the null hypothesis; it therefore concludes that, Environmental product disclosure has no significant effect on the performance of chemical manufacturing companies quoted in Nigeria and South Africa Stock Exchange.

Hypotheses 2: Environmental sustainability disclosure has no significant effect on performance of chemical manufacturing companies in Nigeria and South Africa.

The results of the analysis showed a coefficient value of 0.2767 and -0.1554 for Nigeria and South Africa respectively. The coefficient value indicates that the disclosure of Environmental sustainability has positive influence on the performance of chemical manufacturing companies in Nigeria however, the south Africa result shows negative value which reveals that disclosure of Environmental sustainability negatively influence the performance of chemical manufacturing companies. The probability value of 0.4591 and 0.8026 for Nigeria and South Africa respectively. The probability value indicates that the disclosure of Environmental sustainability has no statistical significant effect on the performance of chemical manufacturing companies in Nigeria and South Africa respectively. Based on this result, the study rejects the alternate hypothesis and accepts the null hypothesis; it therefore concludes that, disclosure of Environmental sustainability has no significant effect on performance of chemical manufacturing companies quoted in Nigeria and South Africa Stock Exchange respectively.

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Hypotheses 3: Environmental pollution disclosure has no significant effect on performance of chemical manufacturing companies in Nigeria and South Africa.

The result showed a coefficient value of -0.8338 and 0.3227 for Nigeria and South Africa chemical manufacturing companies respectively. The coefficient value indicates that environmental pollution disclosure has negatively influence the performance of Nigeria chemical manufacturing companies but positively influence the performance of South Africa chemical manufacturing companies. The probability value reveals that Environmental pollution disclosure has no statistical significant effect on performance (return on assets) of chemical manufacturing companies in Nigeria Stock Exchange and South Africa Stock Exchange respectively. Based on this result, the study rejects the alternate hypothesis and accepts the null hypothesis, it therefore concludes that environmental pollution disclosure has no significant effect on performance of quoted in Nigeria Stock Exchange and South Africa Stock Exchange respectively.

CONCLUSION

The study reveals that environmental product disclosure negatively influences the performance of chemical manufacturing companies but the level of influence is not strong enough to significantly affect the performance of the companies in Nigeria and South Africa. The disclosure of Environmental sustainability has positive influence on the performance of chemical manufacturing companies in Nigeria but among South Africa, the result shows negative value which reveals that disclosure of Environmental sustainability negatively influence the performance of chemical manufacturing companies in South Africa. However, the probability value indicates that the disclosure of Environmental sustainability has no statistical significant effect on the performance of chemical manufacturing companies in Nigeria and South Africa respectively. This finding is in line with that from the study of Sansul and Nurut (2013). The result of environmental pollution disclosure shows it has a negative influence on the performance of

Nigeria chemical manufacturing companies but positively influence on the performance of South Africa chemical manufacturing companies. The probability value reveals that Environmental pollution disclosure has no statistical significant effect on performance of chemical manufacturing companies in Nigeria Stock Exchange and South Africa Stock Exchange respectively. This finding is in line with that Ifurueze et al (2013) and Ngwakwe (2008).

RECOMMENDATIONS

The study recommends that chemical manufacturing companies in Nigeria and South Africa when formulating policy that will enhance their performance can ignore the policy disclosure regarding environmental product as its disclosure negatively affect the level of their performance. The disclosure of Environmental sustainability has positive effect on the performance of chemical manufacturing companies in Nigeria but among South Africa, the result shows negative. The study recommends that chemical manufacturing companies in Nigeria should disclose more of their environmental sustainability program while South African firms should avoid the disclosure of environmental sustainability programs because of its negative effect on their performance. The disclosure of environmental pollution has a negative effect on the performance of Nigeria chemical manufacturing companies but positive effect on the performance of South Africa chemical manufacturing companies. The study recommends that chemical manufacturing companies in Nigeria should avoid the disclosure of their environmental pollution while chemical manufacturing companies in South Africa should disclose their environmental pollution policy because it positively affect their performance.

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