Empirical Study of The Effect of Quality Environmental Information Disclosure on Firm's Performance of Listed Brewery Firms in Nigeria

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***Abstract*: This study ascertained the effect of quality environmental information disclosure on firm's performance of listed Brewers in Nigeria. The main motivation was on the need to show the effect of environmental disclosure in aggregated variable on performance of Brewery firms in Nigeria. The main objective was to ascertain the effect of quality environmental information disclosure on firm's performance of listed Brewery firms in Nigeria. An ex-post facto research design was adopted for this study. Secondary data were carefully sourced from the annual reports of the Brewery firms quoted on the Nigerian Stock Exchange. Content and Disclosure Index were used to analyze environmental information disclosure. The data span from 2008 to 2019. Panel least square regression test by aid of E-views 10.0 software was used to test the effect of Environmental disclosure index on return on asset, return on equity and on net profit margin. The results showed that Environmental information disclosures significantly affect return on asset of listed Brewery firms in Nigeria. The findings further revealed that Environmental information disclosures do not significantly affect return on equity of listed Brewery firms in Nigeria. Finally, the result established also that Environmental information disclosures significantly affect net profit margin of listed Brewery firms in Nigeria. Consequent upon the findings, the study recommends need for Mandatory disclosure practices by Brewery firms, enforced by government to enable them take responsibility on disclosure of environmental performance data in annual report.**

***Keywords:* Environmental disclosure index, performance, Brewery firms, Mandatory disclosure.**

I. INTRODUCTION

1.1 Background

Brewing firms are firms within the category of high environmental sensitive company-type. Their operations are heavily depends on utilization of natural resources and in turn generates environmental concerns such as emissions and other environmental grievance mechanisms. These environmental concerns have severe effects on the environment usually given rise to breach of social contract. Faisal, Tower and Rusmin (2012) are of the opinion that the businesses associated with environmental concerns tend to report more information to reduce criticism from the host community, build up confidence on the side stakeholders as such justify them to attract capital. Ohidoa, Omokhudu andOserogho (2016) hold same view that companies whose operations spill pollution and other environmental hazards are required to disclose their financial commitments towards their management and control. As a result of increased global environmental awareness and need for sustainability which encompassed not only economic development but also environmental sensitivity, there exist different global institutions with multi-environmental norms which oversees how responsible human/corporate entity is to the environment (Ngwakwe 2018 as cited in Omaliko, Nweze & Nwadialor, 2020).

Environmental information disclosure composed of all those information related material, energy, water, biodiversity, emissions, effluents & waste, products &services, compliance, transport, supplier environmental assessment and environmental grievance mechanisms (GRI,2018). In the words of Omaliko and Okpala(2020), any disclosure that have direct bearing to the policies of company, related the attitudes or actions toward environmental concerns is regarded as environmental disclosure. Ejoh, Orakand and Sakey (2014), defined environmental disclosure as the set of information that relates to a company's past, current and future environmental activities.

The relevance of these disclosure requirements cannot be over-emphasized as they enable the management to not only capture public views toward company's operation but also improved overall environmental performance of company

Performance assessment usually centered on establishing effectiveness or efficiency of a company with special focus on its operations. It measures the profitability position of company with indicators as return on asset (ROA), return on equity (ROE), net profit margin (NPM), earnings per share (EPS) and other financial indicators. Solomon (2020) posits that an improved financial performance in an organization heavily depends on the extent to which a firm is committed to environmental issues in the community where it operates. In their view, Clarkson, Li, Richardson and Vasvari (2008) were not different as they affirm that environmental information remains the key to the potential of a firm's performance. With the highlights, it is unarguable that quality environmental information disclosure can exert influence on the performance of firms in Nigeria.

1.2 Statement of the Problem

Globally, there has been increased growth on ecological awareness by firms and continued global demand for firms to take responsibility to the environments in the conduct of businesses. In contrary, many firms appear irresponsible to the environment protection with high interest for economic issues and a major reason for this being that firms weigh the National Environmental Standards and Regulations Enforcement Agency (NESREA, Establishment) Act 2007 as Advisory perspective instead of mandatory document of law. As such, disclosure practices of firms in Nigeria were based on voluntarily instead of mandatory disclosure in spite of uncommon benefits accruing to firms that engage on environmental disclosure practices.

Previous studies have shown mixed results as it concerns the effect of environmental information disclosure on firm's performance, for instance, studies like Emmanuel, Elvis andAbiola(2019), Yayaya (2018), Oti&Ogar (2018), Ahmed, Zakaree and Kolawole (2016) and Oraka and Egbumike (2016). For instance, Emmanuel, Elvis and Abiola (2019) showed that environmental disclosure has no relationship with firm's performance. On the contrary, Yayaya (2018) showed that environmental disclosure has positive and significant effect on firm's performance.

1.3 Objectives of the Study

The broad objective of this study is to ascertain the effect of quality environmental information disclosure on performance of listed Brewers in Nigeria.

The specific objectives are:

1. To ascertain the effect of environmental information disclosure on return on asset of listed Brewery firms in Nigeria.
2. To determine the effect of environmental information disclosure on return on equity of listed Brewery firms in Nigeria.
3. To evaluate the effect of environmental information disclosure on net profit margin of listed Brewery firms in Nigeria.

1.4 Research Hypotheses

To achieve the above objectives, the following hypotheses are formulated and stated in null form for the research study:

H0:1 Environmental information disclosures do not significantly affect return on asset of listed Brewery firms in Nigeria

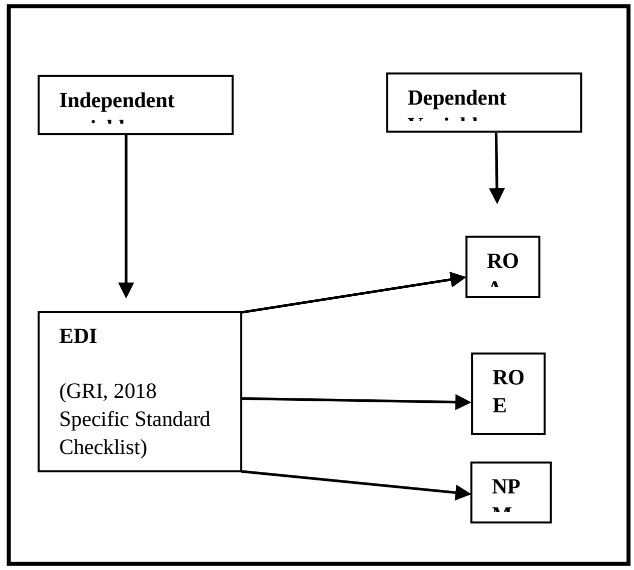
H0:2 Environmental information disclosures do not significantly affect return on equity of listed Brewery firms in Nigeria

H0:3 Environmental information disclosures do not significantly affect net profit margin of listed Brewery firms in Nigeria.

II. LITERATURE REVIEW

2.1 Conceptual framework

Figure 2.1: Schematic representation of the conceptual framework of the study



Source: Researchers' Innovation (2022)

2.2 Theoretical Framework

On issue of environmental disclosure practices, several theories exist such theories like New Institutional Theory, stakeholder theory and Legitimacy theory but this study is anchored on the latest.

Legitimacy theory defines the extent to which corporate social indices are reported in the annual report which should have direct views of the management toward the community and their concerns (Uwalomwa and Jafaru 2011). As legitimacy demands, an organization must continue to operate within the boundaries set by rules and norms of society. The theory predicts that a firm must be able to demonstrate and preserve its image as a socially responsible corporate

citizen in order to ensure survival of the business. This research is built on this theory in order to capture that acceptability of a firm in a society depends in its effective compliance to societal rules and norms which as defines how socially responsible the entity is to the society. The operation of the firm must be carried in a way that it will not harm the society.

2.3 Empirical Review

Yayaya (2018) examined the relationship between Environmental Reporting Practices and Financial Performance of Listed Environmentally-Sensitive Firms in Nigeria. An ex-post facto research design was used and data extracted through content analysis derived from the firms' annual reports and accounts covering twelve (12) years period from 2000-2016. The data collected were analyzed using descriptive statistics, correlation analysis and multiple regression. The regression result showed a significant positive relationship between environmental disclosure and financial performance.

In a related study, Okafor (2018) ascertained the effect of environmental costs on firm performance. The data were secondary source from the annual report and accounts of the Nigeria listed Oil and Gas firms from years 2006-2015.The made use of regression analysis by the aid of Statistical Package for Social Sciences (SPSS). The research finding presented a positive impact of better environmental performance on business value of an organization.

Again, Oti & Ogar (2018) carried out an analysis of Environmental and Social Disclosure and Financial Performance of Selected Quoted Oil and Gas Companies in Nigeria. The study adopted ex-post facto research design. Using secondary source, data were derived from the annual reports and accounts of five sampled oil and gas companies for period of five (5) years from (2012-2016). The study used Ordinary least square regression to test the statistical of social & environmental disclosure on financial performance of listed Oil & Gas companies. The study showed that employee health and safety and community development statistically do not affect financial performance whereas closure on waste management presented a positive significant effect on financial performance

Ahmed, Zakaree and Kolawole (2016) ascertained the effect of corporate social responsibility expenditure on profitability of listed oil and gas firms in Nigeria. The study was a time series study derived from the annual reports of five (5) firms for a period of seven(7) years from 2010-2016.Using multiple regression, the study reveal that corporate social responsibility expenditure has positive and significant effect on profitability

On the other hand, Oraka and Egbumike (2016) performed an appraisal of environmental accounting information in the financial statements of consumer goods manufacturing companies in Nigeria. Descriptive research design was adopted where twenty-two companies were considered and data drawn from annual reports & accounts for a period of four (4) years from 2011 to 2014.Mutiple regression by the aid of SPSS was used to test the hypotheses and result showed that environmental disclosure exerts significant influence on total asset turnover (TAT) and returns on equity (ROE), but environmental disclosure do not significantly affect cash flow ratio(CFR), current ratio (CR) and returns on assets (ROE) of the manufacturing companies.

The research reports of previous studies (Oti & Ogar, 2018; Oraka & Egbumike, 2016) are unarguably mixed as concerns the nexus between quality environmental information disclosure and performance of firms. Oti & Ogar (2018) in their research work showed a positive relationship, this was in consonance with the finding of Yayaya (2018) but Oraka & Egbumike (2016) presented a negative relationship. These variances in research outcome could be linked disclosure nature adopted by firms. Some firms chose to disclose Environmental information voluntarily whereas others had mandatory perception in disclosing Environmental issues. This study is carried to establish the consistency of the research findings.

III. METHODOLOGY

This study adopts ex-post facto design because the data used here is secondary data carefully sourced from that financial statement, annual report and sustainability reports of Brewery firms quoted on the floor of Nigeria Stock Exchange. The population of the study consists of all the listed Brewery firms. The population of this study is Seven (7) listed Brewery firms in Nigeria (NSE Factbook, 2020) from which four (4) firms were purposively selected that met the purpose of this study. The sampled firms include: Nigerian Breweries plc, Guinness Nigeria Plc, International Breweries Plc and Champion Breweries plc.The content and disclosure index analysis were adopted to collect and analysis the data related to environmental information disclosure in accordance with the global reporting index (GRI, 2018).The data spanned from 2008 to 2019. Ordinary regression analysis was adopted by the aid of Eview V.10 statistical package to ascertain the effect of quality environmental information disclosure on performance of listed Brewers in Nigeria.

3.1 Operationalization and Measurement of Variables

3.1.1 Dependent Variable

The dependent variable in this study is Firms' performance and it was proxy or measured

using Return on Asset, Return on Equity (in harmony with Oraka & Fgbunike,2016) and Net profit margin (Solomon,2020).

3.1.2 Independent Variable

The independent variable for the study (environmental disclosures) was proxy using Environmental disclosure index in accordance with GRI, 2018.The GRI checklist of eleven (11) specific standard environmental disclosure items was applied and used specifically given a "1-point" score for each item that is disclosed in the annual report and otherwise, a "0-point.The specific standard checklist contains the following items: Materials, Energy, Water, Biodiversity, Emissions, Effluents and Waste, Products and Services, Compliance, Transport, Supplier Environmental Assessment, Environmental Grievance Mechanisms.

3.2 Model Specification

In line with the previous researches, the researcher adapted and modified the Models of Solomon (2020) in determining the effect of environmental disclosures on firm's performance.

This is shown below as thus:

$DPOit = \beta0 + \beta1\ EHSDit + \beta2\ ERDit + \beta3\ PCDit + \beta4\ WMDit + \varepsilon$ ------------------------1

Where

DPO = Dividend Payout
EHSD = Employees Health and Safety Disclosure
ERD = Environmental Remediation Disclosure
PCD = Pollution Control Disclosure
WMD = Waste Management Disclosure

The model was therefore modified to suit and guide the purpose of this study. The model specified below estimates the functional correlation between the dependent and independent variables in this study as follows:

Perf. = f (QEID)……… (2)

Where;

ROA= $\beta0 + \beta1EDI + \varepsilon$ ---- (3)

ROE = $\beta0 + \beta1EDI + \varepsilon$ ------ (4)

NPM== $\beta0 + \beta1EDI + \varepsilon$ ----- (5)

Where:

Perf. = Performance proxied by ROA, ROE & NPM (Dependent variables).

QEID = Quality Environmental Information Disclosure surrogated by Environmental Disclosure Index (Independent variable).

ROA= Returns on asset obtained as a ratio profit after tax to total assets of the firm

ROE= Returns on equity derived as a ratio profit after tax to total equity of the firm

NPM= Net profit margin derived as a Profit before tax to Revenue of the firm.

EDI= Environmental Disclosure Index derived following the specific environmental checklist as contained in GRI, 2018. Specifically used as a "1-point" score for each item that is disclosed in the annual report and otherwise, a "0-point

*Decision Rule***:** accept Ho if P-value > 5% significant level otherwise reject Ho

IV. RESULTS AND ANALYSIS

4.1 Descriptive statistics

Table 4.1: Descriptive Statistics

	EDI	ROA	ROE	NPM
Mean	0.434032	0.043433	0.764529	-0.032660
Median	0.356930	0.052250	0.216700	0.090800
Maximum	0.935507	0.265200	28.97130	0.275700
Minimum	0.000000	-0.441600	-3.723400	-1.583600
Std. Dev.	0.298244	0.134877	4.212468	0.400474
Skewness	-0.114682	-1.015439	6.424085	-2.210859
Kurtosis	1.722213	4.981199	43.71286	7.374734
Jarque-Bera	3.370693	16.09923	3645.225	77.37979
Probability	0.185380	0.000319	0.000000	0.000000
Sum	20.83355	2.084800	36.69740	-1.567700
Sum Sq. Dev.	4.180614	0.855017	834.0097	7.537831
Observations	48	48	48	48

Source: Researcher's EView 10.0 Output, 2022.

The summary of the statistical properties of the variables used in this empirical study as shown above in table 4.1 presented the average value of the Environmental disclosure index(EDI),a quality environmental information disclosure proxy Return of the selected Brewers in Nigeria as 43% approximately (0.434032), this implies sampled Brewery firms on average disclose environmental performance data 43% with a maximum and minimum value of 0.935507 and 0.000000. The standard deviation is 0.29824.

On the other hand, Return on Asset (ROA), a performance proxy of the selected listed Brewery firms has on average 4% (0.043433), this implies sample Brewers on average earned a net income of 4% of total asset with a maximum and minimum value of 0.265200 and -0.441600. The standard deviation is 0.134877.

Again, Return on Equity (ROE), another performance proxy of the selected listed Brewery firms has on average 76% (0.764529), this implies sample Brewers on average earned a net income of 76% of total equity with a maximum and minimum value of 28.97130 and -3.723400. The standard deviation is 4.212468.

Finally, Net Profit Margin (NPM) another performance proxy of the selected listed Brewers has on average 3% (0.032660), this implies sample Brewers on average have earning margin of 3% with a maximum and minimum value of 0.275700 and -1.583600. The standard deviation is 0.400474.

In this case, Skewness coefficient shows that all the variables under study have values less than 1 except Return on Equity (ROE) and this indicates that their frequency distribution is normal. Kurtosis coefficient support the result of Skewness as it relates to Environmental disclosure index , return on Asset (ROA) and Net Profit Margin (NPM) as their coefficient is less than 8, except for Return on Equity (ROE) which has value greater than 8, indicate that they are not normally` distributed.

4.2 Panel least square test

4.2.1 Hypothesis one

H_0: Environmental information disclosures do not significantly affect return on asset of listed Brewery firms in Nigeria

H_1: Environmental information disclosures significantly affect return on asset of listed Brewery firms in Nigeria

Table 4.2.1: Panel Least Squares of Hypothesis one

Dependent Variable: ROA				
Method: Panel Least Squares				
Date: 26/02/22 Time: 22:44				
Sample: 2008 2019				
Periods included: 12				
Cross-sections included: 4				
Total panel (balanced) observations: 48				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
EDI	0.162254	0.062240	2.606919	0.0123
C	-0.026990	0.032667	-0.826209	0.4130
R-squared	0.128722	Mean dependent var		0.043433
Adjusted R-squared	0.109781	S.D. dependent var		0.134877
S.E. of regression	0.127259	Akaike info criterion		-1.244419
Sum squared resid	0.744957	Schwarz criterion		-1.166452
Log likelihood	31.86605	Hannan-Quinn criter.		-1.214955
F-statistic	6.796024	Durbin-Watson stat		0.845659
Prob(F-statistic)	0.012274			

Source: Researcher's EView 10.0 Output, 2022

From the regression analysis, Table 4.2.1 indicates that there is a positive (t-statistics, 2.606919) and significant (p-value, 0.0123) effect of Environmental Disclosure Index (EDI) on Return on Asset (ROA) of the sampled Brewers. This positive effect implies that a 1% increase in Environmental Disclosure Index will tend to increase the level of Return on Asset (ROA) by 0.162254. Since, p-value, 0.0123 is less than the a-value (0.005), therefore H0 is rejected, Environmental information disclosures significantly affect return on asset of listed Brewery firms in Nigeria.

R^2 measures the percentage of Return on Asset that could be explained by changes in independent variable, Environmental Disclosure Indexes (EDI).Here, R^2 adjusted is 0.109781 (11%) which implies that 11% of variation in return on asset could be explained by the effect of independent variable while about 89% could be attributed to other factors capable of effecting changes in return on asset of Nigerian Brewery firms. Here also, the Durbin-Watson statistic is 0.845659. This indicates the absence of autocorrelation in the data series.

4.2.2 Hypothesis two

H_0: Environmental information disclosures do not significantly affect return on equity of listed Brewery firms in Nigeria.

H_1: Environmental information disclosures significantly affect return on equity of listed Brewery firms in Nigeria.

Table 4.2.2: Panel Least Squares of Hypothesis one

Dependent Variable: ROE				
Method: Panel Least Squares				
Date: 26/02/22 Time: 22:46				
Sample: 2008 2019				
Periods included: 12				
Cross-sections included: 4				
Total panel (balanced) observations: 48				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
EDI	-3.026690	2.034131	-1.487952	0.1436
C	2.078210	1.067638	1.946549	0.0577
R-squared	0.045920	Mean dependent var		0.764529
Adjusted R-squared	0.025179	S.D. dependent var		4.212468
S.E. of regression	4.159096	Akaike info criterion		5.729246
Sum squared resid	795.7117	Schwarz criterion		5.807213
Log likelihood	-135.5019	Hannan-Quinn criter.		5.758710
F-statistic	2.214002	Durbin-Watson stat		1.095311
Prob(F-statistic)	0.143587			

Source: Researcher's EView 10.0 Output, 2022

From the regression analysis, Table 4.2.2 indicates that there is a negative (t-statistics, -1.487952) and insignificant (p-value, 0.1436) effect of Environmental Disclosure Index (EDI) on Return on Equity (ROE) of the sampled Brewers. This negative effect implies that a 1% increase in Environmental Disclosure Index will tend to decrease the level of Return on Equity (ROE) by –3.026690. Since, p-value, 0.1436 is greater than the a-value (0.005), therefore H0 is accepted, Environmental information disclosures do not significantly affect return on equity of listed Brewery firms in Nigeria.

R^2 measures the percentage of Return on Equity (ROE) that could be explained by changes in independent variable, Environmental Disclosure Indexes (EDI).Here, R^2 adjusted is 0.025179 (3%) which implies that 3% of variation in Return on Equity (ROE) could be explained by the effect of independent variable while about 97% could be attributed to other factors capable of effecting changes in Return on Equity (ROE) of Nigerian Brewery firms. Here also, the Durbin-Watson statistic is 1.095311. This indicates the absence of autocorrelation in the data series.

4.2.3 Hypothesis three

H_0: Environmental information disclosures do not significantly affect net profit margin of listed Brewery firms in Nigeria.

H_1: Environmental information disclosures significantly affect net profit margin of listed Brewery firms in Nigeria.

Table 4.2.2: Panel Least Squares of Hypothesis one

Dependent Variable: NPM				
Method: Panel Least Squares				
Date: 26/02/22 Time: 22:47				
Sample: 2008 2019				
Periods included: 12				
Cross-sections included: 4				
Total panel (balanced) observations: 48				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
EDI	0.398623	0.189056	2.108487	0.0405
C	-0.205675	0.099228	-2.072747	0.0438
R-squared	0.088129	Mean dependent var		-0.032660
Adjusted R-squared	0.068305	S.D. dependent var		0.400474
S.E. of regression	0.386555	Akaike info criterion		0.977687
Sum squared resid	6.873532	Schwarz criterion		1.055654
Log likelihood	-21.46450	Hannan-Quinn criter.		1.007151
F-statistic	4.445715	Durbin-Watson stat		0.698569
Prob(F-statistic)	0.040465			

Source: Researcher's EView 10.0 Output, 2022

From the regression analysis, Table 4.2.3 indicates that there is a positive (t-statistics, 2.108487) and significant (p-value, 0.0405) effect of Environmental Disclosure Index (EDI) on Net Profit Margin (NPM) of the sampled Brewers. This positive effect implies that a 1% increase in Environmental Disclosure Index will tend to increase the level of Net Profit Margin (NPM) by 0.398623. Since, p-value, 0.0405 is less than the a-value (0.005), therefore H0 is rejected, Environmental information disclosures significantly affect net profit margin of listed Brewery firms in Nigeria..

R^2 measures the percentage of Return on Asset that could be explained by changes in independent variable, Environmental Disclosure Indexes (EDI).Here, R^2 adjusted is 0.068305 (7%) which implies that 7% of variation in Net Profit Margin (NPM) could be explained by the effect of independent variable while about 93% could be attributed to other factors capable of effecting changes in return on asset of Nigerian Brewery firms. Here also, the Durbin-Watson statistic is 0.698569. This indicates the absence of autocorrelation in the data series.

V. FINDINGS, CONCLUSION AND RECOMMENDATIONS

5.1 Findings

The following findings were derived from the effect of quality environmental information disclosure on performance of listed Brewers in Nigeria:

a. Environmental information disclosures significantly affect return on asset of listed Brewery firms in Nigeria.
b. Environmental information disclosures do not significantly affect return on equity of listed Brewery firms in Nigeria.
c. Environmental information disclosures significantly affect net profit margin of listed Brewery firms in Nigeria.

5.2 Conclusion

This study of "effect of quality environmental information disclosure on performance of listed Brewers in Nigeria" presented three hypotheses tested using panel regression analysis. In the first hypothesis, it was established that Environmental information disclosures significantly affect return on asset of listed Brewery firms in Nigeria. With this causal effect of Environmental information disclosures on return on asset, it implies that for the management of Brewers to have improved returns on asset, increased disclosure practice must be considered as it related to environmental performance of the firms. This is finding agreed with research outputs of Ahmad, Simon and Mohammad (2017); Oti & Ogar (2018) and Uyagu, Joshua, Terzungwe and Muhammad(2017).

With the outcome of the test of the hypothesis two, it is not arguable that Environmental information disclosures do not significantly affect return on equity of listed Brewery firms in Nigeria. As indicated that Environmental information disclosures exert insignificant influence on return on equity of Brewers, it therefore, implies that an improved return on equity is not subjected to the influence of Environmental information disclosures but depends on other factors.This finding was in consonance with Ahmad, Simon and Mohammad(2017) who found that Environmental information disclosures do not significantly affect return on equity but was in contrary to the research finding of Oraka & Egbumike ()2016

Finally, hypothesis three posits that Environmental information disclosures significantly affect net profit margin of listed Brewery firms in Nigeria. This justifies the enormous relevance of Environmental information disclosures to improve net profit margin of listed Brewery firms. It can therefore be concluded quality environmental information disclosure exerts both significant and insignificant influence on performance of listed Brewers in Nigeria.

5.3 Recommendations

Based on the findings of this study, the researcher recommends that:

1. Firms should disclose more of quality Environmental information disclosures in its financial reporting as it improve return on asset.
2. Government should also establish an agency in charge of monitoring firms' level of compliance with

environmental laws and also give tax credit to such an organizations that comply with its environmental laws and Waste management disclosure.

3. Mandatory disclosure of Environmental information in annual reports is very important as disclosure of quality environmental information enhances the net profit margin.

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