ENVIRONMENTAL ACCOUNTING DISCLOSURE AND SHAREHOLDERS' VALUE MAXIMIZATION: EVIDENCE FROM NON-FINANCIAL FIRMS IN NIGERIA

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Abstract: *This study examined the effect of environmental disclosure on shareholders' value maximization: Evidence from non-financial firms listed in Nigeria Stock Exchange. Samples of 60 companies from different sectors were used for the period of ten years spanning 2011 to 2020. The study employed ex-post facto and cross-sectional research design. The secondary sources of data were collected from annual reports of the selected non-financial firms quoted in Nigeria stock exchange and three (3) specific objectives and hypotheses were tested and analyzed. Panel data were obtained from annual reports and accounts of the sampled non-financial firms and subjected to preliminary data tests such as descriptive analysis, correlation analysis, variance inflation factor analysis and Hausman effects tests for the period of ten years. Multiple panels least regression analysis was employed via E-Views 10. Using a sample of 600 firm-year observations, the result of the tested hypotheses revealed that environmental prevention disclosure has positive but insignificant effect on shareholders' value maximization while environmental pollution disclosure has negative but insignificant effect on shareholders' value maximization policy of selected non-financial firms. In the same vein, community development disclosure have negative and significant effect on shareholders' value maximization policy of selected non-financial firms which was statistically significant at 5% level of significance The findings showed that about 59.5% of changes in total variation in the shareholders' value maximization policy of selected nonfinancial firms can be attributed to the joint effect of all the explanatory variables while about 40.5% was unaccounted for thereby captured by the stochastic error term. The study recommends among others, that managers of non-financial firms should pay more attention towards community development in their host communities to boost their performance and hence add value to their shareholders' wealth creation.*

Key words: Environmental accounting disclosure, Shareholders' value maximization, non-financial firms

1. Introduction

In pursuance of the predetermined business objectives, negative externalities are left on the environment and society. Such negative externalities include environmental issues as degradation and pollution, social matters as hazardous exposures and life-threatening risks. Marvin, Natarajin and Robert (2017) specifically disclosed that oil prospecting and exploration impact negatively on biodiversity and it affect even flora and fauna. Federal Environmental Protection Agency (2003) added that petroleum activities are the major sources of environmental hazardous pollutants in Nigeria. Incidentally, the hazardous phenomenon to the environment and society is not limited to oil and gas sector; it flows from other sectors, such as mining, extractive, agricultural, manufacturing, industrial, chemical and pharmaceutical, et cetera. These have become a global challenge.

Shareholders in developing nations are becoming increasingly interested in the environmental arrangements, effects, and practices, given the exercises of certain producers and industrial merchandise organizations. Tragically, financial articulations have not traditionally given this information, however some insightful

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organizations are beginning to distribute sustainability report, complying with the Global Reporting Initiative (GRI) guideline. The Guidelines offer direction to substances on the most proficient method to gauge and give an account of management's way to deal with the economic, environmental, and social aspects that sway on their businesses. They do this to accomplish excellent financial value for stakeholders' interest. Sadly, a few businesses disregard the effect of their exercises on the regular and social environment where they worked, except if it had direct repercussions on the profit or misfortune account. Be that as it may, the disregard has made not exactly inspirational perspectives amongst stakeholders towards business. These then dangers a messed-up appearance for those firms not taking environmental issues truly (Savage, Cataldo and Rowlands, 2019).

Organizations in Nigeria are relied upon to reveal exercises that are identified with the environment in the yearly report of the organization. In the event that environmental disclosure is published by organizations in Nigeria; the question is, what is the effect of such disclosure on the shareholders' value maximization of these organizations? This study, therefore, filled the gap by empirically investigating the impact of environmental disclosure on shareholders' value maximization of Nigerian non-financial firms.

1.1. Statement of the Problem

Environmental accounting disclosure is an issue that has attracted the attention of national and international, business, and political leaders across the globe and the developed world. Wealth creation has led to various environmental impacts like depletion of non-renewable resources, diminution of land resources, global warming, reduction of water resources, acidification and potential threats to health and safety of employees of a firm. The issue of environmental abuses of multinational non-financial firms in the form of degradation has led various sectors, governments, and non-governmental organizations (NGOs) to engage with environmental sustainability debates and initiate strategies for dealing with the challenges of sustainable development of the environment.

The environment has for a long time been seen and treated as unrelated to the economic system (Amahalu *et al.*, 2018). Businesses for decades have ignored the effect of their economic activities on the natural and social environment in which they operated on unless it had direct repercussions on their profit or loss account. Nevertheless, the unconcerned attitude by businesses of the negative externalities generated from the pursuit of their economic objectives along with various environmental abuses by companies (e.g. Royal Dutch/Shell Brent Spar dumping and Ogoni crises in 1995 and BP's Gulf of Mexico rig explosion in 2010) have given rise to less than positive attitudes amongst various stakeholders towards the business. Rodriguez & Cruz (2017) argued that some stakeholders like the customers, are gradually altering their usual supportive and friendly dispositions to behaviours that is more sensitive to the natural and social environment. This then if left unattended to have a possible risk of a tarnished image and reputation for those firms not taking environmental issues seriously. Notwithstanding the rising interest in environmental issues, there have been divergent views concerning the nature of the relationship between corporate environmental accounting disclosure and shareholders' value maximization. The findings from research to date are equivocal and inconclusive. Some studies purport to find a positive relationship (Amahalu *et al.*, 2017; Russo & Fouts, 2017; Judge & Douglas, 2018). Similar studies found a negative relationship (Thornton *et al.*, 2013; Worrell *et al.*, 2015). While others showed either inconclusive results or no effect (neutral) (King & Lenox, 2010; Rockness *et al.*, 2016).

From the foregoing it is obvious that there is a research gap that needs to be filled to add to knowledge. In order to fill the gap in literature in terms of divergent results from previous similar studies, to uncover specific and novel evidence that may account for the variability in earlier study outcomes, it is against this backdrop that this present study investigated the effect of environmental accounting disclosure on shareholders' value maximization using all quoted non-financial firms in Nigeria for a period of ten years from 2011-2020. The study went further to generate three different explanatory data sets (employee health and safety disclosure, environmental prevention disclosure and community development disclosure) that guided the study.

1.2. Objectives of the Study

The main objective of this study is to ascertain the effect of environmental accounting disclosure on shareholders' value maximization of quoted non-financial firms in Nigeria. The specific objectives are to:

i. Assess the effect of environmental prevention cost disclosure on shareholders' value maximization of quoted non-financial firms in Nigeria. ii. Determine the effect of environmental pollution cost disclosure on shareholders' value maximization of quoted non-financial firms in Nigeria. iii. Ascertain the effect of community development cost disclosure on shareholders' value maximization of quoted non-financial firms in Nigeria.

1.3. Research Hypotheses

In order to address the issue raised above, the following were hypothesized in null form:

Ho_1: Environmental prevention cost disclosure has no significant effect on shareholders' value maximization of quoted non-financial firms in Nigeria.

Ho_2: Environmental pollution cost disclosure has no significant effect on shareholders' value maximization of quoted non-financial firms in Nigeria.

Ho_3: Community development cost disclosure has no significant effect on shareholders' value maximization of quoted non-financial firms in Nigeria.

2.0. Literature review 2.1. Environmental disclosure

Environmental disclosure is the production of narrative numerical information on an organization environmental impact or footprint for the accounting period under review (Cho & Patten, 2017). Magara, Aming and Momanyi (2015) believe that such numerical disclosure can be used to report on those measures that can be usefully and meaningfully be conveyed in that way such as emission or pollution amount, resource consumers, land use etc. Environmental disclosure is used to communicate a company's past, current and future environmental management decisions, activities and performance to the various stakeholders (Murray & Vogel, 2017). The creation of wealth has led to various environmental impacts such as depletion of non-renewable resources, global warming, diminution of land resources, acidification, and reduction of water resources and potential threats to health and safety of employees (Ezeokafor & Amahalu, 2019). It is worthy to emphasis that the magnitude of the pollution is also not limited to Nigeria but global in nature.

2.2. Environmental Prevention Disclosure

Environmental prevention disclosure communicates the company's activities carried out to prevent the production of contaminants and/or waste that could cause damage to the environment (Albuquerque, Koskinen & Zhang,

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2018). Prevention disclosures are costs incurred to avoid or minimize the number of defects at first place. Some examples of prevention costs are improvement of production processes, workers training, quality engineering, statistical process control etc (Yousra, N.E. (2018).). Environmental prevention disclosure includes disclosure of costs of preventive environmental management activities such as cleaner production projects. It also includes costs for other environmental management activities, such as environmental planning and systems, environmental measurement, environmental communication, and any other relevant activities (Rubin, 2018).

2.3. Environmental Pollution Cost

Pollution is the contamination of air, soil, or water by the discharge of harmful substances. Pollution control is the reduction or elimination of pollution at the source (source reduction) instead of at the end-of-the-pipe or stack. Pollution control occurs when raw materials, water, energy, and other resources are utilized more efficiently, when less harmful substances are substituted for hazardous ones, and when toxic substances are eliminated from the production process. By reducing the use and production of hazardous substances, and by operating more efficiently we protect human health, strengthen our economic well-being, and preserve the environment. Environmental Pollution control is any action that minimizes the number of contaminants released into the environment.

2.4. Community Development Disclosure

The purpose of community development disclosure is understood by International Association for Community Development (IACD) as being to work with communities to achieve participative democracy, sustainable development, rights, economic opportunity, equality and social justice. This practice is carried out by people in different roles and contexts, including people explicitly called professional community workers (and people taking on essentially the same role but with a different job title), together with professionals in other occupations ranging from social work, adult education, youth work, health disciplines, environmental education, local economic development, to urban planning, regeneration, architecture and more who seek to apply community development values and adopt community development methods.

2.5. Shareholders' Value Maximization

Aondoakaa (2015) opined that the increase in stock price will gain high firm value. The performance of a firm can be defined or measured in various ways including profitability, market share growth, return on investment, return on equity and liquidity. A firm can, by being environmentally sustainable, differentiate its products and thus increase its revenue. Similarly, a firm can save costs on resources, regulatory costs, capital, and labour and therewith increase its profit.

Firm value is broadly seen as an economic model showing the market value of the entire corporation. It is a sum of the interest of all shareholders of a company especially creditors and shareholders. The profitability, market value, as well as the growth prospect of a company, is indicated by the performance determinants of that organization. Environmental resources used influence either positively or negatively to some reasonable extent the performance indicators because of environmental disclosures in a financial report. However, in this study, the shareholder value added was employed to measure shareholders' value maximization.

2.6. Shareholder Value Added

According to Largania, Kaviani and Abdollahpour (2012) shareholder value added measures the actual value of investment in stock compared to other investments of same level of risks. The return or value should be higher when compared. According to Laura (2007), the formulae of shareholder value added is expressed as:

SVA = NOPAT - capital charge. Where: SVA = Shareholder value added, NOPAT = Net operating profit after tax plus interest charge or finance cost, Capital charge = weighted average cost of capital (WACC) multiplied by capital employed. WACC = {Equity/(Equity+Debt)*Equity cost} + {Debt/(Debt + Equity)*Debt cost(1-Tax Rate)}. In this study capital employed was represented in its form as net assets.

2.7.   Environmental Prevention Cost Disclosure and Shareholders' value maximization

Human activities have led to damages to the environment, including depletion of natural resources, environmental pollution, and abnormal climates. Environmental accounting makes environmental expenditure a part of operational cost; thus, new thinking should be adopted for product design, in order to maintain the existing profits, enhance environmental performance or meet the green (environmental) accounting rules (Feng & Chen, 2018). Brolund and Lundmark (2017); Dechezleprêtre and Sato (2017) found a positive relationship between prevention cost and financial performance. On the contrary, Yang, Liu, Sun & Zhang (2017); Chong, Qin & Ye (2017) posited that expenditure on prevention negatively affects the performance of companies.

2.8.   Environmental Pollution Cost and Shareholders' value maximization

Environmental pollution cost disclosure contains information about companies' environmental performances. Awareness on environmental aspects such as: the level of pollutant gas emissions, prevention of waste and recycled waste, and the use of renewable energy is important to assess the feasibility of the companies' operations. In line with the above thought, Akinlo and Iredele (2014) ascertained the impact of environmental information disclosures on Market Value of fifty quoted companies in Nigeria spanned 2003-2011 and discovered that environmental pollution and control policy (EPC) have a negative impact on market value.

### 2.9.   Community Development Cost Disclosure and Shareholders' value maximization

Social responsibility encourages companies to balance social responsibilities and environmental responsibilities with profit. Consequently, profit maximization or a continuous market-share increase should be the main objective for companies (Badulescu, Badulescu, Saveanu, & Hatos, 2018). Lagore, Mahoney and Thorne (2014) have examined the impact of corporate social responsibility disclosure on stock returns. They use 122 publiclisted firms in the United States of America (USA). They found that firms which disclosed standalone Community Development Disclosure reports had a positive association on stock returns. Investors rely on Community Development Disclosure reports because they reward sustainability performances for the issuing firms (Lagore, Mahoney & Thorne; 2014).

2.10. **Theoretical Framework**

2.10.1. **Stakeholder Theory**

Stakeholder theory was propounded by Edward Freeman in 1984. Stakeholder theory upholds that firms have accountability towards a broad range of stakeholders, apart from shareholders, that is customers, suppliers, employees, government, community, environment, lenders, and future generation.

Figure 2.10.1. **Stakeholders Diagram**
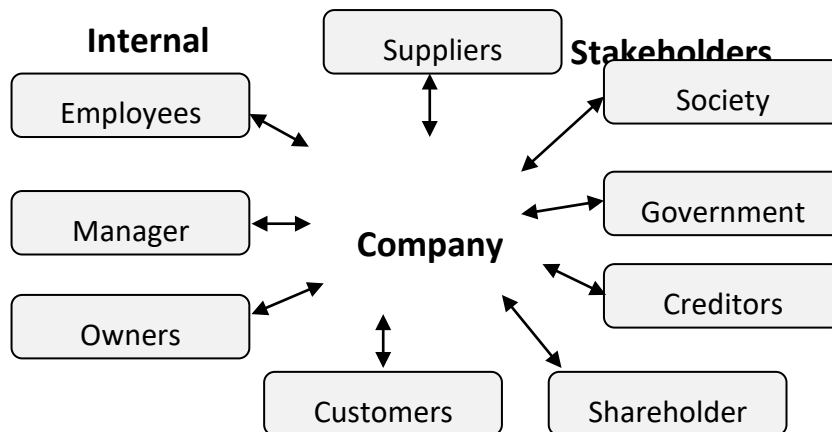
Source: Adapted from Freeman, (2004)

The traditional definition of a stakeholder is any group or individual who can affect or is affected by the achievement of the organization's objectives (Freeman, 1984). The general idea of the stakeholder concept is a redefinition of the organization. In general, the concept is about what the organization should be and how it should be conceptualized.

2.11. Empirical Studies

Akinlo and Iredele (2014) ascertained the impact of environmental information disclosures on Market Value of fifty quoted companies in Nigeria spanned 2003-2011. The aggregate and individual impact of Corporate Environmental Disclosure (CED) was regressed on Market Value (Tobins Q) while Firm size was factored in as an extraneous variable. Outcome indicated that CED has a significant positive impact on Market Value when considered in aggregate. In turn, considering the impact of each of the variables, Energy policy (ENP), Impact on Biodiversity (BIO), Award Received for installing Environmental Management System (AWR) has an insignificant positive impact on Market Value except for Environmental Research and Development cost (ERD). Also, Environmental pollution and control policy (EPC), Waste Management Cost (WSM), and Cost of compliance with environmental Laws (CEL) have a negative impact on Market Value. The study suggested that business should take caution in areas where environmental activities impact negatively on the Value of the firm and also invest in areas that enhance value for the company.

Oti, Effiong and Tiesieh (2012) examined environmental costs and its implication on the returns on investment in Nigeria from 2001-2010. At various national levels are government regulations, society, pressure groups and green consumer pressure; developments reawakening corporate attention to strategic and competitive role of environmental responsibility for corporate survival. However, within the developing nations, the understanding is somewhat different mainly because of weak government regulations and lack of organized pressure groups and

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consumer awareness to influence corporate behaviour. Data were collected from both primary and secondary sources and also analyzed using the ordinary least square technique. Findings from the empirical study disclosed a significant difference between the return on investment of the environmentally responsible firm and those of environmentally irresponsible firms. Regression results revealed that investment in social and environmental responsibilities such as employee health and safely (EHS), waste management (WM) and community development (CD) are related to improved return on investment of the environmentally responsible firms.

Similarly, Arafat, Warokka and Dewi (2012) studied the effect of environmental performance on financial performance. The study analyzed 33 Indonesian manufacturing firms that were listed in Indonesian Stock Exchange (IDX) from 2005-2010 and reported their environmental performance assessment to the Ministry of Environment Indonesia. Statistic methods used for testing the hypothesis were T-test and multivariate regression model. The empirical results reveal that environmental performance has significantly influenced financial performance of the Indonesian manufacturing firm.

In the same vein Akabom (2012) carried out a study on the environmentally friendly policies and their financial effects on corporate performance of selected oil and gas companies in Niger Delta Region of Nigeria. It was aimed at investigating if companies operating in the Niger Delta Region of Nigeria practice environmental accounting to the extent of inclusion of environmentally friendly policies, and if so, how this affects the profitability of these companies. Data were collected from both primary and secondary sources. Thereafter, the data were analyzed using simple ordinary least square regression method and the study hypothesis was also validated. It was revealed that the cost of ensuring environmentally friendly policies as well as firm competitiveness have significant relationship with the firms' profitability (Corporate performance).

Consequently, Olusegun (2012) explored the impact of corporate environmental responsibility on the financial performance in the extractive sector using a pooled secondary data of 101 multinational extractive companies for the period of 2008-2010 and primary data from a survey of 275 extractive sector managers. The results of this study showed that there is no relationship between corporate environmental responsibility and financial performance while the environmental attitude of managers is positively related to the perceived corporate reputation of their companies.

Bessong and Tapang (2012) determined the influence of social responsibility cost on the profitability of Nigerian banks. In order to control environmental cost and the impact of the potential hazards presented by the operations of firms in the banking industry, such firms usually strive to act socially responsible ways. The study made used of an exploratory research design and data were collected from five Nigerian banks through secondary sources and analyzed using the Ordinary Least Square (OLS) method. The study revealed that there is a negative influence between social cost and pollution cost on profitability.

Phong, Hue and Thu (2012) studied the relationship between firm's environmental and financial performances in Vietnam's small and medium manufacturing firms by using the World Bank 2005 data on productivity and the investment climate. The research has investigated the relationship between ROA, accounting based measure of financial performance in the short term and inspected times, an environmental variable measured by the number of times that a firm was inspected by Environmental Agency. The firm incurred in high inspected times has low environmental compliance. In that sense, this is a negative indicator for environmental performance.

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Based on different level of environmental performance, this study constructs the "SME_high polluting" (SME_H) and "SME_low polluting" (SME_L) portfolio. The analytical results indicated that better pollution control neither improves nor undermines financial success. SME_H group shows that high-inspected time standing for poor environmental performance has a statistically significant and positive impact on ROA standing for financial performance.

Swinkels (2012) investigated the relation between the disclosure of a GRI sustainability report by companies and financial performance. A study by KPMG (2005) among the top 250 firms from the Global Fortune 500 indicated that 74% of the companies that publish these reports do it for economic reasons. Therefore, the study focused on firms that publish these reports to see if this is the case and it is financial performance that motivates companies to publish sustainability reports. The results of this study suggested there is no relation between the publication of a GRI sustainability report and financial performance in general. Also, the study offered no evidence of a relation between a firm's application level of the GRI framework and guidelines and financial performance.

Uadiale and Fagbemi (2012) focused on developing economies and on Nigeria specifically. Using a sample of forty audited financial statements of quoted companies in Nigeria from 2007-2011. The study examined the impact of CSR activities on financial performance measured with Return on Equity (ROE) and Return on Assets (ROA). The results showed that CSR has a positive and significant relationship with the financial performance measures. These results reinforce the accumulating body of empirical support for the positive impact of CSR on financial performance.

Husser and Evraert-Bardinet (2014) looked at the relationship between market value, accounting fundamentals and companies' Corporate Social Responsibility (CSR) and Sustainable Development (SD) disclosures in France for the years 2007-2008. The study used social and environmental scores derived from a structural analysis chart based on 120 companies' reports. The multiple regression results showed that investors measure a company's short-term performance using information about the quality of the company's environmental management. At the same time, a company's social disclosure concerning the quality of employee management influences short and long-term performance.

3.0.   Research Methodology 3.1.   Research Design

This study employed *ex-post facto* research design. This is because *ex-post facto* research design involves repeated observations of the same units (companies in this study) over a period (2011 to 2020). *Ex-post facto* research design also seeks to determine the cause-effect relationship between the dependent and independent variables of the study.

3.2.   Population of the Study

The population of this study consists of all the one hundred and twelve (112) quoted non-financial companies listed on the Nigerian Stock Exchange as at 31st December, 2020.

3.3.   Sources of Data:

Data was sourced from the annual report and accounts of the non-financial firms from 2011 to 2020 while historical detail concerning the sampled firms was derived from Stock Exchange fact Book of various issues from 2011-2020.

3.4.   Sample Size and Sampling Technique

All the quoted non-financial firms in Nigeria with complete availability of data were selected. The firms included in the sample were selected using purposive sampling method.

It is worthy to note that these firms/sectors were selected because they are more into environmental degradation. Therefore, out of the one hundred and twelve companies listed under the non-financial sector in Nigeria, only sixty (60) companies were selected as the sample size of this study. The sample was drawn from the sectors as follows; Construction Sector 6 firms, Oil and gas Sector 12 firms, Health care Sector 9 firms, Industrial goods Sector 15 firms, Consumer goods Sector 18 firms

3.5. Method of Data Analysis

Data collected in this study using content analysis and disclosure index which will be subjected to preliminary data tests such as descriptive statistics, correlation matrix and inferential analysis like variance inflation factor (VIF).

3.6. Variables Definition and Measurement Units

Variable Type	Proxy	Variable Symbols	Variables Explanation
Independe t Variable (Environmental Cost Disclosure)			
	Environmental Prevention Disclosure	ENPD	Total Environmental Prevention Disclosure Score/Maximum Environmental Disclosure Score Possible for a Firm (Yousra, 2018)
	Environmental Pollution Disclosure	ENPLD	Total Environmental Pollution Disclosure Score/Maximum Environmental Disclosure Score Possible for a Firm (Suratno, 2016)
	Community Development Disclosure,	CODD	Total Community Development Disclosure Score/Maximum Environmental Disclosure Score Possible for a Firm (Aggarwal, 2013)

Source: Researchers' Compilations (2021)

3.7.   Model Specification

This study adapted the model of Akinlo and Iredele (2014): His original model was stated as follows:

$MVA = \alpha + \beta_1 ENP + \beta_2 BIO + \beta_3 AWR + \beta_4 ERD + \beta_5 WSM + \beta_6 CEM + \varepsilon$………………1 Where:

MVA = Market value, Energy policy (ENP), Impact on Biodiversity (BIO), Award Received for installing Environmental Management System (AWR), Environmental Research and Development cost (ERD), Environmental pollution and control policy (EPC), Waste Management Cost (WSM), and Cost of compliance with environmental Laws (CEL)

Consistent with previous studies, this model modifies and extends the model tested by Akinlo and Iredele (2014) and panel least square was adopted for the purpose of hypothesis testing and was guided by the following linear model:

$Y = F(X_1, X_2, X_3, X_4, X_5, X_6,)$...(l)

$SVAD = F(ENPCD+ENPLD+CODCD+EMHSD+ENRCD + ENWMD)$…………..(2)

Putting it in testable form, thus we have

$SVAD_{it} = \beta_0 + \beta_1 ENPCD_{it} + \beta_2 ENPLD_{it} + \beta_3 CODCD_{it} + \beta_4 EMHSD + \beta_5 ENRCD_{it} + \beta_6 ENWMD_{it} + \mu_{it}$

……………………………………………………………………………(3)

Where,

ENPCD stands for Environmental Prevention Cost Disclosure, ENPLD means Environmental Pollution Cost Disclosure, CODCD stands for Community Development Cost Disclosure, EMHSD stands for Employee health and Safety Disclosure, ENRCD means environmental Remediation Cost Disclosure, and ENWMD means environmental Waste Management Disclosure.

$\mu_{i,t}$ = component of unobserved error term of firm i in period t, β_0 = constant term β_1, β_2

…… β_6 = are slopes to be estimated of firm i in period t., i = firm identifier (60 firms) t =

time variable (2011, 2012, ……2020) – (Ten Years)

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

4.0. Presentation and Analysis of Data 4.1. Descriptive Statistics Analysis

The Table below shows the descriptive statistics of the selected non financial firms that make up our sample.

Table 1. Descriptive Statistics Result

	SVAD	ENPD	EPOD	CODD
Mean	1.952867	0.170467	0.075783	0.142317
Median	1.230000	0.150000	0.030000	0.080000
Maximum	6.960000	0.870000	0.580000	0.700000
Minimum	-2.520000	0.000000	0.000000	0.000000
Std. Dev.	1.570646	0.132610	0.101327	0.148634
Skewness	0.889354	2.099823	2.177716	1.479943
Kurtosis	4.144071	10.78877	7.826215	4.649437
Jarque-Bera	111.8174	1957.548	1056.554	287.0390
Probability	0.000000 *	0.000000 *	0.000000 *	0.000000 *
Sum	1171.720	102.2800	45.47000	85.39000
Sum Sq. Dev.	1477.689	10.53367	6.150032	13.23308
Observations	600	600	600	600

Source: researcher's summary of descriptive result (2021) using E-view 10

*Note: *1% level of significance, **5% level of significance.*

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On average, the environmental disclosure score of all companies that maximized shareholders' wealth is at 1.95%, with a minimum score of -2.520% and a maximum score of 6.96%. It indicates that environmental disclosure among the companies is relatively low. Based on table 1 above, it can be observed that on the average, as indicated by the mean, the shareholders' value added for non-financial firms in Nigeria is 1.952. The implication is that on the average there is 1.952% value added and wealth maximization in the non-financial firms' value maximization in Nigeria. However, throughout the period of 2011 to 2020, the maximum shareholders value added is 6.96% while the minimum shareholders value added stood at -2.520%. The large difference between the maximum shareholders value added and minimum shareholders value added indicates that the value added of the firms differs greatly among the firms selected and over the period under review, this shows that the firms are not homogenous. The standard deviation for shareholders value added was 1.5706 while the median value stood at 1.230.

4.2.   Interpretation on Pearson Correlation Matrix

The above results show that there exists a positive but weak association between shareholders' value added and employee health and safety disclosure (SVAD/EMHSD = 0.108) respectively. A mild but negative correlation was documented between shareholders' value added and community development disclosure (SVAD and CODD = -0.123). It was discovered that another positive and very weak association exists between environmental prevention cost disclosure, community development disclosure, employee health and safety disclosure (ENPD/CODD and EMHSD = 0.012, 0.064 and 0.099) respectively.

Table 2. Correlation Analysis Result

	SVAD	ENPD	EPOD	CODD	
SVAD	1.000000				
ENPD	-0.005302	1.000000			
EPOD	-0.068424	-0.105596	1.000000		
CODD	-0.123722	0.012709	0.062891	1.000000	

Source: researcher's summary of correlation result (2021) using E-view 10

There exists a negative and weak association between shareholders' value added, environmental prevention disclosure, environmental pollution disclosure and environmental remediation disclosure (SVAD/ENPD/EPOD and CODD = -0.0053, -0.0684 and -0.1237) respectively while a mild but negative correlation was documented between shareholders' value added and community development disclosure (SVAD and CODD = -0.123). while a weak and negative association exists between environmental prevention cost disclosure and environmental pollution disclosure (ENPCD and EPOD = -0.1055).

Table 3.   Hauseman Effect Tests

Correlated Random Effects - Hausman Test			
Equation: Untitled			
Test cross-section random effects			
Test Summary		Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	9.558255	6	0.1445

Source: Researcher's summary of Hausman effect analysis result (2021)

The Hausman test result above shows a chi-square statistics value of 9.558 and probability value of 0.1445 which was greater than 5%, this means that there is heterogeneity in the collection of the firms' data. Since the Chi-square (Prob) value is greater than 5%, hence we accept the random effect and interpret its regression while the fixed effect is rejected. Hausman test shows that the random-effects estimation (REM) method is more appropriate than the fixed effects estimation (REM) method for all non-financial firms in Nigeria; hence the result from REM is presented and interpreted. Therefore, the study uses the random effect to correct the problem of heterogeneity in the data used for the study; the random effect regression result is presented in table 4.3.2 below.

Table 4 Random Effect Regression Result

Cross-section random effects test equation:				
Dependent Variable: SVAD				
Method: Panel Least Squares				
Date: 04/12/21 Time: 00:33				
Sample: 2011 2020				
Periods included: 10				
Cross-sections included: 60				
Total panel (balanced) observations: 600				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	1.699358	0.149378	11.37623	0.0000
ENPCD	0.358092	0.395810	0.904708	0.3660
EPOCD	-0.081710	0.572596	-0.142702	0.8866
CODCD	-0.263664	0.316978	-2.831806	0.0059
	Effects Specification			
Cross-section fixed (dummy variables)				
R-squared	0.595508	Mean dependent var		1.952867
Adjusted R-squared	0.546272	S.D. dependent var		1.570646
S.E. of regression	1.057977	Akaike info criterion		3.054060
Sum squared resid	597.7141	Schwarz criterion		3.537722

Log likelihood	-850.2180	Hannan-Quinn criter.	3.242340
F-statistic	12.09497	Durbin-Watson stat	1.828500
Prob(F-statistic)	0.000000		

Source: Researcher's summary of regression result (2021)

The analysis above represents the major analysis on this study upon which our conclusions and recommendations was drawn from as it shows the effect of environmental cost disclosure on the shareholders' value maximization of non-financial firms in Nigeria measured using shareholders' value added (SVAD). From the result above, the study observed that the R. squared value was 0.5955 (60%) approximately while R-squared adjusted value was 0.5462 (55%) approximately. The value of R- squared which is the coefficient of determination stood at 60% which implies that 60% of the systematic variations in individual dependent variables were explained in the model while about 40% were unexplained thereby captured .by the stochastic error term. Again, the adjusted R-squared value which stood at 55% approximately indicates that all the independent variables jointly explain about 55% of the system variation in environmental cost disclosure of our sampled non-financial firms in Nigeria over the 10years period while about 45% of the total variations were unaccounted for, hence captured by the stochastic error term. The R-squared adjusted value indicates that environmental cost disclosure variables used in this study explained about 55% of the variation in shareholders' value added of non-financial firms quoted in Nigeria. This reveals that about 55% of what happens in performance via shareholders value maximization can be attributable to the environmental cost disclosure variables selected for the study while about 45% were unexplained. Moreover, the F-statistics value of 12.094 and its probability value of 0.000 shows that the shareholders' value-added model used for the analysis were statistically significant at 1% level. This confirms the appropriateness of our model used for the analysis. Moreover, the Durbin Watson statistic of 1.828 showed that the model is well spread since the value is approximately 2 and that there have not been self or auto correlation problem and that error are independent of each other. Again, Durbin-Watson Value of 1.828 buttressed the fact that the model does not contain autocorrelation, thereby, making the regression fit for prediction purposes. This means that the regression model is valid and can be used for statistical inference.

4.3.   Discussion of Findings

Ho$_1$: Environmental prevention cost disclosure has no significant effect on shareholders' value maximization of quoted non-financial firms in Nigeria.

The regression result in table 4.3.2 above established that environmental prevention cost disclosure have a positive but statistically insignificant effect on shareholders' value maximization having recorded a positive coefficient value of 0.3580 and p-value of 0.3660 (β_1= 0.358, p = 0.3660 $\geq \alpha$ = 0.05).

Ho$_2$: Environmental pollution cost disclosure has no significant effect on shareholders' value maximization of quoted non-financial firms in Nigeria.

Based on the regression result above, it was found that environmental pollution cost disclosure has a negative and statistically insignificant effect on shareholders' value maximization having recorded a negative coefficient value of -0.0817 and probability value of 0.8866 (β_2= -0.0817, p = 0.8866 $\geq \alpha$ = 0.05).

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Ho₃: Community development cost disclosure has no significant effect on shareholders' value maximization of quoted non-financial firms in Nigeria.

The regression result in table 4.3.2 above revealed that community development cost disclosure has negative effect on shareholders' value maximization of quoted non-financial firms in Nigeria having recorded a negative coefficient value of -0.2636 and t-statistics value of -0.8318 and a probability value of 0.0059 which is statistically significant at 5% level of significance. The study established that community development cost disclosure has a negative statistically significant effect on shareholders' value maximization (β_3= -0.2636, p = 0.0059 < α = 0.05).

5.0. Findings, conclusions, and recommendations 5.1. Summary of findings

Based on the analysis of this study, the following findings were made:

i. Environmental prevention cost disclosure has positive and insignificant effect on shareholders' value maximization policy of selected non-financial firms in Nigeria. ii. Environmental pollution cost disclosure was found to have negative but insignificant effect on shareholders' value maximization of selected non-financial firms in Nigeria.

iii. Community development cost disclosure has negative and significant effect on shareholders' value maximization policy of selected non-financial firms in Nigeria which was statistically significant at 5% level of significance.

5.2. Conclusion

The thrust of this study was to ascertain the effect of environmental costs disclosure on shareholders' value maximization of listed non-financial firms in Nigeria for a period of ten (10) years spanning from 2011 to 2020. Environmental costs disclosure which is the independent variable was captured using environmental prevention cost disclosure; environmental pollution cost disclosure and community development cost disclosure while shareholders' value maximization which served as the dependent variable was measured using shareholders' value added (SAVD). A company creates value for its shareholders when the shareholder return exceeds the required return to equity. The shareholder's wealth is measured by the returns they receive on their investment.

5.3. Recommendations

Based on the findings and conclusion of the study, the following recommendations were made as follows:

i. Non-financial firms should be encouraged to produce environmental reports with emphasis on the disclosure of environmental prevention cost on regular basis to manifest their commitment towards sustainable development strategy which in the long run would boost firms' performance in order to create value for their shareholders.

ii. Emphasis on pollution control cost disclosure should be minimized since it was found to have insignificant effect on shareholders' value creation/maximization policy of non-financial firms in Nigeria.

iii. Non-financial firms' managers should pay more attention towards community development in their host communities to boost their performance and hence add value to their shareholders' wealth creation.

References

Akabom, I.A. (2012). Environmental friendly policies and their financial effects on corporate performance of selected oil and gas companies in Niger Delta region of Nigeria. *American International Journal of Contemporary Research, 2*(1), 168-173.

Akinlo, O. O. & Iredele, O. O. (2014). Corporate environmental disclosures and market value of quoted companies in Nigeria. *The Business & Management Review*, 5(3).

Albuquerque, R., Koskinen, Y., & Zhang, C. (2018). Corporate social responsibility and firm risk: Theory and Empirical Evidence. *Journal of Management Sciences, 2*(5), 374-389.

Amahalu, N. N., Ezechukwu, B. O., & Obi, J. C. (2017).Corporate social responsibility and financial performance of quoted deposit money banks in Nigeria. *Asian Journal of Science and Technology, 08(12), 7183-7191.*

Amahalu, N. N., Okoye, P. V., & Obi, J. C. (2018). Effect of sustainability reporting on economic value added of quoted brewery firms in Nigeria. *Journal of Accounting, 7*(1), 1-20.

Aondoakaa, K. (2015). Impact of sustainability reporting on corporate performance of selected quoted companies in Nigeria. Thesis presented to the Faculty of Business Administration, University of Nigeria, Enugu campus, 1-154.

Arafat, M.Y., Warokka, A., & Dewi, S.R. (2012). Does environmental performance really matter? A lesson from the debate of environmental disclosure and firm performance. *Journal of Organizational Management Studies, 1(1),* 1-15.

Badulescu, A., Badulescu, D., Saveanu, T., & Hatos, R. (2018). The relationship between firm size and age, and its social responsibility actions-focus on a developing country (Romania). *Sustainability, 10,* 805.

Bessong, P.K., & Tapang, A.T. (2012). Social responsibility cost and its influence on the profitability of Nigerian banks. *International Journal of Financial Research, 3*(4), 33-45.

Brolund, J., & Lundmark, R. (2017). Effect of environmental regulation stringency on the pulp and paper industry. *Sustainability,* 9, 2323.

Cho, C., & Patten, D. (2017). The role of environmental disclosure as legitimacy tools: A research note. *Accounting organizations and society,* 32(7), 639-647.

Dechezleprêtre, A., & Sato, M. (2017). The impacts of environmental regulations on competitiveness. *Rev. Environ. Econ. Policy, 11,* 183–206.

Ezeokafor, F.C., & Amahalu, N.N. (2019). **Effect of sustainability reporting on corporate performance of quoted oil and gas firms in Nigeria.** *Journal of Global Accounting, 6*(2), 217-228.

Feng, Z., & Chen, W. (2018). Environmental regulation, green innovation, and industrial green development: An empirical analysis based on the spatial durbin model. *Sustainability*, *10*, 223.

Husser, J., & Evraert-Bardinet, F. (2014). The effect of social and environmental disclosure on companies' market value, *Management international*, *19*(1), 61–84.

Judge, W. Q., & Douglas, Y. T. (2018). Performance implications of incorporating natural environmental issues into the strategic planning process: An empirical assessment. *Journal of Management Studies, 35*(2), 241–262.

King, A., & Lenox, M. (2010). Industry self-regulation without sanctions: The chemical industry's responsible care program, *Academy of Management Journal 43,* 698–716.

Largania, M. S, Kavianib, M., & Abdollahpour, A. (2012). A review of the application of the concept of Shareholder Value Added (SVA) in financial decisions, *Procedia - Social and Behavioral Sciences,* 40, 490–497.

Magara, R., Aming'a, N.N., & Momanyi, E. (2015). Effect of environmental accounting on company financial performance in Kisii County. *British Journal of Economics, Management & Trade10* (1), 1-11.

Marvin, B. L., Natarajan, B., & Robert, G. (2017). Toward a dynamic notion of value creation and appropriation in firms: The concept and measurement of economic gain. *Strategic Management Journal,* 39(6), 57-66.

Olusegun, M.V. (2012). The impact of corporate environmental responsibility on financial performance: Perspective from the multinational extractive sector. A thesis submitted to Brunel Business School, Brunel University.

Oti, P.A., Effiong, S.A., & Tiesieh, T.A. (2012). Environmental costs and its implication on the returns on investment: An evaluation of selected manufacturing companies in Nigeria. *Global Journal of Management and Business Research, 12*(7), 1-5.

Phong, T.H., Hue, C.T., & Thu, H.N. (2012). Impact of firm's environmental performance on its financial performance: Empirical evidence from Vietnam's small and *medium manufacturing firms. 2012 JSPS Asian CORE Program, Nagoya University and VNU University of Economics and Business, 1-18.*

Rockness, J., Schlachter, P., & Rockness, H. O. (2016). *Hazardous waste disposal, corporate disclosure, and financial performance in the chemical industry.* In: Neimark, M. (Ed.), *Advances in Public Interest Accounting,* 1, JAI Press, Greenwich, pp. 67–191.

Rodriguez, F.J., & Cruz, Y.M. (2017), Relationship between social-environmental responsibility and performance in hotel firms. *Hospitality Management, 26,* 824-839.

Rubin, A. (2018). Political views and corporate decision making: The case of corporate social responsibility. *Finance. Rev. 43,* 337–360.

Russo, M. V., & Fouts, P. A. (2017). A resource-based perspective on corporate environmental performance and profitability. *Academy of Management Journal 40*(3), 534–559.

Savage, A.A., Cataldo, A.J., & Rowlands, J. (2019). A multi-case investigation of environmental legitimation in annual reports. *Advances in Environmental Accounting and Management, 1*(2), 45-81.

Swinkels, E. (2012). *The effect of publishing a GRI sustainability report on financial performance.* Thesis submitted to Tilburg University, 1-45.

Thornton, D., Kagan, R. A., & Gunningham, N. (2013). Sources of corporate environmental performance. *California Management Review 46* (1), 127–141.

Uadiale, O.M., & Fagbemi, T.O. (2012). Corporate social responsibility and financial performance in developing economies: The Nigerian experience. J*ournal of Economics and Sustainable Development, 3*(4), 44-55.

Yang, M. G., Hong, P., & Modi, S.B. (2011). Impact of lean manufacturing and environmental management on business performance: An empirical study of manufacturing firms. *International Journal of Production Economics* 129 (2), 251–261.

Yousra, N.E. (2018). The impact of corporate characteristics on environmental information disclosure: An empirical study on the listed firms in Egypt. *Journal of Business and Retail Management Research (JBRMR), 12*(2), 347-355.

Z., Qin, C., Ye, X. (2017). Environmental regulation and industrial structure change in China: Integrating spatial and social network analysis. *Sustainability, 9*, 1465.