Journal of Economics and International Business Management
Vol. 9(2), pp. 71-81, September 2021
doi: 10.33495/jeibm_v9i2.21.126
ISSN: 2384-7328
Research Paper

Environmental accounting disclosure and financial performance of manufacturing firms in Nigeria

Uniamikogbo Emmanuel[1]* • Ali Peter Ifeanyichukwu[2]

[1]Department of Accounting, Rhema University, Aba, Abia State, Nigeria.
[2]Department of Accountancy, Imo State Polytechnic, Umuagwo, Imo State, Nigeria.

*Corresponding author. E-mail: uniamikogbo_emmanuel@rhemauniversity.edu.ng. Tel: +234-8060405829.

Accepted 30th July, 2021.

Abstract. The most challenging environmental problem the world is facing today is global warming and climate change which stem from business operations. This problem if not immediately checked may affect the ecosystem and portend danger for the future generation. Thus, it is exigent for firms' to protect the environment and society through proper disclosure of environmental accounting information for sustainable growth and development. However, whether full disclosure of environmental accounting information in the annual reports of firms can help address environmental challenges faced by host communities and society has remained contentious. This study, therefore, examined corporate environmental accounting disclosure and financial performance of selected manufacturing firms in Nigeria. Precisely, the study examined the effect of environmental accounting disclosures on Share Price, Return on Asset and Return of equity of selected manufacturing firms in Nigeria. The ex-post-facto research design was engaged in this study, using a sample of 40 manufacturing firms. The secondary source of data collection method was employed using the convenience sampling technique. Data were harvested from the content analysis disclosure index and corporate annual reports of the sampled manufacturing firms listed on the Nigerian Stock Exchange for the period 2010-2019 financial years. The descriptive statistics, correlation matrix and regression analysis were the statistical tools used in the study. Data were analysed with the aid of the panel data regression technique. Our findings revealed that environmental accounting disclosures had a significant effect each on Share Price, Return on Asset and Return on equity of manufacturing firms in Nigeria. The study recommends that companies should increase the extent to which they disclose the environmental impacts of their firms' activity in the annual report for stakeholders' assessment of their performance. Similarly, government effective supervision is important in ensuring the implementation of environmental disclosure that aligns with applicable regulations. Lastly, the regulatory authority should set up a verification unit to ensure external verification of environmental disclosure claims as well as ascertaining the reliability and authenticity of environmental disclosures representation in the accounting record for the credibility of environmental disclosures.

Keywords: Environmental accounting disclosures, return on asset, return on equity, share price.

INTRODUCTION

Environmental accounting disclosures in the firms' annual report are of utmost importance to business organisations, host communities, stakeholders, society, and the entire nation. Environmental accounting disclosures issues have captured the business community's interest and the general public in recent times. As concerns towards environmentally friendly practices increase, corporate organisations are faced with the challenge of disseminating information about environmental issues in their annual reports (Etale and Otuya, 2018). Environmental accounting disclosures are occasioned by the fact that organisations do not operate in isolation, thus, seen as corporate entities that live within the people and carry out their business operations in society. Therefore, organisations in the course of carrying out their regular business activities exhibit one form of externalities or the other which, most often are negative to the environment and the society where they operate. According to Adediran and Alade (2013), the consequence of the activities of business organisations on the environment has brought about the depletion of the ozone layer thus, causing insecurity in the ecosystem. The growing concern about resource depletion, environmental degradation, resource scarcity, water, air and noise pollutions, oil spillages, health hazards and the search for sustainable economic activity led to the development of environmental accounting and reporting which is an area of significant interest to organisations operating in Nigeria and beyond to increase the awareness of the interaction between firms and the environment and its resultant effect on the environment of operation to ensure accountability and sustainability for the use of future generation.

Increased global environmental awareness and the campaign for sustainable economic development are redirecting firms' attention towards environmental sensitivity (Ngwakwe, 2009). Environmental accounting disclosures is a responsibility that is concerned with the awareness that action taken in the present affects the options available in the future hence if resources are utilised in the present and are no longer available for use in the future, it then poses a grave danger to the upcoming generation, particularly if the resources are finite in quantity (Etale and Otuya, 2018). Consequently, environmental problems associated with manufacturing firms in Nigeria could be better managed if managers in the manufacturing firms provide adequate information on the effect of their economic operations, disclose environmental friendly policies adopted by these organisations and implementing same to their host communities and other stakeholders for taking future decision instead of the total neglect and impoverishment of the host community and society. Organisations' positive responses to environmental and societal issues by way of accounting and disclosure leave the investors, host communities and other stakeholders with the confidence that the organisations they are dealing with are transparent and socially responsible to the needs of the people (Ekemezie and Okafor, 2020).

Undoubtedly, environmental issues have been at the front burner in the industrial and academic circle, particularly with firms that are into manufacturing, exploration, and production activities. This has been a challenging area to organisations, host communities and the society at large, considering the impact of business activities on the environment and the possibility of sustaining the environment for future generation use. Environmental challenges facing manufacturing firms such as management of greenhouse gas emissions from burning of fossils, pollution emissions, sewage pollution from factories, toxic waste disposals embodied resources issues chemical contamination, agricultural and industrial waste management, etc. are of great concern because the manufacturing firms have significant production impact on the environment. These challenges encountered by manufacturing companies as well as the management of environmental issues and disclosure in its annual reports has assumed a global dimension, thus increasing stakeholders' information needs as provided in the annual report to ascertain the extent to which firms are socially, environmentally and economically responsible to the society.

Three schools of thought exist on the relationship between environmental accounting disclosures performance and the financial performance of firms. The standard neoclassical and negative traditionalist schools of thought are of the view that improved environmental performance and regulations impose additional costs for firms thus, thwart their financial performance. This view is based on the premise that pollution abatement and environmental improvements decrease marginal net benefits of firms. However, the positive revisionist theory predicts a positive relationship between environmental accounting disclosures performance and financial performance up to the level of environmental accounting disclosures performance where economic benefits are maximized. Different from other schools of thought, McWilliams and Siegel (2001) argue for a neutral relationship between environmental accounting disclosures performance and financial performance, because firms that do not invest in social responsibility will have lower costs and lower prices, while firms that invest in social responsibility will have higher costs but will have customers eager to pay higher prices. The inconclusive prior empirical findings of the relationship between environmental accounting disclosure performance and financial performance have led to conflicting results. It is based on this that this study examined environmental accounting disclosures and financial performance of forty (40) selected manufacturing firms in Nigeria.

Several studies have examined the effect of environmental accounting disclosures on the financial performance of firms in different countries and sectors over the last few years with mixed, inconsistent and inconclusive results ranging from positive, negative, no relationship, statistically significant to insignificant influence. These outcomes were definitely due to the usage of diverse research methodologies, the different periods covered, nature of variables considered, availability and nature of data used, diverse jurisdiction and sector of study, different sample composition and diverse measures of environmental accounting disclosures employed. The varied and conflicting views by prior scholars informed this study. Against this backdrop, the study seeks to examine the effect of environmental accounting disclosures (using GRI G4 index and ISO 26000 as a standard measure of environmental disclosure) on the financial performance of selected manufacturing firms listed on the Nigerian Stock Exchange to validate existing studies. This is the knowledge gap that drives this study.

Concept of environmental accounting disclosures

Environmental accounting disclosures or reporting is the process of communicating the social and environmental effects of an organisation's economic actions to particular interest groups and the society at large through the annual report (Etale and Otuya, 2018). Environmental accounting disclosures are public relations channels that influence people's perception of the company's corporate image and reputation. It is an essential ingredient of corporate social responsibility reporting that communicate environmental strategy to stakeholders, thus, a tool to spur corporate policies, strategies and management systems that is geared towards minimising adverse environmental impact (Elkington, 1997; Setyorini and Ishak, 2012; Sustainability/United Nations Environmental Programme (UNEP), 1998). Environmental accounting describes accounting standard setters, professional organisations, and governmental agencies to get corporations to participate proactively in cleaning and sustaining the environment and describing fully, their environmental activities in either their annual reports or stand-alone environmental disclosure (Ezeagba *et al.*, 2017). According to Ekemezie and Okafor (2020), environmental accounting disclosure is in phases and it ranges from ad-hoc comments in the annual report to stand-alone environment reports. Environmental accounting is seen by corporate managers and environmental advocates alike as a necessary complement to improve environmental decision-making in organisations (Ezeagba *et al.*, 2017). Organisations no longer see environmental costs as an added cost but, rather classified as corporate social responsibility costs invested to address environmental issues arising from business operations. According to Levin and Fransen (2017), environmental reports are essential tools through which management communicates to the stakeholders on how their environmental concerns are being addressed.

Levin and Fransen (2017) classified environmental accounting disclosures into two parts: mandatory and voluntary disclosures. While mandatory environmental accounting disclosures are where companies' sustainability information is disclosed based on the country's legal rules and regulations, voluntary environmental accounting disclosures are the disclosure of companies' environmental information voluntarily without any legal obligation. Companies' recognising that it is their corporate responsibility to achieve sustainable development by meeting the present needs without compromising the ability of future generations to meet their needs, informed their choice of environmental accounting disclosures practices to the stakeholders in the environment where they conduct their business activity.

LITERATURE REVIEW AND HYPOTHESES DEVELOPMENT

Return on asset

Return on Assets (ROA) represents the number of earnings a company achieves for each naira of the asset it controls and is a good indicator of a firm's profitability. ROA is a financial ratio that shows the percentage of profit a firm makes relative to its overall resources (investments). According to Osisioma (1996), ratios are aimed at bringing to light the profitability of a firm's operation, the management efficiency as measured by the returns on capital employed and the intensity of capital usage, that is, the rapidity with which invested capital is turned over. Hagel *et al.* (2010) opine that ROA explicitly considers the assets used to support business activities and determines whether the company can generate an adequate return on these assets rather than just showing robust Return on Sales. ROA is measured as the proportion of net profit after tax to the total asset of the firm.

The core objective of every business entity is to maximise profit. As much economic benefit is key to an organisation's survival, it must not be pursued at the expense of society and the environment (people and planet). While organisations are directed to be more transparent on how they treat their economic, social and environmental activities as they affect their stakeholders, managers of firms should also be mindful of the fact that any firm that is not involved in environmental accounting disclosure could be seen as striving towards unsustainable development. Thus, it would be unclear to ascertain the level of impact environmental accounting disclosures had on organisation's strategies, practices and outcomes. It is on this premise that this study seeks to investigate the effect of environmental accounting disclosures on the return on assets of selected manufacturing firms in Nigeria. Flowing from the above, we hypothesise the first proposition in the null as follows:

H_{01}: Environmental accounting disclosure has no significant influence on the Return on Asset of selected manufacturing firms in Nigeria.

Return on equity

Return on equity (ROE) is a measure of the profitability of a business in relation to equity. ROE ratio essentially measures the rate of return that the owners of the common stock of a company receive on their shareholdings. It signifies how good the company is in generating returns on the investment it received from its shareholders. ROE is one of the all-time favorites and perhaps the most widely used overall measure of corporate financial performance (Rappaport, 1986). The ultimate purpose of any profit-seeking organisation is to create wealth for its owners. According to Black *et al.*, (2001), shareholder value is created when the equity returns of a company exceed the cost of that equity. It can also be described as the present value of all future cash flows, less the cost of debt. ROE is calculated by taking the profit after tax and preference dividends of a given year and dividing it by the book value of equity (ordinary shares) at the beginning of the year.

Modern-day businesses are not run exclusively for the interest of shareholders alone but in the interest of all stakeholders interested in the organisation. Thus, firms in pursuant of their economic values should as well recognise in their annual reports by disclosing the social and environmental impact of their business activity to the host communities to sustain the environment, promote harmonious relationships among the people, preserve the corporate image of the organisation as well as build confidence in the society. Against this backdrop, the study aims to ascertain the effect of environmental accounting disclosures on the Return on Equity of selected manufacturing firms in Nigeria. Thus, the second hypothesis is stated in the null as follows:

H_{02}: Environmental accounting disclosure has no significant effect on the Return on Equity of selected manufacturing firms in Nigeria.

Share price

Share price also known as stock price is the price of a single share of a number of saleable equity shares of a company. Share price is the amount it would cost to buy one unit of share in a company. A company’s share price indicates its current value or its market value at a particular point in time. A company's share price is determined by the forces of demand and supply for shares in the market. Where there is a high demand for a company’s shares due to favourable factors, the price will increase, otherwise, it will decrease. The price of a share is not fixed but fluctuates according to market conditions. Favourable business environment tends to boosts firms’ share price, and which can only be achieved through social and environmental sustainability. Consequently, for a firm to increase its share price the environment where it operates plays a significant role, hence, a conducive and friendly environment should be created by managers of organisations for businesses to thrive. One of the sure ways to keep a socio-economic and friendly environment suitable for businesses success is for owners and managers of companies to embark on corporate social responsibility (CSR) activities that would benefit the host communities. The disclosure of CSR activities to the host communities in the annual reports of the firms will boost the confidence the society has in the operations of the company in sustaining the environment for future generations use. Resulting from the above, the third hypothesis is stated thus in the null:

H_{03}: Environmental accounting disclosure has no significant effect on share price of selected manufacturing firms in Nigeria.

Review of prior studies

Ifada *et al.* (2021) examine the effect of environmental performance, independent board of commissioners, and firm size on environmental disclosure measured by the Indonesian environmental index. The population in this study is manufacturing and coal mining companies that follow “PROPER” and are listed on the Indonesia Stock Exchange (IDX) from 2017 to 2019. This research was conducted by reviewing annual reports to collect information on environmental disclosures. The sampling used in this study was purposive sampling technique and obtained a sample of 117. Also, the data analysis technique used was multiple linear regression analysis with statistical hypothesis testing. The results showed that environmental performance, firm size, and financial performance each positively affected environmental disclosure while the independent board of commissioners did not affect environmental disclosure. The findings of this research suggest that environmental performance has a significant positive effect on financial performance.

Badingatus and Ukhti (2021) investigate the quality and scope of environmental disclosure (ED) in environmentally sensitive manufacturing firms in Indonesia. This study employed secondary data which was collected from published annual reports of listed companies on the Indonesian Stock Exchange (ISE). They analyse the effect of media coverage, environmental award, and financial performance on the quality of environmental disclosure and the extent to which the implementation of corporate governance (CG) principles moderate these factors. The study used 135 manufacturing companies listed on the Indonesian Stock Exchange during 2012–2016. Partial least squares–structural equation modelling (PLS-SEM) was employed to test the research hypothesis. The results point out that media coverage and environmental awards can improve the quality of environmental disclosure and the correlation will increase if the company pays attention to the implementation of CG principles.

Agyemang *et al.* (2021) examine the effect of environmental disclosure on environmental performance for listed mining companies in China. The study analysis used China's Environmental Information Disclosure Degree (EIDD) and the Chinese Securities Regulatory Commission's disclosure guidelines to propose the Environmental Information Disclosure Index. The study employed a recent environmental disclosure index and modified it for environmental performance analysis. A reliability and robustness test was used in the study. Using panel data for thirty-four mining companies from both Shanghai and Shenzhen Stock Exchange for the period 2000–2018, the cointegration estimation analysis showed that corporate environmental performance and environmental information disclosure has a positive and significant relationship at a 1% level. Trend analysis revealed that mining companies comply with environmental information disclosure in China. This was seen from the great improvement in the environmental disclosure for mining companies between 2008 and 2010 after the enforcement of EIDD.

Nimanthi and Priyadarshanie (2021) examine the impact of environmental disclosure practices on firm performance in Sri Lanka. This research relies on secondary data which was collected from published annual reports of listed companies in the Colombo Stock Exchange (CSE). Data was collected from a sample of 50 companies listed under 5 sectors over four consecutive financial years from 2015 to 2018. The technique of content analysis was occupied when measuring the level of environmental disclosures. Environmental Disclosure Index (EDI) was prepared based on the Global Reporting Initiative (GRI) Standards 2019. This study employed a regression analysis for the data analysis. The study's findings revealed a significant positive relationship between environmental disclosures and firm financial performance. However, there is no significant relationship between environmental disclosures and firm market performance.

Abdul *et al.* (2020) examine the relationship between environmental disclosure and financial performance among the companies in Malaysia, Singapore and Thailand that voluntarily disclose environmental information in their financial reports. Two hundred and fifty (250) companies listed in Bursa Malaysia, Singapore Stock Exchange and Thailand Stock Exchange were studied. From the 250 companies analysed, 56 companies from Malaysia, 37 companies from Thailand and 15 companies from Singapore were identified as environmental reporting companies and included in the study's sample. The study hypothesizes that high-performance companies are more likely to have detailed (that is, one paragraph or more) environmental disclosure. The results however suggest that the performance of the company has no relationship to the production of detailed or superficial environmental disclosure.

METHODOLOGY

The study employed the *ex-post facto* research design which predicts the possible causes behind an effect that has already occurred, hence, the choice and suitability of the design. A sample of forty (40) manufacturing firms currently listed on the Nigerian Stock Exchange as of 31st December, 2019 was used in this study and the selection was done using the convenience sampling technique. Secondary data were used for the study and the data were obtained using the content analysis disclosure index approach and the annual reports and financial statements (2010-2019) of the companies under investigation. The statistical tools employed were descriptive statistics, correlation matrix and regression analysis.

The study employed the panel data regression analysis. This regression technique was selected due to the nature of data which has both time or periodic dimension and cross-sectional dimension. The Hausman test was used to select between the fixed effect and random effect estimator in panel data analysis. Invariably, the fixed effect model was adopted because it allows for correlation between the unobserved and independent variables.

Model specification

The study examines the impact of environmental accounting disclosures on the corporate financial performance of manufacturing firms in Nigeria with insights from prior studies (Hirigoyen and Poulain-Rehm, 2015; Ilaboya and Omoye, 2013). The models examine the impact of environmental disclosure on corporate financial performance and the models are presented below:

$$CFP_{it} = f(ENV_{it},) \quad \text{(i)}$$

The linear form specification is presented below where corporate financial performance is measured using Return on Assets (ROA) and Return on Equity (ROE). The models are presented below:

$$ROE_{it} = \beta o_{it} + \beta_1 ENV_{it} + \beta_2 FSIZE_{it} + LEV_{it} + \mu_{it} \quad \text{(ii)}$$
$$ROA_{it} = \beta o_{it} + \beta_1 ENV_{it} + \beta_2 FSIZE_{it} + LEV_{it} + \mu_{it} \quad \text{(iii)}$$
$$SP_{it} = \beta o_{it} + \beta_1 ENV_{it} + \beta_2 FSIZE_{it} + LEV_{it} + \mu_{it} \quad \text{(iv)}$$

Where;

ROA= Return on Asset measured as ratio of earnings before interest and tax to total asset.

Table 1. Descriptive statistics.

	Mean	Max	Min	Std. Dev.	Jarque-Bera	Prob
SP	34.48802	1555.99	0.5	115.0286	183895.3	0.000
ENVD	0.181373	1	0	0.385642	292.7556	0.000
LEV	0.586373	2.03	0	0.236074	492.81	0.000
FSIZE	7.059722	9.22	5.09	0.781306	7.541791	0.023
ROE	0.239651	2.5496	0.04	0.283278	2265.714	0.000
ROA	0.493801	2.966	0.006	0.302815	1856.99	0.000

Source: Researcher's compilation (2021) using Eviews 10.0.

Table 2. Pearson correlation.

	ENVD	ROE	ROA	SP	LEV	FSIZE
ENVD	1					
ROE	0.0418	1				
p-value	0.2979					
ROA	-0.04775	-0.0396	1			
p-value	0.2352	0.324				
SP	0.2761*	-0.1212*	-0.00536	1		
p-value	0.000	0.0025	0.8941			
LEV	0.0061	-0.0178	-0.01167	0.073505	1	
p-value	0.8781	0.6581	0.7719	0.0674		
FSIZE	0.2279*	-0.157*	0.050545	0.3331*	0.1053*	1
p-value	0.000	0.0001	0.2088	0.000	0.0087	

Source: Researcher's compilation (2021) using Eviews 10.0

ROE= Return on Equity measured as ratio of profit after tax to total equity.
SP= Share price measured as the market value per unit of share
ENV= Environmental disclosure measured by environmental disclosure index developed by the Global reporting initiative (GRI)
FSIZE= Firm size measured by natural log of total assets
LEV = Leverage is measured debt to equity ratio.

DATA PRESENTATION AND ANALYSIS OF RESULT

This section contains the presentation, analysis and interpretation of the data collected for this study. The preliminary analyses were examined by presenting the descriptive statistics and the Pearson product moment correlation results. Thereafter, the panel regression results were presented. The results of the descriptive statistics are presented in Table 1.

Table 1 shows the descriptive statistics for the variables. From the table, the mean for the share price is 34.488, with a standard deviation of 115.029 which is high and suggests the presence of fluctuations in the share price behaviour of the distribution of companies. The price of the shares ranges from a minimum of 0.5 to a maximum of 1555.99. The maximum and minimum values stood at 2.966 and 0 respectively. The mean for environmental disclosure is 0.1814 which implies that a very small number of firms about 18.14% in the distribution disclose environmental-related matters in their annual reports. The mean for ROE is 0.2397 with a standard deviation of 0.283. The mean for firm size (FSIZE), measured using the log of total assets is 7.060, with a standard deviation of 0.781. The average value for leverage is 0.586, with a standard deviation of 0.236.

The Pearson correlation statistic was employed to examine the relationship between CSR dimensions and corporate financial performance measures (Table 2). The results show that ENVD is positively correlated with ROE (r = 0.0418) and negatively correlated with ROA (r = -0.04775). However, ENVD is insignificant at 5% for ROE

Table 3. Variance inflation factor test.

Variable	VIF
ENVD	2.207941
FSIZE	2.144613
LEV	1.619738

Source: Researcher's compilation (2021)

(p = 0.2979) and ROA (p = 0.2352) respectively. Also, ENVD is significant and positively correlated with SP (r = 0.2761) and (p = 0.000) but insignificant and negatively correlated with EPS (-0.0288) and (p = 0.4746). The correlation analysis provides insight into the direction and degree of the relationship between the variables. This is limited in its inferential capacity as it does necessarily imply functional dependence between the variables. The regression estimations are more suited for this purpose.

Multicollinearity among the independent variables indicates that they are perfectly correlated. Where there is a perfect correlation between the independent variables, the parameter coefficients will be unknown. The presence of multicollinearity will lead to large standard errors of the estimated coefficients. Thus, the variance inflation factor test is constructed to test for multicollinearity in the study. The variance inflation factor (VIF) explains how much of the variance of a coefficient estimate of a regressor has been inflated, as a result of collinearity with the other regressors (Table 3). VIFs above 10 are seen as a cause of concern, however, none of the variables observed here have a VIF's value of more than 10; therefore none gave a serious indication of multicollinearity.

Regression analysis

The panel regression analysis procedure is employed and the results are presented in Tables 4, 5 and 6.

Table 4 shows the regression results of the impact of environmental disclosures on the share price. The results of Fixed Effect estimates show that R^2 is 0.6424 but with a degree of freedom adjusted the R^2 is 61.1%. The F-stat of 26.862 (p-value = 0.00) is significant at 5% and suggests that the hypothesis of a significant linear relationship between the dependent and independent variables cannot be rejected. It is also indicative of the joint statistical significance of the model. From the results in Table 4, the analysis of coefficients reveals environmental disclosure has a positive (2.1591) effect on SP and is statistically significant at 5% (p = 0.000). Looking at the control variables, FSIZE has a positive beta (29.907) and is statistically significant (p = 0.000) and LEV also shows a positive coefficient (4.7501) and is significant at 5%. Furthermore, the Arrelano and Bond estimation results reveal that the coefficient for ENVD is higher (17.5513) and has a significant effect (p=0.008) on SP at 5%. Consequently, based on the Arrelano and Bond GMM estimation, the null hypothesis that environmental disclosures have no significant effect on share price is rejected.

Table 5 shows the regression results that examine the impact of CSR on Return on assets (ROA). From the Hausman test statistic p-value = 0.006, the Fixed Effect model estimations was employed. The FE estimates shows that R^2 is 0.6936 with a degree of freedom adjusted, the R^2 of 0.6901 explains the extent to which the explanatory variable can account for systematic variations in the dependent variables. The F-stat is 195.12 (p-value = 0.00) is significant at 5% and suggests that the hypothesis of a significant linear relationship between the dependent and independent variables cannot be rejected. None of the control variables, (FSIZE and LEV) showed any statistical significance in their effects. Though the Arrelano and Bond (1991) GMM estimation results show a substantial difference from the FE estimations which is a stronger beta and confirms that the Arrelano and Bond estimations results after correcting for endogeneity are more impressive.

The analysis of Fixed effects coefficients reveals that Environmental disclosures have a positive (0.0251) effect on ROA and significant (p = 0.0051) at 5%. The analysis of the coefficients reveals Environmental disclosure has a negative beta (-0.2769) and significant (p = 0.000) at 5%. Consequently, on the basis of the Arrelano and Bond GMM estimation, the null hypothesis that environmental disclosures have no significant effect on Return on assets (ROA) is rejected.

Table 6 shows the regression results of the effect of CSR on Return on Equity (ROE). From the Hausman test statistic p-value = 0.0119, the FE is the preferred model estimate used in the study. Both panel period heteroskedasticity [p=0.738] and cross-sectional heteroskedasticity [p=0.265] were examined and the estimations were found to be free. The FE estimates show that R^2 of 0.669 with a degree of freedom adjusted, the R^2 of 0.663 explains the extent to which the explanatory variable are able to account for systematic variations in the dependent variables. The F-stat of 161.852 (p-value = 0.00) is significant at 5%, suggesting that the hypothesis of a significant linear relationship between the dependent and independent variables cannot be rejected. The analysis of coefficients reveals that Environmental disclosure has a positive (0.0223) effect on ROE and is significant (p=0.0221) at 5%. The control variable (FSIZE) is statistically significant as well. The Arrelano and Bond GMM estimation results show that Environmental disclosure has a positive beta (0.1061) and significant (p=0.000) at 5%. Consequently, the null hypothesis that Environmental accounting disclosure has no significant effect on Return on Equity

Table 4. Environmental disclosure and share price results.

Variable	Aprori Sign	FE Estimates	RE Estimates	Arrelano and Bond GMM estimates
C		-178.47* (9.699) {0.000)	-255.59* (46.590) {0.000}	-127.0343 (19.486) {0.000}
ENVD	+	2.1591 (0.5609) {0.000}	3.7832 (8.4226) {0.6535}	17.5513* (9.2354) {0.0080}
LEV	+	4.7501* (0.7864) {0.000}	5.6542 (13.0538) {0.6651}	21.1603* (10.2831) {0.0402}
FSIZE	+	29.907* (1.3218) {0.000}	37.9588* (5.9718) {0.000}	18.41752* (2.3896) {0.0000}
Model Parameters				
R^2		0.6424	0.0739	0.2976
Adjusted R^2		0.6111	0.066	0.2896
F-statistic		26.862	9.929	
Prob(F-stat)		0.000	0.00	
Durbin-Watson		1.7	1.926	
Model Diagnostics				
Hausman	0.042			
Ramsey Reset test		0.425		
Period Hetero.Test		0.209		
Cross-section Hetero.Test		0.120		
Pesaran CD for serial correlation		0.106		
Instrument Rank				10
j-statistics				5.8395
Prob-j-stat				0.21146
AR(1)				0.0491
AR(2)				0.8165

Source: Researcher's compilation (2021). * sig @ 5%, **sig@10%

(ROE) is rejected.

DISCUSSION

This study examined the effect of environmental accounting disclosures on the financial performance of manufacturing firms in Nigeria. The variables of the study were environmental accounting disclosures which is the independent variable, and Return on Asset, Return on Equity and Share price which were proxies for financial performance, the dependent variable. The study outcome indicated that companies that adhered to the disclosure requirements of environmental accounting information would not only boost their revenue base but would as well increase their financial performance for the firms. The study results align with the findings of Nimanthi and Priyadarshanie (2021), Agyemang *et al.* (2021) and Ifada *et al.* (2021) who examined the impact of environmental disclosure practices on firms' performance in Sri Lanka, China, and Indonesia respectively and found that environmental disclosures had a significant effect on firms' financial performance. However, this study negates that of Abdul *et al.* (2020), who examined the relationship

Table 5. ENVD and ROA results.

Variable	Aprori Sign	FE Estimates	RE estimates	GMM Estimates
C		0.41592* (0.07241) {0.000)	0.4566* (0.4536) {0.0023}	-0.80587* (0.09233) {0.000}
ENVD	+	0.02516* (0.0112) {0.0051}	0.0030 (0.0107) {0.7772}	-0.2769* (0.0416) {0.000}
LEV	+	-0.0105 (0.0065) {0.1063}	-0.01603 (0.0270) {0.5540}	-0.0026 (0.0333) {0.9378}
FSIZE	+	0.0075 (0.0071) {0.2928}	-0.0039 (0.0177) {0.8263}	0.0758* (0.0187) {0.0001}
Model Parameters				
R^2		0.6936	0.0734	0.358
Adjusted R^2		0.6901	0.066	0.112
F-statistic		195.12	9.895	
Prob(F-stat)		0.000	0.000	0.000
Durbin-Watson		2.1	1.97	2.071
Model Diagnostics				
Hausman	0.006			
Ramsey Reset test		0.410		
Period Hetero.Test		0.81		
Cross-section Hetero.Test		0.431		
Pesaran CD for serial correlation		0.571		
Instrument Rank				8
j-statistics				3.0344
Prob-j-stat				0.2193
AR(1)				0.0023
AR(2)				0.274

Source: Researcher's compilation (2021) using Eviews 10.0. * sig @ 5%, **sig@10%

between environmental disclosure and financial performance among the companies in Malaysia, Singapore and Thailand that voluntarily disclose environmental information in their financial reports and found that performance of the company had no relationship to the production of detailed or superficial environmental disclosure in the annual report.

CONCLUSION AND RECOMMENDATIONS

Over the years, corporate environmental responsibility gets less attention and minimum importance in the objectives of business corporations. However, it has become a crucial concern in recent times as global attention has been drawn to the environmental sustainability issue. One approach to evaluating a company's environmental behaviour is to examine if they engage in corporate social and environmental reporting. It is believed that when a company engages in social responsibility reporting it presents a balanced reportage of its activities and impacts, thus, provides the basis for stakeholders to evaluate its performance. It suffices to note that CSR activity has developed rather voluntarily in

Table 6. ENVD and ROE results.

Variable	**Aprori Sign**	**FE Estimates**	**RE estimates**	**GMM estimates**
		0.26889*	0.5455*	0.33201*
C		(0.0173)	(0.1134)	(0.1139)
		{0.0000)	{0.000}	{0.0039)
		0.02226*	0.07414**	0.1061*
ENVD	+	(0.0097)	(0.0408)	(0.0326)
		{0.0221}	{0.0696}	{0.0013}
		-0.00486	0.00208	0.04811*
LEV	+	(0.00354)	(0.02327)	(0.0433)
		{0.1706}	{0.9288}	{0.2682}
		-0.0042*	-0.03699*	-0.0837*
FSIZE	+	(0.00117)	(0.01360)	(0.008)
		{0.0003}	{0.0067}	{0.000}
		0.1273*	-0.0693	0.22573*
AR(1)	+	(0.0467)	(0.0500)	(0.0282)
		{0.0066}	{0.1666}	{0.0000}
Model Parameters				
R^2		0.669	0.0238	0.537
Adjusted R^2		0.663	0.0159	0.5215
F-statistic		161.852	3.0318	
Prob(F-stat)		0.000	0.0103	
Durbin-Watson		1.9	1.46	
Model Diagnostics				
Hausman			0.0119	
Ramsey Reset test		0.04		
Period Hetero.Test		0.738		
Cross-section Hetero.Test		0.265		
Pesaran CD for serial correlation		0.381		
Instrument Rank				8
j-statistics				4.4427
Prob-j-stat				0.731
AR(1)				0.392
AR(2)				0.681

Source: Researcher's compilation (2021) using Eviews 10.0 * sig @ 5%, **sig@10%

the recent past, which implies that a company may choose what to disclose and not disclose. Furthermore, the nexus between environmental disclosures and corporate financial performance is complex and leaves much to be desired. Empirical literature confirms this in the field which does not provide clear-cut results. The study has tried to verify, whether certain corporate performance measures can be affected by a firm's environmental responsibility behaviour. The study analysed some descriptive statistics and have used cross-section and panel data econometrical approaches, to verify whether environmental disclosure activity could affect corporate performance measures. The findings of the study reveal that Environmental disclosure had a significant positive effect each on Share price, Return on assets (ROA) and Return on equity (ROE) of manufacturing firms in Nigeria.

RECOMMENDATIONS

We recommend the need for effective regulation of environmental disclosure practices of companies in Nigeria. Government effective supervision is important in ensuring the implementation of environmental disclosure that aligns with applicable regulations.

One problem with environmental disclosure is that the information reported may tend to be selective and as such difficult to determine whether such disclosures are anything more than corporate branding to enhance corporate image. Hence, the need for external verification of environmental disclosure claims as well as ascertaining the reliability and authenticity of environmental disclosures representation in the accounting record to avoid the issue of the incredibility of environmental disclosures.

Lastly, companies should increase the extent to which they disclose the social and environmental impacts of their firms in the annual reports for stakeholders' assessment of their performance.

REFERENCES

Abdul Rahman SA, Yusoff R, Wan Mohamed WN (2020). Environmental disclosure and financial performance: An empirical study of Malaysia, Thailand and Singapore. Soc. Environ. Account. J. 29(2):46-58. doi: 10.1080/0969160X.2009.9651811.

Adediran SA, Alade SO (2013). Impact of environmental accounting on corporate performance in Nigeria: Eur. J. Bus. Manag. *5*(23):1-46.

Agyemang AO, Yusheng K, Twum AK, Ayamba EC, Kongkuah M, Musah M (2021). Trend and relationship between environmental accounting disclosure and environmental performance for mining companies listed in China. Environ. Dev. Sustain. pp.1-25.

Badingatus S, Ukhti M (2021). Factors influencing environment disclosure quality and the moderating role of corporate governance. Cogent Bus. Manag. 8(1):1-18.

Black A, Wrigh P, Davies J (2001). In search of shareholder value. 2nd Edition. London: Pearson.

Ekemezie NC, Okafor GO (2020). Relationship between environmental accounting disclosures and financial performance of manufacturing firms in Nigeria. Int. J. Manag. Soc. Sci. 8(2):171-193.

Elkington J (1997). Cannibals with forks: The triple bottom line of 21st century business. London: Capstone.

Etale LM, Otuya S (2018). Environmental responsibility reporting and financial performance of quoted oil and gas companies in Nigeria. Eur. J. Bus. Innov. Res. 6(6):23-34.

Ezeagba CE, John-Akamelu CR, Umeoduagu C (2017). Environmental accounting disclosures and financial performance: A study of selected food and beverage companies in Nigeria (2006-2015). Int. J. Acad. Res. Bus. Soc. Sci. 7(9):162-174.

Hagel J, Brown J, Davison L (2010). The power of pull: How small moves, smartly made, can set big things in motion, Basic Books.

Hirigoyen G, Poulain-Rehm T (2015). Relationships between Corporate Social Responsibility and Financial Performance: What is the Causality? J. Bus.Manag. 4(1):18-43.

Ifada LM, Indriastuti M, Ibrani EY, Setiawanta Y (2021). Environmental performance and environmental disclosure: The role of financial performance. J. Asian Finan. Econ. Bus. 8(4):349-362.

Ilaboya O, Omoye A (2013). Corporate social responsibility and firm performance: Evidence from Nigeria. J. Asian Dev. Stud. 2(1):6-19.

Levin K, Fransen T (2017). Understanding the "emissions gap" in 5 charts. Working Paper. World Resources Institute Indonesia.

McWilliams A, Siegel D (2001). Corporate social responsibility: A theory of the firm perspective. Acad. Manag. Rev. 26(1):117-127.

Ngwakwe CC (2009). Environmental responsibility and firm performance: Evidence from Nigeria. Int. J. Humanit. Social Sciences, 3:97-104.

Nimanthi DKS, Priyadarshanie WAN (2021). Environmental disclosure practices and firm performance: Evidence from Sri Lanka. Conference Paper (February, 2021), University of Sri Jayewardenepura.

Osisioma BC (1996). Analysis of financial statements: Studies in accounting: Text and reading, revised and enlarged, Enugu: ACENA Publishers.

Rappaport A (1986). Creating shareholder value. New York: The Free Press.

Setyorini CT, Ishak Z (2012). Corporate social and environmental disclosure: A positive accounting theory viewpoint. Int. J. Bus. Soc. Sci. 3(9):152-164.

Sustainability/UNEP (1998). Engaging stakeholders: The non-reporting report. Sustainability, London.