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1. Introduction

Global Trend:

The global trend in the dependent variable (firm's profitability (FP)) and the independent variable (Environmental Responsibility (ER) is moving towards greater integration of sustainability into business practices. This trend is driven by consumer demand, according to a study by Nielsen, 73% of global consumers say they would definitely or probably change their consumption habits to reduce their impact on the environment (Nielsen, 2018). This growing consumer demand has led businesses to incorporate sustainability into their strategies in order to remain competitive in the market, regulatory pressure, and the recognition that sustainability can drive innovation and create new business opportunities. By adopting sustainable practices, businesses can not only contribute to a healthier planet but also enhance their long-term profitability.

African Trend:

The African trend in balancing profitability and environmental responsibility is influenced by global awareness of climate change, international agreements and commitments. The Paris Agreement, adopted in 2015 under the United Nations Framework Convention on Climate Change (UNFCCC), aims to limit global warming to well below 2 degrees Celsius above pre-industrial levels. African countries have been active participants in this agreement, recognizing the need to transition towards low-carbon economies, local initiatives, and the role of businesses. This trend reflects a growing recognition of the need to pursue economic growth in a sustainable manner. By addressing environmental challenges while promoting profitability, African countries can contribute to a more sustainable future.

Nigerian Trend:

The Nigerian trend in maintaining a delicate balance between profitability and environmental responsibility is driven by various factors such as government policies. One notable policy is the National Environmental Standards and Regulations Enforcement Agency (NESREA) Act of 2007. This act establishes standards for environmental protection and provides guidelines for industries to comply with environmental regulations. It also empowers NESREA to enforce these regulations and impose penalties for non-compliance, corporate social responsibility initiatives, technological advancements, and public awareness. Achieving this balance requires a collaborative effort from all stakeholders involved – the government, businesses, civil society organizations, and the general public.

Contextual Trend:

One of the key contextual trends in this area is the increasing consumer demand for environmentally responsible products and services. Consumers are becoming more conscious of the environmental impact of their purchasing decisions and are actively seeking out companies that demonstrate a commitment to sustainability. A study conducted by Nielsen (2015) found that 66% of global consumers are willing to pay more for products and services from companies committed to positive social and environmental impact. This trend highlights the importance for businesses to align their profitability goals with environmental responsibility in order to meet consumer expectations and maintain a competitive edge.

Dependent variables link with Independent variable:

The dependent variable in the context of maintaining a delicate balance between profitability and environmental responsibility is the overall performance of a company in terms of its financial success and its impact on the environment. The independent variables include internal factors such as management decisions and operational practices, as well as external factors such as market conditions and regulatory frameworks. Maintaining this delicate balance is crucial from ethical, reputational, and financial perspectives. It requires a holistic approach to sustainability management that considers both financial and environmental performance.

Justification:

Recognition that businesses are not isolated entities but are part of a larger ecosystem. They rely on natural resources such as water, energy, and raw materials to operate and produce goods and services. By being environmentally responsible, businesses can ensure the availability of these resources in the future, thus safeguarding their own operations that lies in the potential risks associated with environmental degradation. Climate change, pollution, deforestation, and other environmental problems pose significant threats to businesses across various sectors. These risks can manifest in the form of regulatory penalties, reputational damage, supply chain disruptions, and increased operational costs. By proactively addressing these risks through environmentally responsible practices, companies can mitigate potential losses and ensure their long-term financial stability.

Prevailing problem:

Maintaining a delicate balance between profitability and environmental responsibility is a multifaceted challenge that requires overcoming various prevailing problems. These include:

1. short-term financial focus,
2. lack of awareness and education,
3. conflicting interests and stakeholder pressures,
4. lack of clear metrics and standards,
5. cost considerations, and
6. Complex supply chains.

Overcoming these challenges necessitates a shift towards long-term thinking, increased awareness and education on environmental issues, stakeholder engagement, the establishment of clear metrics and standards, recognizing the potential cost savings of sustainable practices, and fostering collaboration throughout supply chains.

The following specific objectives guided this study; -

i. Investigate the relationship between environmental responsibility and profitability of some selected companies in Gombe state, Nigeria.

ii. Examine the effects of environmental responsibility on the profitability of some selected companies in Gombe state Nigeria

iii. Interrogate if effects of environmental responsibility on profitability differs among companies' sector in Gombe state Nigeria.

2. Literature review and hypothesis development

Business organizations until recently were established with the main aim of creating economic values for their owners through profitable business activities and as such, profit is seen both as the means of fulfilling the financial satisfaction of the business owners and as compensation for the owners' risk to invest their capital in business enterprise. Over time, this profit motive created a wider gap between business owners and the society in which they operate resulting in agitation by pressure groups and even government for a fair play.

Environmental responsibility (ER), as an area of corporate social responsibility (CSR), refers to an enterprise's active reduction of environmentally adverse behaviors and participation in environmentally beneficial activities in its daily business activities (Shihong et al, 2019). In the past 100 years, human beings have plundered and destroyed the natural environment for economic development and their immediate interests, such as the threat of global warming (Nermain et al, 2022). The deterioration of the environment makes the society pay more and more attention to the sustainable development of natural environment (Olusola et al, 2021).

Environmental responsibility is an issue that have captured the interest of the business community and the general public in recent times. As concerns regarding environmentally friendly practices increase, corporate organizations are facing the challenge of disseminating information about environmental issues in their annual reports. Environmental responsibility is concerned with the awareness that action taken in the present has an effect on the options available in the future hence, if resources are utilized in the present then, they are no longer available for use in the future, and this is of particular concern if the resources are finite in quantity. Environmental responsibility is the process of communicating the social and environmental effects of an organization's economic actions to particular interest groups and to society at large. In general, the expectation is that firms that provide more disclosures on environmental responsibility practices in their annual reports would also experience or enjoy improved financial performance or profitability. It is also believed that large firms with better financial performance have the resources to provide more environmental responsibility disclosures than smaller firms.

Shareholders' wealth maximization is no longer seen as the overall objective of a company operating in the 21st century (Adeyanju, 2021). Nowadays, businesses are been accorded social responsibilities by the society and this has made business environment more competitive. An important part of corporate social responsibility being integrated into business concept is the environmental element, which will definitely attract cost if companies obliged. The universal awareness of stakeholders regarding environmental impact of companies' economic activities has posed a threat to evaluation of companies' performances through their traditional financial reports (Malik & Mittal, 2017). This is why environmental practices have been perceived as the opportunity cost of growth and financial performance for firms (Nwaiwu & Oluka, 2018).

Several studies have been conducted by researchers at the international scene to investigate the link between environmental responsibility reporting and financial performance. However, the debate on the causality relationship between environmental responsibility reporting and financial performance cannot be exhausted as previous research findings have not produced consistent results. Alshehhi, et al, (2018) substantiated the lack of consensus in the study findings of past researchers on the environmental sustainability disclosure-financial performance nexus. Their investigation was a systematic survey and content analysis of previous empirical literature on the subject involving 132 articles, and they found that 78% of the research findings revealed positive link between performance and environmental sustainability reporting. Past empirical literature revealed mixed findings; ranging from positive to negative or no relationship at all (Etale & Otuya, 2018).

Theorists like Friedman, John Dewey and Clarence Ayres have argued that it is not at the best interest of shareholders that a firm spends resources beyond compliance. According to the classical view of companies' performance, firms only need to use the resources at their disposal efficiently in order to meet the demand of the society by providing just the needed goods and services (Daferighe, et al, 2019). Quite a good number of previous studies have investigated the motivation for disclosure of environmental information by companies (Olaleye & Igbekoyi, 2020; Bednárov et al, 2019). Overall examination of the findings of these studies showed that there exist significant association between environmental reporting and regulatory requirements; expectations of stakeholders and society pressures; reputations and economic factors. Also, large portions of previous research have debated the relationship between corporate profitability and firms' environmental accounting practices but there has been mixed result. Some are of the opinion that there is a positive relationship between firm profitability and environmental accounting practices (Yahaya, 2018; Peter & Mbu-Ogar, 2018) while some studies have found negative relationship (Nwaiwu & Oluka, 2018).

In Nigeria, the unguided quest for economic development through oil exploration and lack of appropriate policies to guide the economic activities of companies has birthed conflict between the legal entity and its concerned stakeholders. These shortcomings have made firms to lose stakeholders' trust of the view that management represent and protect the interest of the society. Hence, companies will likely engage in environmental reporting to prove their commitment to environmental responsibilities; conformity with speculated environmental laws and, guidelines and exhibition of environmental concerns to a wide range of concerned stakeholders (Ofoegbu & Megbuluba, 2019). However, beyond regulatory compliance, environmental sustainable practices must be ethically desirable for every environmentally responsible firm (Okoye & Asika, 2013). Howbeit, the financial resources needed to engage in environmental accounting maybe a hindrance for many firms. This is because the design of environmental protection strategy and its implementation may cost a fortune and in turn increase firms' cost of product which may affect its financial performance (Ebieri, 2018).

The disparity in opinion and findings of these studies may be tied to different perception of company's stakeholders on the social and economic consequence of environmental reporting practices and as well the scope of coverage by these studies. Due to the indecisive nature of results from previous studies, the study aimed at investigating how firms' profitability and liquidity as financial performance affect firms' commitment to environmental sustainability responsibility through reporting. In this study, manufacturing firms operating in Yamaltu Deba LGA were made the focus because it is a highly environmentally sensitive industry and moreover, they are being exposed to greater societal pressure due to noticeable ecological distress created by their production activities.

2.1 Theoretical Review

One of the most influential theories that discuss organizational and strategic management is the Freeman's stakeholder theory (1983). It explains better the relationship that is expected between a firm and its stakeholders that are capable of influencing its decision. This is important because focusing exclusively on the need of the shareholders expose firms to complicated conflict of interest that can affect the firms' resources and reputation (Iheduru & Chukwuma, 2019). These are the resources released for the running of a business by different stakeholders with a consideration of environmental issues surrounding its activities for a specific period (Festus et al, 2023). The stakeholder theory was adopted as the theoretical basis for explaining the relationship that exists between the various interest groups while assessing the effect of environmental responsibility on the profitability of companies. The basic suggestion of the stakeholder's theory is that the firm's achievement is reliant on the proper management of all the interactions that a company has with its stakeholders, a term originally introduced by Stanford Research Institute (SRI) to refer to those groups, without the support of the groups, the organization would cease to exist (Oluwafemi et al, 2018). Nduke & John (2021) defined stakeholders as any individual or group who can influence or is influenced by the actions, decisions, policies, practices, or goal of the firm. According to Tapang et al, (2022), "the rather simplistic view of management objectives put forward by economic theories have been challenged by sociologists and psychologists. The behavioral scientists contend that profit maximization alone is not, and cannot be the sole management objective". They also said that there is a believe that the employed manager hoped to satisfy his own personal interest vis-à-vis the interest of the organization.

The stakeholder theory suggested an increase in the level of environmental awareness which forms the essential need for companies to outspread their corporate planning to include the non-traditional and non-financial stakeholders such as the regulatory adversarial groups in order to adjust to changing social demands (Oluwafemi et al, 2018). The core concern of the stakeholder theory in environmental accounting is to address the environment cost elements, valuation and its inclusion in the financial statements. According to Gray et al. (2017), stakeholders are acknowledged by companies to determine which groups need to be managed in order to enhance the benefits of the corporation. The stakeholder theory recommends that companies can manage these relationships based on different issues such as the nature of the task environment, the salience of stakeholder groups and the values of decision makers who regulate the shareholder ranking process (Donaldson & Preston, 2015).

The leading scholars of stakeholder theory among others are stakeholder theory proposes that a firm's aim is creation of stakeholder's value to the best of its ability. Since Stakeholder theorists view the corporation as a collection of internal and external groups (e.g. shareholders, employees, customers, suppliers, creditors, and neighboring communities), that is, "stakeholders," which was originally defined as those who are affected by and/or can affect the achievement of the firm's objectives (Freeman, 1984). Stakeholder theory is the underpinning theory for this research work.

2.2 Conceptual Review

2.2.1 Environmental Responsibility

According to Usman et al, (2022) “Environmental protection provides access to scarce natural resources and the exploitation of natural capital in a way that would preserve the ecosystem in the long-term”. This makes environmental protection to be one of the principal supports for corporate social responsibility. Moreover, activities related to energy consumption of organization, lower costs for waste disposal and reduction in water consumption are activities that their negative impact on the environment is reduced because of the implementation of socially responsible activities (Klimek, 2022). Thus, there exists feedback between a socially responsible business and the stakeholders.

Environmental concern has turned to the main issue as both organizations, and the general public recognizes the harm made to the environment in the past (Ferrel et al., 2018). Thus, the obligation to cover the environmental outcome of a specific organization’s task, products and facilities are the environmental part of corporate social responsibility. Elimination of waste and emission, taking full advantage of energy efficiency and productivity and reducing activities that may negatively affect the usage of natural resource in the future (Zafar, 2020). One of the concerns of corporate social responsibility is environmental protection. Thus, the essence of this area is connected with the way of equalizing the environment and sustainability of fundamental processes that generate socio-economic benefit.

2.2.2 Profitability

It is what the business has for itself consequent on fulfilling all obligations from sales revenue generated (Usman, 2022). It is merely the margin that separates the business cost and what the customer pays for it (Etale & Utoya, 2018). Profit means a complete measure of earning capacity, while on the other hand profitability is a relative measure of earning capacity (Nishanthini & Nimalathasan, 2019).

According to Profitability Analysis (n.d.), Profitability is the organization, firm or corporation’s ability to make a profit from all its business activities. It shows how managers can competently make a profit from combining all the available resource. It can be said that profitability helps management in providing a valuable ground for measuring business financial performance and its overall effectiveness (Conceptual Framework of Profitability and Capital structure, n.d.). Profitability is the ability of a company to use its material, human financial and information resources to generate surplus revenues more than its expenses (My Accounting Course, n.d.). According to Horton (2018), Profitability is the business ability to generate a return on investment based on its available resources in comparison with an alternative investment.

2.2.3 Conceptual Framework

The conceptual model depicted in Figure 1 shows the relationship between environmental responsibility and company's' profitability. The upper arrow depicts the direction of causation between environmental responsibility and company's' profitability while the lower arrow and loop under shows the effect of the interaction between environmental responsibility and corporate governance on company's' profitability. Profitability is evaluated on the basis of two accounting variables (return on assets and return on equity). Other explanatory and control variables (company size and company's' growth rate) are integrated in order to take into account other factors that may influence the link between the environmental responsibility and profitability of companies. These are depicted with dotted lines.

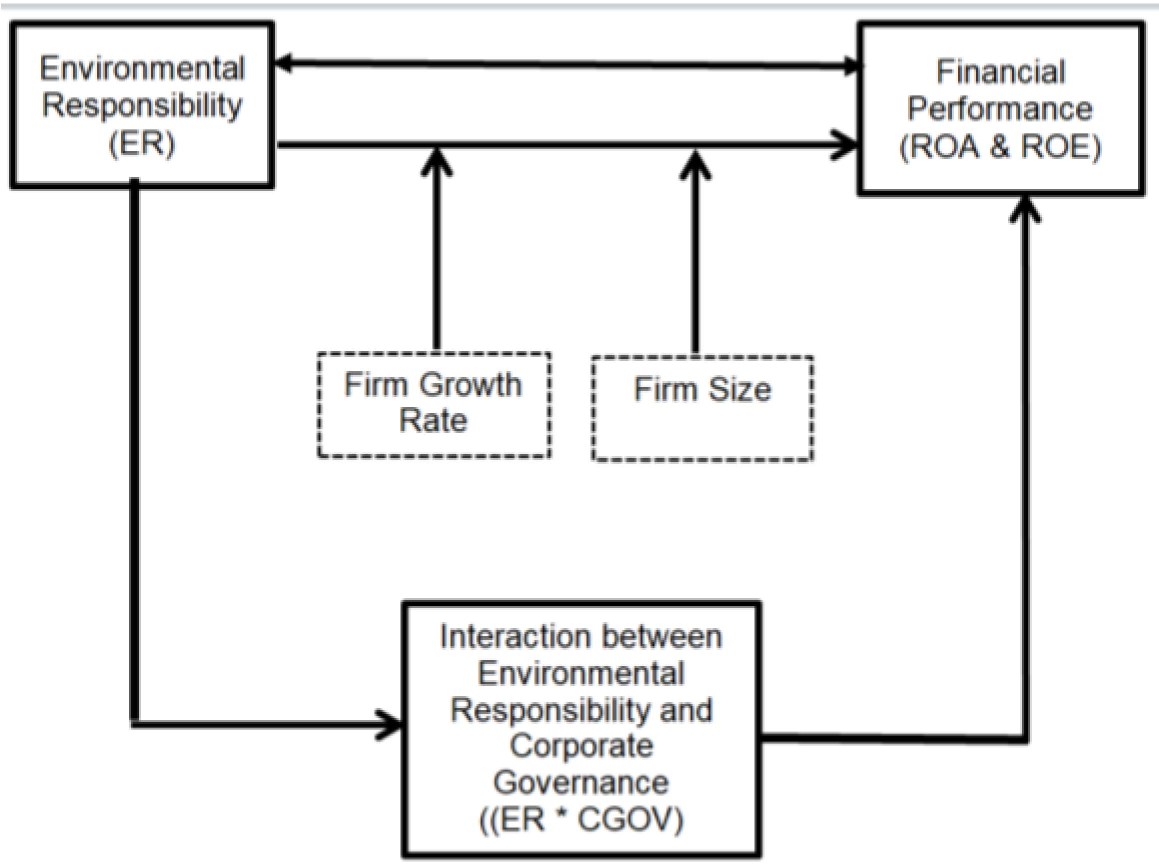

Figure 1: Conceptual Model

Source: Authors' Construction (2023).

2.3 Empirical Review

This section covers the review of some previous research studies on the field in different geographic regions to provide the justification for analyzing the relationship between environmental responsibility and profitability of some selected companies in Gombe state Nigeria. The review on continental basis is presented under the following subheadings.

2.3.1 Studies in Europe

Lassala et al, (2017) examined the impact of social performance (that is sustainability issues) on financial performance in Spain. The variables used include social performance, ROE, ROA (proxy for financial performance), and industry sector as control variable. Social performance consists of the set of principles and processes which brings about sustainable investments such as internal behavior, customer relations or philanthropic program.

The study employed the fuzzy-set qualitative comparative analysis (FSQCA) technique in analyzing data. The results of the study suggested that social performance affected financial performance. However, they recommended further research on the social performance-financial performance nexus as the results of previous studies are inconclusive. In UK, Adeneye (2015) examined the impact of CSR on firm performance using a sample of 500 firms. The study employed descriptive statistics, regression and correlation techniques for data analysis. He concluded with mixed results between CSR and financial performance: significant positive association between CSR, market to book value and ROCE; while no relationship was found between CSR and firm size. He recommended that UK firms should improve on CSR performance to gain competitive advantage.

2.3.2 Studies in Asia

Malarvizhi & Matta (2016) investigated the environmental disclosure-firm performance nexus in India based on content analysis of 2013-14 data from the annual reports of 85 sampled chemical, energy and metal companies listed on the Bombay Stock Exchange. Environmental disclosure index (EDI) used as dependent variable was regressed against return on capital employed, return on assets, net profit margin, and earnings per share (proxy for firm performance), using simple and multiple correlation techniques. The results revealed no significant relationship between the study variables. Also, Aggarwal (2020) examined the impact of components of sustainability performance on financial performance of listed companies in India for two accounting-year period, 2010/11 - 2011/12. Sustainability practices were represented by a firm's investments towards the community, employees, environment and government. Five measures of financial performance were captured in the variables, namely:

ROCE; ROA; ROE; profit before tax; and total assets growth. The sample of 20 non-finance companies listed on the National Stock Exchange of India represents different sectors of the economy, including IT, Telecom, hospitality, manufacturing, agro-allied and food, construction, oil, gas and mining. Data obtained from the financial statements of selected companies were analyzed using descriptive statistics and multiple regression tests based on

IBM SPSS software. The overall results showed that sustainability performance had no influence on financial performance. The study observed that the results were mixed and inconclusive, and therefore recommended further research on the subject.

Cortez & Cudia (2019) examined the impact of environmental sustainability practices disclosures on financial performance in Japan. The study used data generated from the annual reports of sampled electronics companies listed on the Tokyo Stock Exchange, covering nine years period from 2001 – 2009. These 10 global electronic giants publish annual sustainability reports a year after the annual financial reports in line with a format and classification code prescribed by the Japanese Ministry of Education (MOE). The study adopted content analysis method following a theoretical review and literature survey of past empirical studies. The European findings of the study indicated that environmental innovations impacted positively on revenue generation and minimize risks; and in the face of declining global demand for electronic products the financial conditions of these companies would have worsened had they not engaged in environmental sustainability practices.

In another study in Japan, Nakao et al (2021) examined the effect of corporate environmentally friendly practices on financial performance using data from 1999 to 2003. The study employed the Granger Causality test methodology to analysis time series panel data obtained from their sample of 278 listed corporations in Japan. The results of the study revealed that corporate environmental activities had a positive effect on financial performance.

In Singapore, Teoh et al (1996) investigated the relationship between environmental disclosures and financial performance using a sample of 60 companies drawn from the industrial sector identified as potentially polluting the environment. Data was collected covering a period of seven years (1990-1996) based on content analysis of the annual reports of the selected companies. Eight accounting ratios were used as proxy for financial performance which among others includes ROA, ROE, cash basis return on assets, and cash basis return on equity. Independent test was employed to analyze data. The results of their study showed that a positive relationship existed between environmental disclosures and financial performance. Based on their findings, they recommended that companies in Singapore be encouraged to increase the content of their environmental disclosure in the annual financial statements.

2.3.3 Studies in other parts of Africa

Worae & Ngwakwe (2017) examined the relationship between environmental responsibility and financial performance in South Africa using time series panel data obtained from 14 manufacturing and mining companies listed on the Johannesburg Stock Exchange for the period 2008 to 2014. They performed cross-sectional dependence tests based on the Breusch-

Pagan LM and Pesaran CD tests in addition to the Gcause2 Baum's Granger causality test.

Financial performance measures adopted include ROA, ROE, return on sales and market value of equity regressed against emissions intensity and energy usage intensity (proxy for environmental responsibility). The results indicated mixed findings among the variables. Also, Nyirend et al, (2013) evaluated the impact of environmental management practices on financial performance in South Africa using a Johannesburg Stock Exchange listed mining company as case study. Return on equity proxy for financial performance was regressed against elements of environmental management practices such as carbon reduction, energy efficiency, and water usage. Multiple regression statistics were used as methods of data analysis. The study found no significant relationship between environmental management practices and financial performance. They concluded that the mining company in question adopted environmental management practices in a desire to abide by environmental regulations and its moral obligation to mitigate the impact of climate change.

2.3.3.1 Studies in Nigeria

Nnamani et al, (2017) investigated the effect of sustainability accounting on financial performance using a sample of 3 listed brewery companies in Nigeria. The study identified sustainability accounting as the investments on people (social), and the environment, whereas, economic performance (or financial performance) was based on profits – ROA and ROE. They used the ordinary linear regression tools for the analysis of secondary data collected for the period 2010 to 2014. The study found that sustainability accounting had significant positive effect on financial performance. Based on their findings the study recommended that firms in the brewery industry invest more of their earnings on sustainability reporting practices.

Owolabi et al, (2016) in their study examined the extent of sustainability reporting by Lafarge Africa Plc, a high environmental-impact company operating in the building materials and quarrying sector; also, winner of both the Environmental Sustainability and Stakeholder Engagement in Social Enterprise Report Awards (SERAs) in 2015. Data sourced from the 2014 annual report of the company were examined through content analysis using the Global

Reporting Initiative (GRI) guidelines as basis of assessment. The study revealed low sustainability reporting practice by the company (that is, no disclosures on human right issues, 3% environmental disclosures, and 30% disclosure based on 169 indicators). They recommended the regulation of sustainability reporting practices among firms in the country. Also, Jibril et al (2016) examined the relationship between CSR and financial performance of 12 listed banks in Nigeria covering the period 2008 to 2013. The independent variable CSR was represented by aggregate amount spent on CSR practices by banks, while financial performance was represented by ROE and ROA. Data obtained from the annual reports of selected banks were analyzed using multiple regression techniques based on windows SPSS statistical software. The study found that CSR had significant positive impact on financial performance.

Umoren et al, (2019) investigated CSR disclosure practices among quoted companies in Nigeria. Data covering two years period (2013-2014) was collected from a sample of 45 companies (representing 8 sectors) among 188 listed on the NSE based the availability of data on the study variables. The exploratory variables include return on equity and firm size (total assets). The study employed descriptive statistics and correlation regression as methods of data analysis. The results revealed that firm size and the profile of audit firm influenced CSR disclosures, but return on equity had no impact on CSR disclosures. The study recommended mandatory CSR reporting framework for listed companies in Nigeria. Onyali et al, (2020) also investigated the effectiveness of Triple Bottom Line (TBL) disclosure practices of corporate firms in Nigeria. Primary data for their study was obtained through the use of a structured questionnaire based on a five-points Likert scale. The study adopted descriptive statistics and One Sample Z-test procedure using SPSS version 22 for data analysis. Their study revealed dissatisfactory level of TBL disclosure practices among firms in Nigeria, recommending that companies should disclose quantifiable TBL indicators. In a related study, Zaccheaus et al, (2018) studied the effect of CSR on stock prices of listed manufacturing companies in Nigeria. Secondary data covering the period 2008 to 2012 was compiled from the annual reports of 30 companies sampled for study out of the 73 manufacturing firms listed on the NSE. The study adopted simple OLS regression techniques and descriptive statistics to analyze data, and found no relationship between CSR and stock prices (proxy for firm performance).

In their study, Ifurueze, et al, (2021) examined the impact of environmental cost on corporate performance in Nigeria, using a sample of twelve oil companies quoted on the Nigerian Stock Exchange (NSE). Three indicators of environmentally sustainable business practices were used as proxy for environmental cost, while ROTA was used as proxy for corporate performance.

Multiple regression technique was employed to analyze secondary data obtained from the annual reports of selected companies for the eleven years period covering 2001 to 2011. The study found significant relationship between sustainable business practices and corporate performance. Also, Ekwueme et al, (2022) examined the relationship between sustainability reporting and corporate performance in Nigeria using primary data obtained through a structured questionnaire based on the five-points Likert scale. The study employed descriptive statistics, Kolmogorov-Smirnov (K-S), One Sample T-test and Multiple Regression Techniques for data analysis, and found that corporate performance was positively connected to sustainability reporting. They therefore recommended the adoption of sustainability reporting practices by corporate organizations in Nigeria

2.3.4 Content analysis of past literature and research gap

Aggarwal (2022) conducted a literature survey to examine the relationship between environmental responsibility reporting and financial performance. He reviewed 18 past empirical studies on the subject matter. The study found that out of 16 studies that treated environmental responsibility practices as independent variable, 8 showed a positive relationship between environmental responsibility and financial performance; 3 showed a negative relationship; while 5 provided mixed or no significant links. These 16 studies were carried out in different countries or geographic regions: 6 in US; 2 each in Japan and Spain; 1 each in Nigeria, Sweden, UK, Germany, US/Europe and Asia (data from 7 countries). The other 2 studies covered in his review, treated environmental responsibility as the dependent variable, and the results showed that environmental responsibility practices were influenced by harmful emissions, press release activities and external financing. He concluded that environmental responsibility practices lead to improved financial performance due to good relations with stakeholders; enhanced reputation; ability to attract and retain qualified employees, investors and customers; cost savings; operational efficiencies; innovations; long term orientation; better access to capital; secured license to operate and increased competitive edge. Similarly, Alshehhi, Nobanee & Khare (2018) investigated the relationship between corporate sustainability practices and financial performance through a systematic survey and content analysis of past empirical literature on the subject. The study involved a total of 132 research articles from around the World published between 1984 and 2017 in top-tier peer reviewed journals. The time period distribution indicated that 20% of these papers were published between 2012 and 2013, 27% between 2014 and 2015 and 28% between 2016 and

2017. The study revealed that 78% of the research findings indicated positive connection between financial performance and corporate sustainability. They however noted the scarcity of research studies on this subject and recommended further research to facilitate the understanding of the relationship between financial performance and corporate environmental responsibility practices. These reviews indicated the existence of a research gap which this study intended to contribute to.

2.4 Hypotheses Development

The following hypotheses were formulated and tested;

H_{01}: there is no significant relationship between environmental responsibility and profitability of some selected companies in Gombe state, Nigeria.

H_{02}: environmental responsibility has no significant effects on profitability of some selected companies in Gombe state, Nigeria.

3. Methodology

- **Methods**

This section discussed the research methods used in terms of research design, study population, survey and sampling methodology, instrumentation used in data collection, data source/collection, interpretation, and statistical analysis. This segment usually responds to the issue of "How" the study was done. Since it is the foundation of the research, any research process is reliant on this portion.

- **Research design**

Quantitative research method was employed for this study. The method is based on causal (ex-post facto) and longitudinal research design. Geographically, the study is confined to the North-Eastern region of Nigeria, Gombe State in particular. The state has many companies through which their activities tents to affect the environment positively or negatively.

- **Population**

The population consist of all the 18 manufacturing firms listed on the LGA registered with the SMEs Directorate of Gombe State Ministry of Commerce and Industry as at June 17th, 2023 that engage in manufacturing/production activities only. On the SME's list, manufacturing firms cut across 6 sectors which are; conglomerates, agriculture, consumable goods, industrial goods, healthcare and natural resources. The environmental effects which the industrial operations of these manufacturing firms have on the environment have made them a subject of focus.

- **Sample size determination**

Based on the need assessments, coverage, financial and time factors, 30 percent representing 5 companies of the total companies' population were identified and used in this study and they are as follow;

1. Zahok Multipurpose Company
2. Bpikin Rice Mall
3. Difian Global Concept
4. Lead-Tech
5. Nyemalti Global Company

- **Sampling techniques**

Five companies (5) which represent 30% of the population were proportionally selected from the stratified sector to ensure each sub-sector have equal chance of being represented in proportion of their sizes.

- **Methods of collection of data**

The study employed secondary method of data collection where financial statements and annual reports of the sampled listed companies were collected and used for the purpose of this study.

- **Sources and type of data collection**

This study depends mainly on secondary data, which was obtained from the five (5) randomly selected profitable companies in Gombe State, Nigeria. Their annual reports and financial summary between 2013-2022 i.e. ten (10) years period was used.

- **Research instrument description**

i. **Validity**
ii. **Reliability:**

Establishing the reliability of the study, researchers must ensure the instrument measures the variables appropriately (Stephen, 2019). Reliability of the instrument impacts the quality of the research (Stephen, 2019). In my study, complications for ensuring the validity of the instrument were minimal with the use of archival sources.

- **Method of Data Analysis**

The study used several statistical methods for analyzing data. These are descriptive which are minimum, maximum, mean standard deviation, skewness, and kurtosis. Correlation matrix and regression analysis. The analysis was conducted with the aid of SPSS 26.0 Software package.

- **Model specification**

The below relational model was adopted for this study:

FP = F(ER)

$$FP_{it} = \beta_0 + ER\beta_{it} + \mu_{it} \text{...} (1)$$

where;

ER = Environmental Responsibility

FP = Financial Performance

β= intercept

β_{it} = Parameter of the estimate

μ = Error term, representing factors other than those specified in the model

it = Company at year t

i > 0

$$\mathbf{2 \leq t \leq 10}$$

4. Results and discussion

4.1 Descriptive Statistic

Descriptive statistics for the dependent variable of the firm's profitability indicated a mean of #211.78 million, standard deviation of ₦139.01 million with a count of 10 years samples each from the 5 selected firms. Also, table 2 below shows that Environmental Responsibility for the 5 chosen companies has a mean and standard deviation scores of 1.62 and 1.38 respective Descriptive statistics are used to evaluate the integrity and logic of a dataset (Pallant, 2018). Table 1 displays the descriptive statistics for all variables.

Table 1: Descriptive Statistics of Dependent and Independent Variables

Variable	Mean	Std. Deviation	N
FP	211.78	139.01	50
ER	1.62	1.38	50

***Source*: SPSS Output, 2023**

4.2 Correlation Analysis

A correlation of coefficient analysis determined the magnitude of linear association between the independent and dependent variables. Correlation of coefficients analysis examines the potential strength of the relationship between the variables (Field, 2018). The correlation between the firm's profitability and Environmental Responsibility showed nearly an average positive relationship of 0.473 and was significant at $\alpha < 0.05$. Table 2 depicts the correlation of coefficient results.

Table 2: Correlation Coefficient

		FP	**ER**
Pearson Correlation	FP	1.000	**.473**
	ER	**.473**	1.000
Sig. (1-tailed)	FP	.	.000
	ER	.000	.
N	FP	50	50
	ER	50	50

***Source*: SPSS Output, 2023**

4.3 Regression Analysis

The regression analysis demonstrated a relationship between p with a multiple *R* of .473 and R^2 of .224. The $F(1,48)$ of 15305.586 and significant *F* of .001justifies the rejection of the null hypotheses, concluding a significant difference existed among profitability and environmental responsibility. Therefore, the 2 alternative hypotheses were accepted. Furthermore, the model $FP_{it} = \beta 134.713 + 47.572ER .... (2)$ was obtained from the regression analysis.

Table 3: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.473	0.224	.208	123.71575

***Source*: SPSS Output, 2023**

Table 4: ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
	Regression	212235.125	1	212235.125	13.867	.001
1	Residual	734668.143	48	15305.586		
	Total	**946903.268**	**49**			

***Source*: SPSS Output, 2023**

Table 5: Regression Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	134.713	27.100		4.971	.000
	ER	47.572	12.775	.473	3.724	.001

***Source*: SPSS Output, 2023**

5. Recommendations, Implications and Conclusion

5.1 Recommendation

Based on the findings of this study, the followings are recommended:

1. Companies should undertake CSR commitments voluntarily rather than waiting for the enactment of government regulations, such as those handed down from the Environmental Protection Agency.
2. Further studies are needed to establish a correlation by examining common ratios, such as net profit percentage, return on assets, return on investment, and market value measures.

5.2 Implication

Corporate stakeholders are concerned with the degradation of the environment and wellbeing of society, generally summarized by CSR (Col & Patel, 2019). Undertaking rigorous programs intended to protect the environment and contribute to the wellbeing of society may appear at odds with the primary purpose of producing profits (Freeman, 1984). Environmental and social activism seeks to make business leaders aware of the importance of keeping their operations and reputation in good standing among stakeholders (Friedman, 1970). Lacking standards for CSR reporting, Col and Patel (2019) believed the practice had widened information asymmetry, adding doubts to the value of the information companies disclose. With social issues and stakeholder activism on the rise, companies feel pressured to contribute in positive ways to social wellbeing by championing enrichment programs, funding important social causes, and improving the lives of their employees and community (Col & Patel, 2019).

5.3 Conclusion

With rising concern in global climate change, people scrutinize corporations, blamed as the leading cause of environmental degradation and social inequities. For centuries, environmental issues went unnoticed, and we can see evidence of activities in many ways from the loss of natural resources, clean water, clean air, and degradation of land including forests, grasslands, and natural habitats across the world (Chandok & Singh, 2017). Chandok and Singh (2017) indicated businesses may not be entirely the blame but are an easy target for assigning responsibility. As the primary purpose of a business endeavor is to increase stockholder value (Friedman, 1970), issues of environmental stewardship and social responsibility may seem at first secondary, but stakeholders hold influence over business operations and can bring about change through activism (Freeman, 1984). The results of this study found that relationships exists between profitability and environmental responsibility, and the later has significance effect on firm's profitability. In conclusion, companies wanting to remain in the good graces of stakeholders and grow their organization should participate in robust measures intended for reducing their environmental footprint and enhancing social responsibility.

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