



Effect of Environmental Disclosure on Market Value of Listed Oil and Gas Companies in Nigeria

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ABSTRACT

Environmental disclosure in recent times has been an issue of concern. This concern is as a result of the activities of oil and gas sector on the environment. This concern has led to the introduction of guidelines for organization to comply with, though largely voluntarily and not mandatory. Most companies do not meet this requirement as a result the business environment becomes volatile and un conducive for business to thrive. These companies are considered as environmentally unfriendly which impedes their corporate image and adversely affects market value. The main objective of the study is to examine the effect of environmental disclosure on market value of listed oil and gas companies in Nigeria. To achieve the objectives of this study, ex-post facto research design was used for this study. Descriptive statistics and ordinary least square regression technique were used in the analysis of data. Environmental disclosure was proxied by environmental management policies, recognition of environmental activities, prevention and repair of environmental damage, environmental liabilities and stakeholder's engagement, while market value was proxied by Tobin's Q. Data for the study were generated from published annual accounts and reports of listed oil and gas companies in Nigeria covering the period 2009 to 2019. The study hypotheses were tested at 5% level of significance. This study revealed that: environmental management policies have a significant negative effect on market value. Recognition of environmental activities, prevention and repair on environmental damage and environmental liabilities have positive but insignificant effect on market value while stakeholder's engagement has a negative but insignificant effect on market value of listed oil and gas companies in Nigeria. Based on the findings of this study, it is recommended that management of oil and gas companies are encouraged to disclose information on

environmental practices as it relates to the categories of environmental disclosure. These categories complement each other to increase market value. In addition, the government through the Federal Ministry of Environment should continue to regulate the environmental practices of companies through the regulatory bodies to ensure compliance.

I. INTRODUCTION

All over the world, the performance of firms largely depends on the nature of business they operate, and the possible legal, political and environmental regulations, which constitute an important item of public policy within the scope of their operations. Ajagbe, Peter, Ekanem, Uduimoh, and Akpan (2017) observed that increasing emphasis on the role of corporations in ensuring environmental sustainability has necessitated the need for a multidisciplinary approach to issues of environmental protection. The implication on corporate entities in this regard is to reconfigure their corporate objectives to reflect the same levels of environmental accountability. However, environmental disclosures are discretionary, suggesting that corporations exert a manageable control over the preparation and disclosure of environmental information. Consequently, firms' claims of being environmentally responsible may simply reflect an attempt at corporate branding (Akpabio, Brown, Ansa, Udom, & Abasi-ifreke, 2015). According to Al-Tuwaijri, Theodore, Christensen, and Hughes (2014), degradation, pollution and accelerated destruction of the ecosystem and the depletion of non-renewable environment biodiversity has serious impact on the financial performance and market value of firms. Bartolomeo, Bennett,



Bouma, Heydkamp, and James (2018) observed that companies in pursuit of profits can do great social harm and the environment suffers, thus, there is an emphasis for a meeting point between corporate objective of profit maximization and the need for good environmental management. In this regard, the need for environmental disclosure has become the concern and focus of nations and responsible corporate managements (Bilau, Ajagbe, Bustani, & Sholanke, 2016). However, within the developing nations Nigeria inclusive, the understanding of environmental disclosure is somewhat different mainly because of weak government regulations and lack of organized pressure groups and consumer awareness to influence corporate behavior (Bilau, Ajagbe, Bustani, & Sholanke, 2016). Abubakar (2017) posited that environmental disclosure positively impact the business value of an organization, and hence improve financial performance. A number of factors like leverage, growth rate, and capital structure and business risk affect financial performance of a firm, the environment in which it operates seems to have a greater effect on it (Yahaya, 2018). According to Bani-Khalid, Koughy, and Hassan (2017) environmental disclosure by companies help in increasing good reputation, eventually build trust of investors and hence enhances financial performance. Companies disclose information about the company's environmental issues, because it adds value to the company and hence increases financial performance (Caesaria & Basuki, 2017). The issues relating to the environment have impact towards the company's future performance (Utile, Tarbo, & Ikya, 2017). Disclosure of environmental activities impacts the future rather than the current performance of companies (Mohoney, & Roberts, 2007).

Statement of the Problem

Environmental disclosure in recent times is an issue of concern. This concern is as a result of the activities of oil and gas sector on the environment. This concern has led to the introduction of guidelines for organization to comply with, though largely voluntarily and not mandatory. Most companies do not meet this requirement as a result the business environment becomes volatile and un conducive for business to thrive as they are considered as environmentally unfriendly and this impedes corporate image and adversely affects financial performance (Ezejiofor, John-Akamelu, & Chigbo, 2016).

According to Deegan (2002), a pertinent research question in extant literature is the possibility of (or how probable) environmental disclosure practices are influencing financial performance of companies. This is reflective of the importance of further research in environmental disclosure as it relates to financial performance of companies. Specific areas looked into by various scholars on environmental disclosure practices linked to attributes of performance such as economic performance, include Ullman (1985), Al-Tuwajiri (1994), Haninun, Lindrianasari, and Denziana, (2018) and Moreno and Atoche (2019). Ullman proposed a model, Moreno and Atoche (2019) made an extension on the model. Based on Ullman's argument environmental disclosure as it relates to economic performance is determined by the management's strategy and subjected to multiplicity of external pressures from stakeholders and the society

It can also be observed from the review of empirical studies that the results of the work on environmental disclosure and market value on listed oil and gas companies in Nigeria are very few and its focus is on the aggregate of environmental disclosure hence this present study looks at the specific environmental disclosure themes. However, most of these studies used the accounting measures of performance like ROA, ROE and EPS without focus on the market based measurements. This study used the market-based performance of the firm gauged through Tobin's Q as a representation of future long-term performance. Disclosure of environmental activities impacts the future rather than the current performance of companies (Mohoney & Roberts, 2007).

The study focused on the oil and gas industry, the oil and gas industry is one of the industries with the greatest effect on the environment. The environmental effects that result from normal operations of oil and gas activities may be the results of occasional events such as, oil spill and explosion (Magara, Aminga, & Momanyi, 2015). During the last decade, the oil and gas industry has witnessed several critical environmental incidents, for example the oil spill incident records in Nigeria's upstream petroleum sector, of the two multi-national company Exxon Mobil and Chevron Limited (Mohammad, 2015). The occurrences of environmental incidents as a result of activities of oil and gas companies have contributed to the increase of environmental awareness and put the oil and gas sector under societal pressure to reduce its impacts on the



environment (Siddique, 2015). The above mentioned motivated this study to focus on environmental disclosure of oil and gas sector. The study examined the effect of environmental disclosures on market value of listed oil and gas sector in Nigeria.

Objectives of the Study

The main objective of the study is to examine the effect of environmental disclosure on market value of oil and gas companies in Nigeria. The specific objectives are to;

- i. ascertain the effect of environmental management policies disclosure on market value of listed oil and gas companies in Nigeria,
- ii. examine the effect of recognition of environmental activities disclosure on market value of listed oil and gas companies in Nigeria,
- iii. ascertain the effect of prevention and repair of environmental damage disclosure on market value of listed oil and gas companies in Nigeria,

Research Hypotheses

The following null hypotheses were tested to help guide the study;

- H₀₁: Disclosure on Environmental management policies has no significant effect on market value of listed oil and gas companies in Nigeria.
- H₀₂: Disclosure on Recognition of environmental activities has no significant effect on market value of listed oil and gas companies in Nigeria.
- H₀₃: Disclosure on Prevention and repair of environmental damage has no significant effect on market value of listed oil and gas companies in Nigeria.

II. LITERATURE REVIEW

The reviews concentrated on the following areas: conceptual frameworks, theoretical framework and review of empirical studies. This chapter sets the theoretical basis for the study, by making a comparative analysis of the various views on the subject matter to determine the extent of the gap between theory and application.

Conceptual Framework

This section focuses on conceptual clarifications. The concepts examined are concept of environmental disclosure, measurement for

environmental disclosure, concept of market value and measurement.

Concept of Environmental Disclosure

The concept of Environmental disclosure has been defined by many authors. Environmental disclosure is information provided for the assessment of company's behavior towards its environment and the economic consequence of such action. It provides financial and non-financial information (Arong, Ezugwu, & Egbere, 2014). According to Beredugo (2014), environmental disclosure is seen as the process by which an organization communicates the environmental effects of its economic actions to particular interest groups within the society and to the society at large. Burgwal and Vieira (2014) viewed environmental disclosure as a broader term that relates to the provision of environmental performance related to information to stakeholders both within and outside an organization. Ejoh, Orok, and Sackey (2014) argues that environmental disclosure is information relating to the impact of company's activities on the environment, it consists of information pertaining to the environmental activities and performance Ejoh, Orakand and Sakey (2014), defined environmental disclosure as the set of information that relates to a company's past, current and future environmental activities. Elkasit and Worthington (2014) viewed environmental disclosure as a statement that shows the company's environmental efforts including company's objectives, environmental policies and environmental impacts, this are reported and published annually to the general public. Ibrahim (2014) defined environmental disclosure as provision of information to stakeholders both private and public, it could be financial and non-financial, quantitative or qualitative information regarding the organization's management of environmental issues. Jerry, Teru and Musa (2014) viewed environmental disclosure as information for the assessment of company's behavior towards its environment and the economic consequence of such action. Juhmani (2014) opined that environmental disclosure comprises of a set of information about firm's environmental management policies which can be in form of qualitative statements, or quantitative facts. Kowaleski (2014) opined that environmental disclosure provides financial and non-financial information by entities on the impact of its undertakings on the environment. Environmental disclosure is an environmental strategy to



communicate with stakeholders (Setyorini& Ishak, 2012).

Based on the above it can be deduced that environmental disclosure communicates relevant information as a result of the company's operations as it affects the environment to stakeholders and society as a whole. Environmental disclosure is about the information that relates to the environmental activities, these activities could be in the past, present or future, it should be reported annually to the public.

Environmental Disclosure Index

Environmental disclosure was measured using the environmental disclosure index, which has three themes, the themes are discussed below;

Environmental Management Policies

This study viewed Environmental Management Policies from the perspective of: Adoption of environmental sensitive management techniques; Departments/offices for environmental affairs; Setting up objectives and strategies for environment; Environmental awareness campaign; Compliance with regulation; Implementation of environmental audit; Establishment of environmental programs; and Operational, safety and health (OSH) practices (Iwata & Okada., 2011). Environmental policies are written statement that outlines the business aim and principles in relation to managing the environmental effects and aspects of its operations, this is usually signed by senior management (Iwata & Okada., 2011). Environmental policies are commitment of an organization to government laws, regulations and other policy mechanisms concerning environmental issues including air and water pollution, waste management, ecosystem management, management of natural resources (Charles, 2010). Disclosing this information is voluntary in nature, although there are an increasing number of businesses choosing to disclose issues on environmental policies. According to Charles (2010), having environmental policy is essential to implementing an environmental management standard. It helps in demonstrating to customers and other stakeholders the commitment of an organization in managing the environmental impacts.

Recognition of Environmental Activities

This study viewed from the perspective of recognition of environmental activities ISO certification and Environmental award or external recognition. Recognition of environmental activities is about notable environmental awards for activities

that lead to the protection of the natural environment. According to Sokunbi(2014) the major reasons for seeking the ISO 9001 in Nigeria is because it enhances a company's corporate image. ISO 9001 is a standard that spells out the requirements for a quality management system. ISO (2015) defined quality management system as a way of defining how an organization can meet the requirements of it's customers and other stakeholders affected by it's work. ISO 9001 also highlights the basic requirements for quality management system that must be fulfilled by an organization to show it's ability on how to improve customer's satisfaction as well as meeting the statutory and regulatory requirements.

Tari, Malma-Azorin and Heras (2012), highlighted several benefits of ISO 9001 as growth in sales, increase in market share, improved customer satisfaction, and improved competitive advantage, improvement on employee morale and improved relationship among stakeholders. A study conducted by Prates and Carashi (2014) which measured and evaluated the benefits of quality certification shows that ISO 9001 certification has impacts on the organizational and leads to overall improvement, and also leads to improved company image and has a significant positive effect on performance. The implementation of ISO 9001 impacts the operational performance of companies in developing countries. It has been established from literature the benefits of ISO 9001 and organizations in developing nations like Nigeria can enjoy improved operational performance, Oladokun, Olawuyi, Okunade, & Anyaechie (2017). Many organizations are making use of employee recognition to motivate employees to achieve high performance and productivity. Research has shown that effective recognition occurs in organizations that have strong supportive culture, understand the psychology of praising employees for their good work, and apply the principles of employee recognition (Amoatema&Kyeremeh 2016).

Employee recognition has been identified to be a highly effective motivational instrument that can have significant positive impact on employee job satisfaction and performance as well as overall organizational performance (Rahim & Duad, 2013). Non-financial rewards such as recognition have been highlighted to have positive relationship on employee job satisfaction and organizational performance (Erbasi& Arat, 2012; Tausif, 2012). According to Imran, Ahmad, Nisar & Ahmad (2014), satisfied employees have positive attitude towards organization and their jobs thereby



increasing the quality and quantity of employee performance.

Prevention or Repair of Environmental Damage

This study viewed prevention or repair of environmental damage from the perspective of Treatment of waste disposal (recycling/reuse/reduce); Adoption of Safe environmental practices or improvement on environmental facilities; Emission/Pollution/Air water and soil control; Wildlife preservation; Estimated Future cost for environmental rehabilitation; Environmental impact assessment and research programs; Conservation of natural resources; Land reclamation; Renewal sources use (renewal energy sources to increase energy efficiency) and energy savings; Revegetation scheme (tree planting).

According to Adams (2019), advances in the development of petroleum resources have contributed enormously to the global energy demand and economic development over the past decades, however, it has left profound negative impacts on the natural environment as well as adverse human health effects in most oil-producing host communities around the world. According to the Department for Environment, Food and Rural Affairs DEFRA, (2011) as cited in Akinlo and Iredele (2014). Waste is a component of economic activities carried out by households, firms and the government; it is a contribution to economic activity through resource recovery (material or energy). Waste management involves implementing the waste hierarchy through the 3R's (reduce, reuse and recycle) in order to promote a clean environment and a healthy society. Miradha et al (2017) opined that waste reduction can be achieved by reducing material inputs to products with high waste potentials, waste classification and the use of advanced facilities in waste processing. Reuse of waste involves utilization of waste as materials for the same or other functions, while recycling comprises of further processing of waste for several other purposes. Firm's disclosure on waste management strategy portrays a positive picture of organizations inclination to eco-efficiency which in turn impacts on performance, as consumers will be more willing to demand for products which in its entire life cycle is environmentally friendly i.e utilizes fewer resources and creates fewer waste and pollution.

Concept of Market Value

Market value is the value of an asset or company in the market place, according to what

investors are willing to pay for the value (Saad, 2021). Market value is about the company's actual value, and how profitable the company is and the financial health of the sector is also assessed (Rebel 2021). Market value represents the value of a company according to the stock market, it is the price an asset would get in the market place (Seth 2021). A company's market value is a good indication of investor's perceptions about its business prospects (James 2021).

Book value has little bearing on the company's market value. The book value reflects the value at which assets are carried on the statement of financial position whilst the market value stands for the price that assets would fetch in the marketplace (Fabrozi & Drake 2009). In the case of companies the market value is more accurate in economic decisions than the book value. First, the book value does not cover all the assets and liabilities (e.g. intangible assets such as reputation). Second, the assets and liabilities included in the balance sheet are not valued at the market value but at the purchase cost less depreciation. Therefore in order to value a company one should rely on the market prices. Market does not value only the company's assets it values also the entire companies. For the public companies the valuation of company's equity is performed on a daily basis. The enterprise market value of a company stands for the sum of claims of owners and lenders of a company: equity holders and creditors.

Based on the above it can be deduced that market value paints a broader picture of a company's financial standing, also the higher a company's estimated worth, the greater its market value. Market value also provides a fair estimation of the value of worth of any given asset. Financial performance is used as an indicator of a firm's financial profitability over a period of time and can be measured in different ways. Financial performance is commonly used as an indicator of a firm's financial health over a given period of time.

Market Measures

The traditional approaches of measurement consist of the Accounting and Market based approach of measurement of financial performance using the financial statements. Financial performance measures can be grouped into two categories, namely profitability (accounting) ratios, and investment (market) ratios. Most financial statement analysis examines aspects of a firm's profitability.



The market measure compares the firm's market value or share price to the firm's fundamentals of profitability and growth. This technique commonly uses market measures such as market-to-book ratio, the price-to-earnings ratio and Tobin's Q. Market ratios are those commonly used by interested investors in an investment in a firm. According to Zhao, Andrew, McCoy, Kleiner, and Mills (2016) the market price reflects the result of the market's trading activity in that stock. It summarizes the aggregate information the market participants have about the firm, and the aggregate expectations for the firm's future profitability and growth (Yahaya, Kutigi, & Ahmed, 2014). Tobin's Q- The performance of firms can equally be viewed from the Tobin's Q perspective. The Q ratio, also known as Tobin's Q, equals the market value of a company divided by its assets' replacement cost. Thus, equilibrium is when market value equals replacement cost. At its most basic level, the Q Ratio expresses the relationship between market valuation and intrinsic value. In other words, it is a means of estimating whether a given business or market is overvalued or undervalued (Adams, 2019). The Q ratio is calculated as the market value of a company divided by the replacement value of the firm's assets. Since the replacement cost of total assets is difficult to estimate, another version of the formula is often used by analysts to estimate Tobin's Q ratio (Aly, Simon, & Hussainey, 2019). It is as follows:

$$\text{Tobin's Q} = \frac{\text{Equity Market Value} + \text{Liabilities Market Value}}{\text{Equity Book Value} + \text{Liabilities Book Value}}$$

Often, the assumption is made the market value of liabilities and the book value of a company's liabilities are equivalent, since market value typically does not account for a firm's liabilities. This provides a simplified version of the Tobin's Q ratio as the following:

$$\text{Tobin's Q} = \frac{\text{Equity Market Value}}{\text{Equity Book Value}}$$

Tobin's Q refers to a traditional measure of expected long-run firm performance (Bozec, Dia & Bozec, 2010). The employment of market value of equity may present the firm's future growth opportunities which could stem from factors exogenous to managerial decisions and this is indicated by the companies level (Shan & McIver, 2011; Demsetz & Villalonga, 2001).

Because on the shortcomings of the accounting based measurements this study deems it fit to use the market measure to measure financial performance. Environment disclosure has effect on

the future performance of firms, disclosure of environmental activities impacts the future rather than the current performance of companies. Therefore the market value was measured through the market base proxy (Tobin's Q). This study considered it as the best performance measure that shows the company's market value, disclosing information on the environmental issues can build the trust of stakeholders, which can eventually increase the company's value, through increased investments and profits (Haninun, Lindrianasari, and Denziana, (2018).

Environmental Disclosure and Market Value

Based on review of literature, data on environmental disclosure can be extracted from annual reports of companies. Environmental disclosure can affect market value of companies either positively or negatively as discussed below; Prior studies that documented a positive effect include, Yahaya (2018) disclosing information regarding a firm's environmental practices may be beneficial to the firm's reputation and by extension help improve firm's market value. According to Suchman (2019) environmental disclosure is significantly positively related to market value of firms. Guthrie and Parker (2019) examined the relationship of market value and extent of environmental disclosure in the annual reports. The research disclosed that there is a significant positive relationship between company profitability and environmental reporting.

Jariya (2015) evaluated the effect of environmental disclosure on the market value of listed manufacturing firms in Nigeria. The study revealed that environmental disclosure has positive and significant effect on market value. Okafor (2018) examined the effect of environmental disclosure on firm performance. The results of the study indicated that environmental disclosure positively impact value of the firms.

Bassey, Effiok and Eton (2013) examined the impact of environmental disclosure and performance. It was found from the study that environmental disclosure has significant relationship with firm's profitability.

Environmental Management Policies and Market Value

Environmental policies are commitment of an organization to government laws, regulations and other policy mechanisms concerning environmental issues including air and water pollution, waste management, ecosystem management, management of natural resources (Charles, 2010). The effect of environmental management policy on market value



(Tobin's Q) seems to have a mixed result. Some previous literatures hold that environmental management policies have no significant effect on market value.

Emmanuel, Elvis, and Abiola (2019) conducted a research to examine if there is any significant relationship between Environmental Disclosure (ED) and firm performance of industrial goods companies in Nigeria. The study found out that Environmental disclosure has significant effect on firm value measured through Tobin's Q. Specifically the non financial indicators (Environmental objectives and policies) showed a significant positive effect on Tobin's Q. Manirique and Ballester (2017), documented a significant positive effect between environmental disclosure (disclosure on adoption of environmental policies) and Tobin's Q.

Similarly Pedron, Macagnan, and Vancin (2020), examined the environmental information disclosure level practiced by firms and how it affects profitability and value, firm value was proxied by Tobin's Q. The study found out that environmental disclosure (precisely environmental management policies) positively affects the value of firms. Voinea, Hoogenberg, Fratostriteanu, & Hashimi (2020) examined the relationship between environmental management systems and market value in emerging economics, the study found out that environmental management system in relation to management policies on environment has positive significant effect on market value.

Recognition of Environmental Activities and Market Value

Recognition of environmental activities is about notable environmental awards and certification for activities that lead to the protection of the natural environment. According to Gilet (2011) companies used assurance to ensure accountability to stakeholders and the reliability of disclosed information. Recently, Braam, Weerd, Harck and Huijbregts (2016) confirmed a positive and significant association between external verification and the reliability and accuracy of environmental information provided in corporate environmental reports. Therefore, third party assurance like ISO certification, environmental awards or external recognition affects credibility of information disclosed. Companies must seek independent third-party verification for their reports, as well as an opinion about the sincerity of information disclosed, (Baalouch, Ayadi and Hussainey 2019).

Abdi and Lix (2020) examined the effect of environmental disclosure on market value. The results showed that environmental disclosure has a positive significant effect on market value (Tobin's Q). Specifically recognition of environmental activities has effect on Tobin's Q. Similarly Pedron, Macagnan, and Vancin (2020), examined the environmental information disclosure level practiced by firms and how it affects profitability and value, firm value was proxied by Tobin's Q. The study found out that environmental disclosure (recognition of environmental activities) positively affects the value of firms. Emmanuel, Elvis, and Abiola (2019) conducted a research to examine if there is any significant relationship between Environmental Disclosure (ED) and firm performance of industrial goods companies in Nigeria. The study found out that Environmental disclosure has significant effect on firm value measured through Tobin's Q. Specifically the non financial indicators (recognition of environmental activities) showed a significant positive effect on Tobin's Q.

Prevention and Repair on Environmental Damage and Market Value

In a study conducted by Chang (2015) on environmental disclosure and market value, market value was calculated by Tobin's Q. The result showed that environmental disclosure has a significant influence on Tobin's Q. Oyedokun, Elvis, and Abiola 2019 conducted a study on firm value and environmental disclosure, the firm value was measured by Tobin's Q, the results shows that environmental disclosure has positive effect on firm value. Oti & Mbu-Ogar (2016) examined the impact of environmental disclosure on market value of listed oil and gas companies in Nigeria. Results from the statistical analysis revealed that disclosure on prevention and repair of environmental damage like waste management had a positive and significant effect on market value.

Information disclosure of greenhouse emission which is also part of environmental prevention and repair on environmental damage has positively significant effect on market value (Konar & Cohen, 2001; Iwata & Okada, 2011). (Vasi & King, 2012. Albertini (2013) investigated if environmental management improves market value, the results showed that there is significant positive relationship between prevention and repair of environmental damage and market value (Tobin's Q). Emmanuel, Elvis, and Abiola (2019) conducted a research to examine if there is any significant relationship between Environmental



Disclosure (ED) and firm performance of industrial goods companies in Nigeria. The study found out that Environmental disclosure has significant effect on firm value measured through Tobin's Q. Specifically the non financial indicators (prevention and repair on environmental damage) showed a significant positive effect on Tobin's Q.

Theoretical Review

To examine the effect of Environmental Disclosure on Market value of Listed Oil and Gas Companies in Nigeria. Three theories were reviewed. These theories include legitimacy theory, stakeholder's theory, and signaling theory, these theories focus on the role of information and disclosure between organization and groups.

Legitimacy Theory

The legitimacy theory was derived from the concept of organizational legitimacy, which has been defined by Dimowo (2010) as cited in Lawan (2016) as a theory that posits that organizations continually seek to ensure that they operate within the bounds and norms of their respective societies. A company that adopts legitimacy theory perspective will voluntarily report on activities of the company as it affects the community in which it operates. Legitimacy theory relies on the notion that there is a social contract between a company and the society in which it operates. It provides an overview of the social contract. It is used to represent the myriad expectations society has about how an organization should conduct its operations. It is considered that an organizations survival will be threatened if the society perceives that the organization has breached its social contract (Deegan, 2019). The legitimacy theory is the most widely used to explain environmental disclosure.

Using the legitimacy theory perspective, firms voluntarily disclose environmental information to show that they conform to the expectations and values of the society within which they operate. Deegen (2019) suggest that social expectation does not just depend upon generation of profit but has broadened to include health and safety of employees and local communities as well as concern for the natural environment. Firms need to disclose voluntary environmental information to meet the broad expectations of the society relating to employee welfare, community and natural environment.

Stakeholder Theory

The Stakeholder Theory was pioneered by Freeman 1984, Freeman 1984 defines Stakeholder theory as any group or individual who can affect or

be affected. The stakeholder theory is one of the various approaches that try to explain or rationalize strategy of organizations. It has its main underpinning, placed on the role of stakeholders of a firm in the pursuit of its objectives. It acknowledges the dynamic and complex relationships between organizations and their stakeholders and that these relationships involve responsibility and accountability (Burrirt, 2019). Stakeholder analysis enables identification of those societal interest groups to whom the business might be considered accountable, and therefore to whom an adequate account of its activities would be deemed necessary (Arong, Ezugwu, & Egbere, 2014). The stakeholders of a firm are viewed as being a critical factor to the survival of the organization.

The scholars argue that this is critical to the long-term survival of the corporation. In a broader view, the concept of stakeholder view can be expressed in the sense that the role and purpose of the organization is not anymore guided by profit making maximization of shareholder's wealth; but also, to defend an image and values respecting the special relationships that arise and develop between it and all its stakeholders (Florida & Davison, 2018).

Signaling Theory

Signaling theory was used in prior studies to explain why managers voluntarily disclose forward-looking information in their annual report. (Burgwal & Vieira, 2014). Signaling theory can be traced back to Belal and Owen (2017) who explained signaling theory in a general product market setting. This theory is based on the idea of information asymmetries between insiders (managers) and outsiders (i.e., investors). Managers usually have better information than other stakeholders, and therefore outsiders may interpret any additional information as signals to the stock market. Environmental disclosure represents a firm's strategy to respond adequately to the expectations of society in which it operates. The relevance of this theory is that firms should provide information that could be used by individuals who are seeking to form impressions about the firm, its values and the overall future direction.

This study adopts the legitimacy theory, stakeholder theory and signaling theory because environmental disclosures are seen as a society issue and a stakeholder issue. The stakeholders' demand for environmental disclosures is characterized as being stakeholder issues under the stakeholder theory.



The theory underpinning this study is the signaling theory, legitimacy theory and stakeholder theory. The stakeholders of a firm are viewed as being a critical factor to the survival of the organization. Legitimacy theory focuses on society to assess the validity of corporate actions to gain legitimacy (Freeman, 2017). Voluntary disclosure is necessary in order for firms to compete successfully in the market. However, the value of the company can be increased if the firm voluntarily reports (signals) private information about itself (like information on environmental disclosure) that is credible and reduces outsider uncertainty.

III. METHODOLOGY

The ex-post facto research design was used for this study. The study examines the effect of environmental disclosure on market value of listed oil and gas companies in Nigeria. Ex-post facto research design was employed because it deals with facts that have already occurred and the study relied heavily on existing data. The use of ex-post facto research design was premised on its ability in enquiring to what extent a variable (event) which has occurred in the past has impacted on the occurrence of the present event. The data were extracted from the annual reports and accounts of listed oil and gas companies in Nigeria. The data were analyzed using multiple regression model, correlation and descriptive statistical tool techniques..

The population of this study comprise of all oil and gas companies listed as at 31st December 2019 at the Nigerian Stock Exchange. This study used a sample of ten (8) oil and gas companies out of the eleven oil and gas companies which constitute the population of the study. These companies were selected using a filtering method.

Three Criteria were used to draw the sample. Firstly, a company must be listed on the NSE from 2009-2019. Secondly company must have complete published annual reports from 2009 to 31st December 2019, the company's annual reports must be publicly available, and accessible from the company's website or any reliable source. Thirdly, a company must have information on the environmental activities in annual reports. The study covered a period of eleven years from 2009-2019. The year 2009 is justified because during that year there was a major crude oil spill in the creeks of the Niger Delta, the spill doubled that of the previous year 2008 and quadrupled that of 2007 (Baridam, 2018). The National Environmental Standards and Regulations Enforcement Agency

ACT (NESREA ACT) was already formulated in 2007. The year 2019 is also justified because at the start of the study, financial reports and accounts of oil and gas companies were not accessible beyond that year. The criterion of complete data is derived on the fact that this study covered a period of effective implementation of the NESREA ACT 2007.

Source of Data

The sources of data for this study are the secondary sources. Panel data were extracted from the annual reports and accounts of the listed oil and gas companies in Nigeria relating to the years 2009 to 2019. The data generated from the annual reports and accounts include data for the independent variable (Environmental Disclosure) proxied by the environmental disclosure themes dependent variable (Market value) proxied by Tobin's Q. Data on both environmental disclosure and market value were collected for the years 2009 – 2019 because they were the most recent firm results that could be easily accessed.

Environmental disclosure information was collected for the period 2009–2018. Financial data was collected for the period 2010–2019, with a one-year lag behind the environment

The rationale is simple: investment in and disclosure of environmental activities in the current period impacts future rather than current market value (Waddock & Graves, 1997; Mahoney & Roberts 2007).

Variables of the Study and their Measurement

This study uses three set of variables, dependent, independent and control variables to determine the effect of environmental disclosure on the market value of oil and gas companies.

Independent Variables

The independent variable for this study is the Environmental Disclosure. Environmental Disclosure has been measured in previous studies using content analysis through the environmental disclosure index. This measurement instrument was adopted by Lawal (2016) in similar studies to measure Environmental Disclosure.

Dependable Variables

The dependent variable of the study is the market value. It was proxied by Tobin's Q (TQ).

i. Tobin's Q - The Q ratio is calculated as the market value of a company divided by the replacement value of the firm's assets. Since the replacement cost of total assets is difficult to estimate, a more precise version of the formula is



often used by analysts to estimate Tobin's Q ratio. It is as follows:

$$Tobin's Q = \frac{Equity Market Value + Liabilities Market Value}{Equity Book Value + Liabilities Book Value}$$

Often, the assumption is made the market value of liabilities and the book value of a company's liabilities are equivalent, since market value typically does not account for a firm's liabilities (Adam, 2021). This provides a simplified version of the Tobin's Q ratio as the following:

$$Tobin's Q = \frac{Equity Market Value}{Equity Book Value}$$

This measurement had been used in previous studies such as Emmanuel, Elvis and Abiola (2019), Wara, Magali and Mohamed (2020) and Pedron, Macagnan, and Vancin (2020).

Control Variables

These variables are fixed in order to identify the relationship between variables.

The control variables for the study were firm size, firm age and firm leverage. Firm Size (FS) was measured by taking the natural log of the total assets (Dang, Li & Yang 2018). This control is necessary because, Large firms are more geographically spread, and have larger market for products this leads to having a more diversified stakeholder group and this stakeholder make firms to disclose more information (Brammer and Pavelin 2008). Samaila (2014), argued that larger firms are likely to show more information in order to improve stakeholder's confidence. According Ayadi (2014), large firms are more exposed to scrutiny from the public and environmental pressure groups so they are likely to make more disclosure.

Firm Leverage (FL) was proxied by total liabilities/total assets. This is about the level of using debts in financing a company's operations than its own funds. Corporate managers in leveraged companies are likely to increase disclosure to reduce agency costs between insiders and creditors, therefore companies are likely to make more environmental disclosure (Sani 2018).

Method of Data Analysis

The techniques that were used to analyse the data for the study include descriptive statistics, correlation, and panel regression.

Descriptive Statistics

The descriptive statistics that were used include mean, minimum, maximum and standard deviation. This was used to examine data collected on the study variables. This was also used to test the

validity and robustness of the data collected for the study.

Correlation

The relationship between Environmental Disclosure and Market value variable were examined, using the Pearson correlation technique. This showed the relationship between the two variables which is the independent (Environmental Disclosure) and dependent variable (Market value).

Panel Regression

This was used to determine the variation in dependent variable (market value) due to the variation in the independent variable (Environmental Disclosure). Panel regressions are expected to explain the variation in dependent variable due to the variation in any of the independent variables. This technique was found suitable because the study used panel data. The pooled ordinary least square regression, fixed effect and random effect models were employed to estimate the combined effect of the independent variables on the dependent variables. Heteroskedasticity test was used to examine the presence of multicollinearity while Hausman specification test was employed to select the most suitable result to interpret between the fixed effect and random effect. The regression model is expressed as follows:

Model Specification

In this study, panel regression was adopted to examine the nexus between environmental disclosure and market value. Due to the nature of the independent variable, single model is specified. The model was used to test the five hypotheses of the study. The model is specified thus:

Market value of the listed Oil and Gas Companies in Nigeria was proxied by Tobin's Q (Q) as the dependent variable with time lag. The independent variable is the environmental disclosure, proxied by environmental management policies, recognition of environmental activities, prevention and repair on environmental damage, environmental liabilities and stakeholders' engagement. Meanwhile, control variables are firm's size, and firm's leverage.

This is expressed as;

$$FP = f(ED) \dots (i)$$

$$FP = f(EMP, REA, RED) \dots (ii)$$

The general linearized form of the model is given as:

$$TQ_{i,t} = \beta_0 + \beta_1 EMP_{i,t-1} + \beta_2 REA_{i,t-1} + \beta_3 RED_{i,t-1} + \varepsilon_{i,t}$$

Where:

$$FP = \text{Market value}$$



- ED = Environmental Disclosure
- TQ = Tobin's Q ratio
- EMP = Environmental management policy
- REA = Recognition of environmental activities
- RED = Prevention and repair of environmental damages
- t-1 = Time Lag (at time t-1)
- $\beta_0 - \beta_5$ = Regression coefficients.
- t = Time/Period in the study
- i = Number of Units/Panels

IV. Data Presentation and Analysis

This section provides the various methods in which the data for the study was analysed. The following can be seen below;

Descriptive Statistics

Table 4.1: Descriptive Statistics

Variable	Obs	Mean	Std.Dev.	Min	Max	Skewness	Kurtosis	Probability
TQ	80	1.199	.865	.502	6.287	0.000	0.000	0.000
EMP	80	.57	.32	0	1	0.036	0.588	0.000
EMP	80	.57	.32	0	1	0.119	0.004	0.000
REA	80	.581	.29	0	1	0.051	0.215	0.074
RED	80	.573	.301	0	1	0.239	0.012	0.031
FL	80	.721	1.093	-2.842	3.469	0.367	0.037	0.000
FZ	80	1550.00	10700.00	511.59	95900.00	0.000	0.000	0.000

Source: Compiled from E-views version 8 outputs
 The disclosure index was extracted based on the 3 categories of GRI. However, the first variable of interest is the dependent variable – Tobin's Q (TQ). According to the result in table 4.1 above, during the ten-year period, TQ has the mean value of 1.199 for all the companies with the maximum value being 6.287 and a minimum value of 0.502. The Tobin's Q value predicts that some of the companies have replacement cost value less than their market value. This implies that such companies were overvalued. This is also corroborated by the maximum value of 6.287. However, the companies was undervalued as indicated by the minimum value of 0.502. This implies that the cost of replacing the assets of the company is higher than its market value. The standard deviation value of 0.865 implies that TQ value for the companies is moderately dispersed out from the mean. The skewness and kurtosis value of 0.000 with the joint probability of 0.000,

which is less than 1% indicated that the data are normally distributed and no outlier, and there is no need for robustness check.

The independent variables are dichotomous variable measured 1 or 0 for each item under the theme. EMP (environmental management policy) has the mean value of 0.57 with minimum value of 0 and maximum value of 1. The mean signifies that on average, most of the companies have implemented EMP and has been mention in their annual reports. The standard deviation value 0.32 reveals that distribution of the implementation of the EMP among the companies clustered around the mean. This means that most of the companies have implemented similar EMP. Furthermore, the skewness value of 0.036 revealed that data on EMP are normally distributed around the mean while the kurtosis value of 0.588 shows that the data has no outlier that could be of concern. The joint probability of 0.095 (<10% level of significance) corroborated that is normally distributed and there is no need for robustness check.

Recognition of environmental activities (REA) is another set item that measures how external bodies or institution view a company's implementation of environmental laws and regulations. The mean value for REA 0.581 with the minimum and maximum for of 1 and 0 respectively, means that most of the companies have gain external recognition for their environmental activities. The standard value of 0.290 signifies that the data for REA are not spread out from the mean. The skewness value of 0.119 and the kurtosis value 0.004 signifies that the data are normally distributed and clustered around the mean. The implication is that most of the companies got REA over the years of the study. The joint probability value of 0.074 revealed that the value for the skewness and kurtosis are valid and here is no need for robustness check.

RED which stands for prevention and repair for environmental damage, is also set of dichotomous measures that assessed companies' effort in prevention and repair of environment affected by their activities. The RED mean value of 0.573 with minimum value of 0 and maximum value of 1, shows that most of the companies have made an effort to prevent or repair damages caused by the activities. The standard deviation value of 0.301 revealed that data for RED are spread around the mean. The skewness and kurtosis value of 0.239 and 0.012 respectively, with a joint probability of 0.031 (<5% level of significance) reveals that the data for RED is normally distributed and there is no outlier the will require robustness analysis.



The next two variables, FL (Firm leverage) and FZ (firm size) are the control variables. These two variables are used as the control variables to enable the study ensure that the conclusions reached on the results of this study are solely caused by the selected independent variables. The mean value of FL as shown in table 3.1 is 0.721 with the maximum value of 3.469 and a minimum value of -2.842. The mean value and standard deviation of 1.093 shows that the data are moderately spread out from the mean. The minimum value signifies that at least one of the companies has a financing cost that is greater than the return on the investment. As for firm size, which is presented in billions of naira, shows that the mean value of total assets is ₦155,000,000 with the minimum total assets value of ₦511,000 million and maximum value of ₦9,590,000,000. The standard deviation value of ₦1,070,000 shows that distribution of the total assets value is dispersed out from the mean. There are few companies that have larger total assets compared to the most of the companies.

4.2.2 Pearson's Correlation Analysis

Table 4.2 presents the correlation analysis between each pair of variables for the period of the study, 2009 to 2019.

Table 4.2: Pairwise correlations

Variables	TQ	EMP	REA	RED	EL
TQ	1.000				
EMP	-0.320*	1.000			
REA	-0.323*	0.978*	1.000		
RED	-0.309*	0.724*	0.830*	1.000	

* shows significance at the .05 level

Source: Compiled from E-views version 8 output
 The above table shows the Pearson correlation matrix among the variables of the study. The result shows that there exists a weak negative association between dependent variable (Tobin's Q) and independent variables (EMP=-0.320; REA= -0.323; RED= -0.309; and are significant at 5% level of statistical significance. This signifies that at individual level, each of the environmental disclosure theme has an inverse association with firm's market performance. However, the association between the pairs of independent variables are moderately positive between EL/EMP=0.639, EL/RED=0.674, SHE/EMP=0.670, SHE/EL= -0.660. While the association between REA/EMP= 0.978 predicted a significantly high positive association. Likewise, the association between RED/EMP=0.724, RED=0.830, EL/REA= 0.728, and SE/REA=

0.770. The correlation between the later pairs of the independent variables is high which implies that there is multicollinearity and requires further analysis and tests to determine what correction model to use.

4.2.2 Panel Data Regression Methods Testing

For the purpose of applying panel data regression analysis model, there are three methods employed in this study, namely pooled OLS regression model, fixed effects model and random effects model.

Pooled Ordinary Least Square Regression

The first regression model is run is the pooled OLS. This is based on the assumption that there are no unique attributes of individual company within the measurement set, and no universal effects across time. Multicollinearity diagnostic test was conducted to test whether two or more of the explanatory variables are collinear. To perform this test, variance inflation factor (VIF) result shows a mean value of 80.18 (see appendix) which is higher than the accepted maximum level of 10. This signifies that some of the independent variables are collinear thereby making the problem of multicollinearity present in the data. This means that continuing with regression model will make explanatory power of the coefficients to be weak and sensitive to small changes.

The summary of the regression result for PCA extracted from appendix 5 is presented in table 4.3 below.

Table 4.3: Pooled Regression Result

Variables	Pooled OLS	Robust
C	-0.909(0.223)	0.204(0.529)
EMP	0.212(0.000)	2.154(0.234)
REA	0.180(0.216)	2.571(0.336)
RED	0.174(0.266)	0.833(0.102)
FL	-0.179(0.069)	0.137(0.003)
FZ	0.223(0.223)	0.107(0.003)
<i>R-Squared</i>	0.242	0.231
<i>F-Statistic</i>	0.004	0.007
<i>VIF test</i>	1.17	
<i>Heteroskedasticity</i>	65.58(0.000)	
<i>Observation</i>	80	80

Note: p-value in parenthesis

Source: Compiled from E-views version 8 outputs



After correcting for the problem of multicollinearity, the heteroskedasticity problem was corrected by running a robust regression as presented in table 4.3 above. The study observed from the pooled OLS regression that the adjusted $R^2 = 0.242$ shows that about 24.2% of the systematic variations in the dependent variable (TQ) in the pooled companies over the period of interest was jointly explained by the independent variables. This implies that TQ in oil and gas companies cannot be 100 percent explained by all the variables used in this study. The unexplained part of the dependent variable can be attributed to exclusion of very important independent variables that can explain the dependent variable but are outside the scope of this study. The F-statistic value of 3.282 and its associated P-value of 0.004 shows that the OLS Pooled regression model on the overall is statistically significant at 5% level, this means that the regression model is valid and can be used for statistical inference. The table above also shows a mean VIF value of 1.17 which is less than the benchmark value of 10, this indicates the absence of multicollinearity, and this means no independent variable was dropped from the model. Also, from the table above, it can be observed that the OLS results had heteroscedasticity problem [65.58(0.000) *] that was significant and that was corrected using robust regression.

The robust regression result in table 4.3 reveals a $R^2 = 0.231$ which predicts an overall 23.1% systematic variation in the dependent variable (TQ) for the period of the study is jointly explained by the independent variables. The F-statistic value of 3.085 and its associated P-value of 0.007 shows that the robust regression model on the overall is statistically significant at 5% level, this means that the regression model is valid and can be used for statistical inference.

Secondly, since the nature of the data for the study is longitudinal, a further panel data regression analysis was conducted. The key assumption for running fixed effects regression model is that there are unique attributes of individual company that do not vary across time. These attributes may or may not be correlated with the individual TQ. On the other hand, the random effects model assumes that there are unique, time constant attributes of individual company that are not correlated with the individual independent variables. Pooled OLS can be used to derive unbiased and consistent estimates of parameters even when time constant attributes are present, but random effects will be more efficient.

Table 4.4: Panel Regression Model

Variables	Fixed Effects	Random Effects
C	0.007(0.996)	-0.909(0.219)
EMP	-0.165(0.013)*	-0.212(0.000)***
REA	0.076(0.590)	0.180(0.212)
RED	0.068(0.682)	0.174(0.262)
FL	-0.011(0.931)	-0.179(0.062)*
FZ	0.120(0.363)	0.223(0.003)*
R-Squared	0.121	0.242
F-Test	1.278(0.246)	22.974(0.002)
Hausman	99.45(0.204)	
Number of observations	80	80

*** $p < 0.001$, ** $p < 0.05$, * $p < 0.1$

Source: Compiled from E-views version 8 outputs

To test whether fixed effects, rather than random effects, is more appropriate, Wu-Hausman test is conducted. Table 4.4 above presents the results. To examine the cause-effect relationships between the performance and environmental disclosure as well as to test the formulated hypotheses, we used the panel regression results obtained as presented in table 4.4 above (see appendix 4).

The F-statistic value of 1.278(0.246) and 22.97(0.002) for fixed and random effect models respectively shows fixed effect model is not statistically significant even at 10% level of significance. While the random effect model returned a statistically significant model and valid for drawing inference since it is statistically significant at 1%. In the case of the coefficient of determination (R-squared), it was observed that 12.1% and 24.2% systematic variations in TQ was explained jointly by the independent variables in the fixed and random effect models respectively.

In testing for the cause-effect relationship between the dependent and independent variables in the model. The results revealed difference in the magnitude of the coefficients, signs and the number of insignificant variables. In selecting from the two panel regression estimation results, the Hausman test was conducted and the test is based on the null hypothesis that the random effect model is preferred to fixed effect model. A look at the p-value of the Hausman test (0.204), implies that we should accept the null hypothesis and reject the alternative hypothesis at 1% level of significance. This implies that we should adopt the random effect panel regression results in drawing our conclusion and recommendations. This also implies that the random effect results tend to be more appealing statistically when compared to the fixed effect. Following the above, the discussion of the random effect results became imperative.



4.3 Test of Hypotheses

This section of the study deals with the test of hypotheses. In testing the hypotheses, the study provides the following specific analysis for each of the independent variables as they relate to each objective of the study using the random effect regression.

The following hypotheses for this study were tested:

4.3.1 Hypothesis One

H₀₁: Disclosure on *environmental management policies* have no significant effect on market value of listed oil and gas companies in Nigeria.

Results in Table 4.4 reveals that environmental management policy (random effect= -0.212(0.000)) as an independent variable to market value (measured as Tobin's Q) appears to have a negative and significant influence on TQ at 1% level significance. The implication is that a unit change in EMP results in a -0.212 (21.2%) proportional negative change in market value. This therefore means, the study rejects the null hypothesis (H₀₁: environmental management policies have no significant effect on market value of listed oil and gas companies in Nigeria). The study therefore concludes that environmental management policies have significant positive effect on market value (proxied by Tobin's Q) of listed oil and gas companies in Nigeria.

4.3.2 Hypothesis Two

H₀₂: Disclosure on *recognition of environmental activities* has no significant effect on market value of listed oil and gas companies in Nigeria.

In testing the second hypotheses, the results in table 4.4, reveals that REA = 0.180(p=0.212) as an independent variable to market value (measured as Tobin's Q) has a positive but, insignificant influence on TQ at 1% level of significance. The implication is that a unit change in REA results in a 0.180 (18%) statistically insignificant change in market value. This therefore implies that the study fails to reject the null hypothesis (H₀₂: Recognition of environmental activities has no significant effect on market value of listed oil and gas companies in Nigeria). The study therefore concludes that there is a positive but insignificant effect between recognition of environmental activities and market value.

4.3.4 Hypothesis Three

H₀₃: Disclosure on *prevention and repair of environmental damage* has no significant effect on market value of listed oil and gas companies in Nigeria.

Furthermore in respect to the third hypotheses the results in table 4.4 reveal that Prevention and repair of environmental damage (random effect, RED= 0.174(p=0.262)) as an independent variable to market value (measured as Tobin's Q) appears to have a positive but insignificant influence on TQ at 1% level of significance. The implication is that a unit change in RED results in a 0.174(17.4%) statistically insignificant change in market value. This therefore means that the study fails to reject the null hypotheses (H₀₃: Prevention and repair of environmental damage has no significant effect on market value of listed oil and gas companies in Nigeria). The study therefore concludes that prevention and repair on environmental damage has positive (but statistically not significant) effect on market value.

4.4 Discussion of findings

The study's first objective was to examine the effect of environmental management policies on market value (measured by Tobin's Q) of listed oil and gas companies in Nigeria. The study formulated null hypotheses in line with this objective and was tested at a 5% significance level. Evidence from the study showed a negative significant effect during the period under review. This finding could be interpreted to mean that environmental management policies negatively affect market value of companies under investigation. Disclosure of environmental management policies consist of all the environmental practices of the companies and by implication any company that discloses information on that shows that they are engaged in environmental practices and this can have a heavy burden on their finances and thus affect market value negatively in a short run. Information disclosure on environmental practices shows a company strictly abides by the environmental regulations, this can have a negative impact on the market value, those policies increase corporate investments cost and financial burdens in environmental protection practices, and then incline market value negatively in the short run (Chang 2020). According to a study conducted by Yang, Wen, and Li (2020) the effect of disclosing environmental management policies can be significantly positive in the long run, in a short run it gave a negative effect and in the long run it gave



a positive significant effect. Strong environmental management policies can lead to improved future market value and significant negative returns are measured for weak environmental management policies. This result agrees with prior empirical results which show that environmental management policy is a driver of market value measured using the market valuation (Jacobs, Singhal, Subramanian, 2020) Lioui and Sharma, 2012 examine the effect of environmental disclosure on market value, the results showed environmental management policies has a negative and significant effect on market value. This finding agrees with the legitimacy theory and stakeholder theory. The legitimacy theory states that a social contract exists between the company and the society and it should not be bridged, firms need to disclose environmental information voluntarily to meet the broad expectations of the society, this can build the trust of the stakeholders and hence, enhance market value of firms, (Deegan 2019). Emmanuel, Elvis, and Abiola (2019) who conducted a study on the effect of Environmental disclosure on market value, the study found out that environmental management policies significantly affects market value (Tobin's Q) of listed companies in Nigeria. The findings also agrees with findings of Pedron, Mecagnan, and Vancin (2020), who examined environmental information disclosure level practiced by firms and how it affects the firm value (Tobin's Q), the study shows environmental management policies have significant effect on market value. Most specifically, the results did not tally with previous findings of various researchers that reported insignificant impact on market value of companies (Wara, Magali & Mohamed (2019), Nyirenda, Collins, Ngwakwe & Ambe, 2013; Ajagbe, Peter, Ekanem et al 2017).

The study's second objective was to examine the effect of recognition of environmental activities on market value (measured by Tobin's Q) of listed oil and gas companies in Nigeria. The study formulated null hypotheses in line with this objective and was tested at a 5% significance level. Evidence from the study showed a positive but insignificant effect during the period under review. This finding could be interpreted to mean that recognition of environmental activities positively affect market value of companies under investigation. This also implies that as company discloses information on recognition of environmental activities like ISO certification, and external awards the higher the chances of increasing or enhancing market value. This finding

agrees with the legitimacy theory and stakeholder theory, which suggest that disclosure of environmental information is a company's strategy to achieve its goal of providing a good image to parties concerned about the company, hence built trust, attract investors and enhance market value. Hence is premise to conclude with respect to hypothesis two that board independence has positive but statistically insignificant effect on market value of listed oil and gas companies in Nigeria. The result is in agreement with the findings of Abdi and Lix (2020), Pedron, Macagnan and Vancin (2020), However, it contradicts Nor, Bahari, Adnan, kamal and Ali (2015), Bakare and Fawehimi (2011). This shows that recognition of environmental activities negatively influence market value. The difference in the findings could be attributed to different market value measures used, the later studies used the accounting measures of performance while the present study used the market based measures.

The study's third objective was to examine the effect of prevention and repair of environmental damage on market value (measured by Tobin's Q) of listed oil and gas companies in Nigeria. The study formulated null hypotheses in line with this objective and was tested at a 5% significance level. Evidence from the study showed a positive but insignificant effect during the period under review. This finding could be interpreted to mean that disclosure on prevention and repair of environmental damage positively affect market value of companies under investigation. This also implies that as company discloses information prevention and repair of environmental damage like gas emissions, waste emissions etc. the higher the chances of increasing or enhancing market value. This finding agrees with the stakeholder theory, which suggest that disclosure of environmental information is used to manage company's relationship with its stakeholders (Finch, 2005). Disclosure is supposed to be able to give clear evidence that the production process of the company is not only profit oriented but also pays attention to the environmental issues that concerns the society. This can increase stakeholder's trust, which will have impact on the company's value, through increased investments and profits. Hence is premise to conclude with respect to hypothesis three that prevention and repair on environmental damage has positive but statistically insignificant effect on market value of listed oil and gas companies in Nigeria. The result is in agreement with the findings of Abdi and Lix (2020), Pedron, Macagnan and Vancin (2020),



However, it contradicts Nor, Bahari, Adnan, kamal and Ali (2015), Bakare and Fawehimi(2011). This shows that prevention and repair on environmental damage negatively influence market value. The difference in the findings could be attributed to different market value measures used, and the measurement for environmental disclosure, the later studies used the accounting measures of performance while the present study used the market based measures.

V. CONCLUSION

This study was carried out to empirically examine the effect of environmental disclosure on the market value of listed oil and gas companies in Nigeria. Findings of the study have led to the following conclusions; Disclosure on environmental management policies have negative significant effect on market value of listed oil and gas companies in Nigeria. Disclosure on recognition of environmental activities has positive but insignificant effect on market value of listed oil and gas companies in Nigeria. Disclosure on prevention and repair of environmental damage has positive and insignificant effect on market value of listed oil and gas companies in Nigeria. The study recommends that: Management of listed oil and gas companies are encourage disclosing information on the environmental management policies because it gives an overview of the environmental practices of the company this can build trust of investors, add value to the firm and enhance market value in the long run. This study recommends that companies are encouraged to disclose information concerning its environmental practices as it relates to the themes, categories or dimensions of environmental disclosure, these themes complement each other to enhance market value, and when analyzed collectively it gives a positive association with market value. The study also recommends that the Federal Ministry of Environment in Nigeria, should continue to regulate environmental practices by companies through regulatory bodies like the NESREA ACT 2007, the regulatory bodies should also monitor, and encourage companies to disclose information on the environmental activities because it can create good reputation for the company, add value to the company and enhance market value in the long run.

Contribution to Knowledge

This study contributes to existing literature through using Environmental disclosure themes or categories, to show the effect of each theme on market value not environmental disclosure as a single block using the multiple regression model.

This showed how each theme affects market value. The study also lagged the data to show the effect of environmental disclosure overtime since the effects are mostly in the future. The study also provides a conceptual framework for predicting the relationship between Environmental disclosure and market value of listed oil and gas companies in Nigeria. This study also contributes to the advancement of academic knowledge and theory on the effect of Environmental disclosure and market value by providing empirical evidence on the statistical effect.

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