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# **Environmental, Social and Governance (ESG) Disclosure and Market Based Performance of Petroleum Marketing Firms in Nigeria**

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## **Abstract**

This study examined the effect of environmental, social and governance disclosure (ESG) on the market-based performance of petroleum product marketing firms in Nigeria; an ex-post-facto research design was used. Secondary data were sourced from published annual financial reports of a sample of four (4) out of companies listed on Nigerian Exchange group from 2003 to 2022. The panel multiple regression result showed that ENV and GOV had a negative insignificant effect on Tobin's Q, while SOC had a positive but insignificant effect on Tobin's Q at 10% level of significance. The study therefore, concludes that environmental social and governance (ESG) reporting of petroleum product marketing firms has a mixed and insignificant effect on firm's market base performance. The study recommends the need for petroleum product marketing firms in Nigeria to economically, reasonably and conveniently report and communicate their environmental, social and governance practices in a way that investors will always see them as a responsible corporate citizen on one hand and on the other hand it should be done in a more cost effective and efficient manner.

**Keywords:** Environmental, Social, Governance, disclosure, Market Based Performance

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## **1. Introduction**

Environmental, Social and Governance (ESG) disclosure are non – financial information disclosure that are drawing steadily on the increase of interest to investors and global awareness particularly on how firms pay attention on issues that are bordering on the non-financial aspect of their lives. Investors are increasingly practicing the principle of socially responsible investing (SRI) whereby they consider both the financial and non-financial matters in their investment analysis and decisions. According to Igbinoia and Agbadua (2023), Environmental social and governance (ESG) are a variant of sustainability based reporting and integrated reporting framework, which both focus on expanding the reporting horizons of firms to include some non-financial and relatively voluntary disclosed information.

Moreover, measures to encourage disclosure of firms non- financially related issues referred are to as sustainability reporting and are been taken very seriously all over the world as the use of sustainability-based reporting has expanded (Igbinoia & Agbadua, 2023). Countries all over the world are enacting laws guiding sustainability reporting and ESG disclosure due to their appreciation of their impact and important on the information needed by all stakeholders. However, while ESG disclosure is regulated and controlled in some countries, others consider it to be optional and unregulated. Abiodun (2021) concluded that environmental, social and governance and other environmental factor have strong statistical relationship with the performance of the selected international companies in Nigeria. Mohammad and Wasiuzzaman (2021) opined that ESG disclosure has attracted a great deal of attention in the corporate world

and that organizations with adequate disclosures on ESG information usually have better governance, more eco-friendly environment and sustainability-based development, which gives them the advantage of being less prone to earnings volatility and access relatively cheap funds.

The debate for ESG disclosure is advanced on two dimension or argument, the first is the "finance cost" reduction argument, which claims that revealing ESG has negative economic effects and raises disclosure costs, which lowers market prices. A similar claim was proposed by Friedman (1962) that any non-financial disclosure will hurt profitability because the promotion of financial profitability is its primary objective. In the same vein, Mackey et al.(2007) opined that investors want a company to increase their financial disclosure without disclosing its social efforts, which should be handled by non- for-profit organizations. While the second argument which is the "value creation" approach asserts that ESG information disclosure among the disclosure of other non-financial information can be used as a base to improve financial performance and ultimately achieve an edge in the battle for competitive advantages. The second arguments seem to have gained more ground than the first as Lindgreen et al. (2009) and Mohammed and Wasiuzzaman (2021) indicated that ESG-based reporting allowed businesses to save costs and boost profits. Similarly, Hahn and Kühnen(2013) opined that ESG disclosure improves firm's transparency, reputation, staff motivation, customer loyalty, and support for its control procedures.

Nevertheless, empirical evidence on ESG disclosure particularly in developing countries like Nigeria where ESG regulation are yet to be fully developed is still very much opened to more debate and empirical examination, thereby leaving more to be desired. Studies like Olanyinka and Oluwamayowa (2014); Pulinoel al. (2022); Igbinovia and Agbadua (2023); Abiodun (2021); Onoh et al. (2023); Mbu-Ogar et al. (2023) and some of the handful of studies that have been conducted with the aim of answering the question of what benefits firms stand to gain from adequate and high quality ESG disclosures, in terms of their competitive advantage, value-based performance and market value. However, some of these studies did not look at it benefit from market based performance angle, those that look at the market value direction of relationship with ESG disclosure look at it in respect to the whole manufacturing industry while those that study the oil and gas sector have failed to study the three elements of ESG and market value of firms in the oil and gas sector considering it importance and significance to the Nigerian economy. The study aims examine the effect of Environmental Social and Governance (ESG) disclosures and market base performance of petroleum product marketing firms in Nigerian quoted on the Nigeria Stock Exchange.

## **2. Literature Review**

This section focuses mainly on the review of existing literature relevant to the scope of this study. It provides an explanation of the concept in the study; it also reviews empirical literature on ESG and market value of firms and how the two variables relate to each other. It further discusses the theoretical framework upon which the study was based.

### **2.1 Conceptual Review**

Typically, the extent to which an organization has performed in a particular period can be measure from both financial performance and non-financial performance dimension. Financial performance which is the quantitative measurement of the performance of a firm is a combination of accounting measurement as well as market-based performance of the organization which ultimately reflect the long-term view of stakeholders' interest (Al-Matari et al., 2014). Market-based performance measures are different from the accounting-based performance measures because they focus on the present value of future inflow of income, whereas accounting-based measures focus on past performance (Seth, 1990).

Alagbe (2021) opined that market-based performance measures focus on the stock market's evaluation of the firm's performance and the most commonly used performance measures are Tobin's Q, market value added (MVA), market to book value (MTBV), annual stock return (RET) and dividend yield (DY) whose basis are evident on previous or current performance (Wahla et al. 2012; Shan & McIver Ron, 2011; & Ganguli & Agrawal, 2009).

The measurement of how well an organization has performed in the present-day business environment encompasses both financial and non-financial factors. Financial factors among others are measure of profitability, return on assets, return on investment and the host of others as the list is a long one. Non-financial factors on the other hand in this context is Environmental, social, and governance which are the three elements of ESG and they play a very significant role in ensuring the sustainable growth of an organization. Generally, ESG is part of the elements of the corporate social responsibility or corporate sustainability reporting on a voluntary basis (Baron, 2014)

## **2.2 Theoretical Framework**

The increase in the demand organizations to disclose non-financial information with reference to how they managed sustainability challenges using reports such as integrated reports and Sustainability reports is as a result of the failure of the traditional financial reports to adequately capture the various aspects of the organization's activities (Ballesteros, Martínez-Ferrero, & García-Sánchez, 2017).

This study is based on legitimacy and stakeholder theories. Legitimacy is a generalised perception or assumption that the actions of an entity are desirable, proper, or appropriate within some socially constructed system of norms, values, beliefs, and definitions. Legitimacy exists at the organisational level when there is congruence between organisation and society value system. Legitimacy theory upholds the view that the society is characterized and governed by laws, values, standards, and norms and that corporations are required to operate within the provisions of these precepts. Legitimacy theory can also be explained as a universal view that explains that the activities of firms are only applicable around some basic publicly constructed schemes of society (Suchman, 1995). It emphasizes that corporation must comply with all standards of behaviour and requirements expected in order to guarantee legitimacy of operations and continuity in business (O'Donovann, 2002; Nikolaeva & Bicho, 2011).

For a corporation's long-term survival in society, it must endeavour to maintain a legitimate status in society. This legitimacy will increase their goodwill in society, thus making their operations easy which will achieve the goals objectively. Contrarily, a corporation that acts against societal values will have trouble achieving its goals because of a lack of societal acceptance. Some members of society may decide to boycott a corporation because of its bad social and environmental practices (Coopers & Lybrand, 1993). Given the global importance given to sustainability issues now, one of the most important societal expectations nowadays is corporate sustainability, and one of the most effective ways corporations can communicate their activities is through sustainability reporting. Legitimacy theory has been considered in the works of Burhan and Rahmanti (2012), Buallay (2019), and Uwuigbe et al. (2018). Non-financial disclosures give the organization an opportunity to communicate to stakeholders how they have been performing regarding the environmental, social, and economic issues that are of major concern to the stakeholders. The communication of this information helps the organization to become more socially responsible thus increasing its legitimacy.

Stakeholder theory is a view of capitalism that stresses the interconnected relationships between a business and its customers, suppliers, employees, investors, communities and others who have a stake in the organization. The theory argues that a firm should create value for all stakeholders, not just shareholders. In 1984, Edward Freeman originally detailed the

stakeholder theory of organizational management and business ethics that addresses morals and values in managing an organization.

The idea encompasses the fact that organizations should consider how to deliver value to the entire stakeholders without focusing on the shareholders only. If the organization is really upholding the values of its stakeholders, it won't operate in a way that contradicts these values. Stakeholders include parties who are affected by the organizational activities directly or indirectly. The organizational stakeholders can be categorized into internal and external. Internal stakeholders include employees and shareholders. External stakeholders are government, customers, suppliers, creditors, society, etc. since sustainable development is a hot topic now globally, many of the stakeholders are interested in sustainability thus the corporation would be able to communicate their sustainability actions through reporting. The stakeholder theory has been adopted in Nzekwe et al. (2021), Alhawaj et al (2022), and Buallay (2022). Stakeholders can also be categorized into primary and silent. The silent stakeholders are the environment and future generations who need other bodies to advocate for them (Francisco & Zahir, 2014). The incorporation of silent stakeholders in this classification is built on the narrative of sustainable development and the premise that humans should not jeopardize the environment, and our actions should be sustainable to allow future generation to meet their needs. An unsustainable way of business can seriously destroy both present and future potentials. The need to integrate the culture of sustainable production and consumption cannot be overemphasized in the industrial world.

Organizations have to voluntarily adapt to stakeholders' needs for information through accountable and transparent disclosure of sustainable information which is significant to corporate survival because it ensures continuous and sustained flow of inputs, resources and support from all stakeholders (Suchman, 1995; Wei et al., Shen et al., 2015). However, when societal anticipations and firms' behaviours are at variance, there will some issues that may lead to complete or partial loss of legitimacy (Eugénio et al., 2013).

Hamman et al., (2010) asserts that effective and efficient management of the relationship of the key corporate stakeholder is key to increasing firm value. Tantalo and Priem (2016) argue that several possible sources of value generation exist for each critical stakeholder. Corporate sustainability reporting reflects the concerns of different stakeholder groups about sustainability problems. Stakeholder theory upholds that corporate sustainability practices can go a long way in building a positive reputation among workers, customers, and other public groups, which not only increases company value but also improves the business's market share and competitive edge (Dixon-Fowler et al., 2017). The development of environment-related capabilities and the direct reduction of costs related to more efficient use of natural resources may particularly enhance firm value (Dixon-Fowler et al., 2017). According to the perspective of stakeholder theory, the company in carrying out all its business activities is responsible for meeting and protecting the interests of stakeholders. The availability of non-financial information is one of the things needed by stakeholders. Through the disclosure of sustainability reports or sustainability, reports can increase transparency, accountability, and increase stakeholder confidence, which will have an impact on improving the firm value (Li, Gong et al., 2018). Moreover, a company can attain long-term support from its stakeholders when it adopts social responsibility practices, which can positively influence a firm's long-term value. Based on stakeholder and legitimacy theory, corporate sustainability reporting is a means of gaining firm legitimacy and stakeholder's support and ultimately proposes a wider perspective in establishing and explaining the importance and significance of sustainable business practices and conducts as critical to firms sustained growth, expansion and survival (Cotter & Najah, 2012).

### **2.3 Empirical Review**

Empirical studies on the relationship between ESG disclosure and firm's market value are mixed and the results still remains open to further studies and research into the possible direction of relationship between firms environmental, social and governance disclosure and their market value in especially, in the Nigerian oil and gas industry. The following are review of some related empirical studies in the area:

Olanyinka and Oluwamayowa (2014) studied Corporate Environmental Disclosure and market value of Quoted Companies in Nigeria. The broad objective of this study focused on ascertaining whether the aggregate and individual impacts of Corporate Environmental Disclosure were regressed on market value. A sample size of fifty firms quoted in Nigeria Stock Exchange (NSE) was purposively selected for analysis based on the availability of environmental disclosures in their annual reports. The hypothesis was tested using correlation coefficient. The findings reveals that the inclusion of environmental disclosure will enhance market value.

Atan et al (2018) investigated the impacts of environmental, social, and governance factors on firm performance: panel study on Malaysian companies. A total of 54 companies are selected from Bloomberg's ESG database with complete ESG and financial data from 2010 to 2013. This study conducted panel data regressions such as the pooled OLS, fixed effect, and random effect. Based on the regression results, they found no significant relationship between individual and combined factors of ESG and firm profitability (i.e., ROE) and firm value (i.e., Tobin's Q). Moreover, individually, none of the factors of ESG is significant with the cost of capital (WACC), but the combined score of ESG positively and significantly influences the cost of capital (WACC) of a company.

Atan et al. (2019) investigated the level of disclosure based on different regulatory requirements on Environmental, Social and Governance (ESG) information while exploring its effect on the firm's performance comparatively between Malaysia an emerging economy and Denmark as a benchmark of good practice. Top 100 largest companies listed each in Bursa Malaysia and Nasdaq OMX Copenhagen are selected. Content analysis on companies' annual report and stand-alone reports produced in 2013 was used. The study finds a significant difference on the ESG disclosure level between countries and different ESG element is being emphasized by each country.

Amedu, Iliemena and Umaigba (2019) studied value relevance of sustainability reporting in Nigerian manufacturing companies. The study examines value relevance of sustainability reporting among manufacturing firms in Nigeria. The study adopted a longitudinal research design. The sample comprised thirty companies randomly selected from the floor of the Nigerian Stock Exchange. The study relied on secondary data retrieved from annual reports for the period 2010-2018. The hypotheses were validated using panel data regression technique. The results revealed that economic-sustainability and social sustainability reporting of quoted manufacturing companies were value relevant.

Emeka and Osioma (2019) investigates how overall sustainability disclosures and it's disaggregated dimensions of environment, social and governance affect market value of firms in Nigeria as an emerging economy using company's' specific disclosures. Tobins Q were used to proxy firm market value. The study selected 93 out of 120 non-financial firms listed on the Nigerian Stock Exchange as at 2015. Ex Post Facto research design was adopted and the secondary data was collected from annual reports of sampled firms from 2006 to 2015 through content analysis. The data were analysed with descriptive statistics, correlation analysis, principal component analysis while pooled ordinary least squares regression was employed to test formulated hypotheses. The analysis showed that overall sustainability disclosures have significant positive effects on firm value. When treated individually, environmental sustainability disclosures and corporate governance disclosures have a significant positive

effect on market value of firm. the study recommended among other that companies should foster greater sustainability and long-term value creation by integrating sustainability metrics into their reporting model and strategy.

Awa, Olutola, and Mary (2020), studied the effect of sustainability reporting on the financial performance of selected listed manufacturing firms in Nigeria, panel least square regression was used to analyze the data derived from the annual reports. The results depict that both employee relations disclosure and community relations disclosure have a significant negative effect on return on assets. On the other hand, environmental disclosures and board composition are found to have a significant positive effect on return on assets.

Gold and Talib (2020) conducted a literature review on the impact of sustainability reporting on corporate performance, The study reviewed 35 papers and found a total of 13 studies that reported positive outcomes, 8 studies reported that sustainability reporting has a significant negative outcome on corporate performance, 9 studies reported mixed results while 5 studies found no significant relationship between sustainability reporting and corporate performance. It's on the premise of the reviewed works that the researcher concluded that it is advantageous for companies to embrace sustainable business practices and report because it provides benefits for the firm.

Taiwo and Owolabi (2021) study examined the effect of sustainability reporting on market value growth of quoted firms in Nigeria, the results show that the compliance level of the understudied firms with sustainability reporting requirements is below average, also, sustainability reporting is found to have an insignificant effect on Market value growth.

Umar, Mustapha, and Yahaya (2021), examined the effect of sustainability reporting on the financial performance of 26 consumer goods firms in Nigeria. The results reveal that social environmental disclosures have a significant positive effect on financial performance. However, economic disclosure was reported to have a significant negative effect on financial performance. It is noticeable that the above literature reported mixed results- different results have been reported by different researchers based on the content and scope of their analyses. The three pillars of sustainability have also affected performance heterogeneously in some studies. This is indicative of how dynamic the research area is and a pointer to the need to explore more.

Alhassan, Islam, and Haque (2021), focused on the impact of sustainability reporting on financial performance in the industrial goods sector, secondary data were collected from companies' facts books and financial statements. The researcher employed the Pearson correlation coefficient and multiple regression analysis in analyzing the data. Analysis results show that sustainability reporting (operationalized by economic, social, and environmental variables) has a positive significant effect on return on asset, earnings per share, and return on equity.

Hycient and Ukpong (2022) studied the value relevance of sustainability reporting of listed Oil and Gas firms in Nigeria. This study adopted the Ex post facto research design. Purposive sampling technique was adopted to select a sample of 12 companies from a population of the fourteen (14) listed oil companies in Nigeria as at 31st December, 2020. This study made use of secondary data precisely. Descriptive statistics was used to summarize the mean, median, standard deviation, skewedness, kurtosis, maximum and minimum of the study variables. Pearson Product Moment Correlation and Ordinary Least Square (OLS) Regression Analysis was used for the study. Findings of the study showed that environmental, social and corporate governance disclosures (ESG), taken together and individually are value relevant and have effect on the market value of firms. It was recommended that Oil and gas firms should consider upping their investment in Environmental Pollution and Control (EPC) and corporate social responsibilities. Even though it might increase operating costs, it has long-term benefits.

Abiodun (2021) examined the effect of environmental, social and governance on performance of international companies in Nigeria; it specifically examined the effect of environmental disclosures, social disclosures as well as economic disclosures on financial performance of international companies in Nigeria. The study adopted an ex-post-facto research design and secondary data was gathered to analyze the relationship between the variables. The population of the study consisted on twenty-two (22) international manufacturing companies listed on the Nigerian Exchange Group as at 5th March, 2021, using Panel data analysis the study finds that environmental, social and governance and other environmental factor have strong statistical relationship with the performance of the selected international companies in Nigeria.

Aydogmus et. al. (2022) examines impact of Environment, Social, Governance (ESG) performance on firm value and profitability, using large dataset their findings suggest that overall ESG combined score is positively and significantly associated with firm value. Individual Social and Governance scores have a positive and significant relationship while Environment score does not have a significant relationship with firm value. On the other hand, ESG combined score, Environment, Social, and Governance scores have positive and significant relationships with firm profitability. These findings suggest that investing in high ESG performance promises financial return for the firm in terms of both value and profitability. Environmental, Social and Governance (ESG) Disclosure and Its Effect on Firm's Performance: A Comparative Study

Pulino et., al, (2022) analyze the impact of the environmental, social, and governance (ESG) disclosure on the firm performance, given the stakeholders' increasing attention to the firm's ESG practices. By applying a panel regression analysis, using a sample of the largest Italian listed companies, and considering a time span of 10 years (from 2011 to 2020), this study finds that there is a positive relationship between environmental, social, and governance disclosure and firm performance, measured by EBIT.

Igbinovia and Agbadua (2023) examines the influence of environmental, social and governance (ESG) reporting on value-based performance; and the moderating effect of firm advantage on the nexus between ESG reporting and value-based performance of Nigerian quoted manufacturing firms. Using secondary data from the annual report of 20 manufacturing firms for the period 2017 to 2021, analysis involved descriptive statistics, correlation and regression analysis. The study finds that ESG reporting exerts no significant impact of firm value during the study period, but the effect was magnified and significant when moderated with firm advantage (profitability minus capital cost). Firm advantage has a significant effect on firm value-based performance of Nigerian quoted firms. No direct impact was observed for ESG and firm value, implying that ESG disclosures can only influence firm value meaningfully if it is focused on improving profitability by increasing sales through improved public image, and by achieving reduced finance cost.

Onoh et al. (2023) examined the effect of sustainability reporting practices of environmental, social and economic on the firm value proxied by Tobin's Q of listed oil and gas firms in Nigeria. The work relied mainly on secondary source of data and comprised of published annual reports. The analytical tools consist of descriptive and correlation matrix. The hypotheses were tested using multiple regressions. The research answered that; environmental sustainability reporting has a positive significant effect on the value of listed oil and gas firm in Nigeria. Also, economic sustainability reporting has a negative significant effect on the value of listed oil and gas firm in Nigeria. The result also showed that firm characteristics proxied by sales growth and leverage exerts a negative significant effect, whereas, firm size exerts a positive significant effect on sustainability reporting and firm value of oil and gas companies in Nigeria. The work concluded that adequate compliance with sustainability rules and regulation will go a long way to bring more investors to the company which will in turn

ultimately increase the firm value. Based on the above findings, the work recommended that oil and gas firms should comply 100% with the rules and regulations of sustainability reporting to increase the value of their firm in the long run.

Kaupke and Knyphausen-Aufseß (2023) examined the relationship between sustainability (or CSR) and company value by focusing on the oil and gas industry as a particularly powerful and controversial industry. Based on legitimacy theory and institutional theory, they argue that the relationship between firm value and sustainability is negative in this industry. Using a sample consisting of 205 firms with 1515 observations and using a simultaneous equation system (3SLS) to determine its direction, they found the two to be negatively interrelated in a vicious circle. Furthermore, they found evidence for a moderating role of the renewable energy share of a company's headquartering country as well as the company's industry segment. The explanatory power continues to hold with consideration of a profitability measure (Return on Sales) instead of firm value.

Mbu-Ogar et al. (2023) in their study examined the effect sustainability reporting on corporate survival of oil and gas companies in Nigeria. They adopted the GRI content index to scrutinize oil and gas companies' financial statements for the availability of sustainability reports (economic, environmental and social performance) for the study period (2016-2020). The study population comprised 10 oil and gas companies quoted on the Nigerian Stock exchange as at 2020 with complete financial statements for the study period. The multiple regression statistics served as data analyses tool. The study found that sustainability reporting has an inverse and insignificant effect on corporate survival. The implication of this result is that oil and gas firms' sustainability reporting strides do not guarantee corporate survival (positive financial position and healthy liquidity and solvency status) and therefore recommended that firms should strive to cultivate and maintain sustainable business practices that encourage environmental preservation and regeneration and also engage in social programmes and activities aimed at advancing and promoting societal development.

Going by the review above it is clear that several studies like (Olayinka & Oluwamayowa 2014; Atan et al., 2019; Mbu-ogar et al., 2023) have been carried out on ESG and firm value, firm performance, firm growth as well as firm survival with divergent views on their literature but only a few studies like (Igbinovia&Agbadua 2023; Onoh et al., 2023; Kaupke& Knyphausen 2023; Atan et al., 2018; Abiodun 2021; Pulino et al., 2022;) have been carried out on ESG and performance and these studies have not looked at market-based performance variables in relation to petroleum product marketing firms in Nigeria which are key players in the driving force of Nigerian economy. This is the area this study intends to cover.

### **3. Methodology**

The study employed Ex-post facto research design. The design was used because it allows for retrospective analysis of the relationship between variables under consideration as it permitted the examination of independent variables in retrospect for their possible relationship with dependent variables. The population of the study consisted of 9 quoted firms in the Nigerian oil and gas sector; the choice of this sector is due to imperative as a driving force of Nigerian economy and the nature of its operations as it plays a vital role when it comes to issues relating to environmental, social and governance in Nigeria. 5 firms were selected as sample for the study using convenient sampling techniques based on their petroleum product marketing firm's characteristic as well as been quoted on the Nigerian Exchange Group. Data for the study were extracted from the annual report and accounts of the sampled firms covering the period from 2013 to 2022. The drive to study a period that is more current and the also considering the emerging trends and policies in the sector under consideration justify the choice of 2022 as the end period of study and the plan to cover a 10years period also justify the choice of 2013 as the baseline. The study made use of regression analysis with the help of STATA 18.



### 3.1 Variable Measurement

Two set of variables were utilized in this study; they are independent and dependent variables as follow: The dependent variable in this study is the firm’s market-based performance measured by Tobin’s Q ratio. In order to look at the forward-looking aspect and its reflection of the expectations of the shareholders concerning the firm’s future performance, this has its basis on previous or current performance (Wahla, Shah Syed & Hussain, 2012). The rationale of using this measurement is that it measures long-run firm performance (Bozec, Dia & Bozec, 2010), which ultimately is the basis for market base performance of a firm.

The independent variable in this study is the ESG scores. The modified disclosure index is scored according to the presence or absence of the intended items inside the reports. Thus, in this study, dichotomous scoring is used in calculating the index scores. Scoring of ‘0’ for non-disclosure and ‘1’ for any disclosure namely quantitative, qualitative or financial or all of them will be awarded. The modified index consists of 20 items in total derived from 10 main indicators under different elements. Moreover, control variables were also employed which includes firm size (SIZE) and financial leverage (LEV). SIZE is measured as the natural log of a firm’s total assets at the end of the period. LEV is measured by dividing a firm’s debt by its assets at the end of the period (Atan et al., 2019; Giannopoulos et al., 2022; Naeem et al., 2022).

#### Model Specification

The study model adapts Habib & Morad (2023) model with modifications on the dependent the independent variables as well as the control variable to suit the study specific purpose. For the independent variable the separate measure of environment, social and governance was used as seen in the model and not all as one (ESG) this is to allow for the utilization of each individual score. For the control variable only Leverage and Size was used. While for the dependent variable only Tobin Q was used, this is because of its high level of significance in measuring market base performance of firm. The model is expressed as follows:

$$Q_{it} = \beta_0 + \beta_1 ENV_{it} + \beta_2 SOC_{it} + \beta_3 GOV_{it} + \beta_4 LEV_{it} + \beta_5 SIZE_{it} + \epsilon_{it}$$

Model Where;

Tobin’s Q = Tobin’s Q ratio of firm i in period t

ENV = Environmental performance score of firm i in period t

SOC = Social performance score of firm i in period t

GOV = Governance performance score of firm i in period t

SIZE = Size of firm i in period t

AGE = Age of firm i until period t

LEV = Financial leverage of firm i in period t

### 4. Results and Discussion

Below are results from descriptive statistics, correlation and regression analysis conducted using STATA software.

**Table 1: Descriptive Statistics**

This table present the descriptive statistics of the variables under consideration with respect to statistical measures like mean, standard deviation, minimum value as well as maximum value.

Variables	Obs	Mean	Std. Dev.	Min	Max
Tobinq	40	146.9875	143.1825	14.3	384.5
Env	40	2.78675	12.35958	.65	79
Soc	40	.85675	.0844708	.69	.96
Gov	40	.83775	.0961433	.64	.98
Size	40	10.75862	.2907662	9.91578	11.48829
Lev	40	.8061684	1.08835	.0005126	7.420942

**Source: STATA 18**

Table 1 shows the mean value of the environmental (ENV) social (SOC) and governance (GOV) variables and firm market-based performance variables as well as the control variables used in the study. The variable with the highest mean value is Tobinq with a mean value of 146.9875 followed by SIZE with a mean value of 10.786 and the others with LEV having the lowest mean value of 0.806 which indicates the average level of the series. In terms of maximum values Tobinq has the highest of the maximum value with 384.5 and then SOC has the lowest maximum value which is 0.96. Size with a value of 9.915 top the minimum value chart while LEV is at the bottom of that chart. The standard deviation which measures the variables deviation from average value has Tobinq at the top with a value of 143.1825 which indicates high variability, this was followed by ENV, LEV,SIZE,SOC with 12.35958,1.088,0.290.08 degree of variability respectively and then GOV is the least with 0.09 level of variability from the average on the standard deviation chart.

**Table 2: Correlation Matrix of the Variables**

This table shows the pattern and nature of relationship that exist between the dependent variable (DV) and the independent variables (IV) as well the pattern and nature of relationship that exists within the independent variables.

Variables	Tobinq	Env	Soc	Gov	Size	Lev
Tobinq	1.0000					
Env	-0.0392	1.0000				
Soc	0.4644	0.1037	1.0000			
Gov	0.1443	0.0872	0.2302	1.0000		
Size	0.7085	-0.0819	0.3163	0.1832	1.0000	
Lev	0.0115	-0.0532	-0.0494	-0.3013	-0.3867	1.0000

**Source: STATA 18**

The correlation results shown in the Table 2 above showed that only ENV has a negative relationship with Tobinq while all other variables of ESG which are SOC and GOV as well as SIZE and LEV are all positively correlated with Tobin’s Q; SOC and GOV are positively correlated with ENV while LEV and Size are negatively correlated with ENV; GOV and SIZE are positively correlated with SOC while LEV is negatively correlated with SOC; LEV is negatively correlated with ENV, SOC, GOV and Size while SIZE is positively correlated with GOV and SOC is negatively correlated with ENV.

**Table 3: Multicollinearity Test**

The table below present the result for the test that seek to ensure that two of the independent variables are not highly related which could lead to multicollinearity issues.

Variable	VIF	1/VIF
Size	1.34	0.744068
Lev	1.29	0.774768
Soc	1.19	0.838212
Gov	1.16	0.860156
Env	1.04	0.960969
Mean VIF	1.21	

**Source: STATA 18**

Table 3 shows the outcomes of the test for multicollinearity issues among the variables by calculating the Variance Inflation Factor (VIF). The average VIF was 1.21, with SIZE having the highest rating at 1.34. If the VIF number is more than 10, then there is tendency that there is multicollinearity issue with the variables. Since all VIF values were less than the cutoff value of 5, however, multicollinearity among the study model variables was not a major problem.

**Table 4: Heteroskedasticity Test**

This table presents result from analysis that seeks to establish that the standard deviations of the predicted variable which is monitored over different values of the independent variables are non-constant.

Test	Chi2	Prob.
Hettest	2.11	0.1465

**Source: STATA 18**

Table 4 shows the outcomes of the test for heteroskedasticity issues among the variables, the results reveals a p-value that is not significant even at 10% which indicate that there is a presence of homoskedasticity and shows that there are no heteroskedasticity issues with the model.

**Table 5: Normality Test**

This table shows result from ascertaining the extent to which the data set is well-modelled by a normal distribution which depicts the normal distribution property of the variable.

Variables	Obs	Pr(skewness)	Pr(kurtosis)	Adj chi2(2)	Prob>chi2
Tobinq	40	0.0126	0.2099	0.99	0.3304

**Source: STATA 18**

Table 5 shows the outcomes of the test for normality issues among the variables, the results reveals a p-value that is not below the significant level of 5% as seen from the table 0.3304 (33%) which indicate that the data are normally distributed.

**Table 6: Regression Results**

Variables	Coefficient	Std. Error	t-Statistics	Prob.
C	0.321369	0.040675	-7.14	0.0000
ENV	-0.000120	8.090005	0.12	0.9080
SOC	0.021095	0.012681	2.07	0.0460
GOV	-0.011735	0.010998	0.48	0.6360
LEV	1.000955	0.001024	2.88	0.0070
SIZE	-0.029870	0.003910	6.45	0.0000
R-squared	0.6524			
Adjusted R-squared	0.6013			
F-statistics	12.76			
Prob. (F-statistics)	0.0000			

**Source: STATA 18**

Table 6 above containing the regression results showed that the R-squared value of 0 .65; and, the adjusted R-squared value was 0.60, this represents the degree of changes in the dependent variable which is accounted for by the explanatory variables. The variables explain 65.2% variation in the dependent variable which also implies the extent to which the dependent variable is predicted by the independent variables. The measure of the overall fitness of the model is the F-statistic and its probability. From table 6 above the F-statistics of the series is 12.76 with a probability that is ( $p < .05$ ). These indicate that the overall model is a good fit and explains the variation in Tobin’s Q.

In the same vein, the regression coefficient and the probabilities of the variables under consideration (ENV, SOC, and GOV) which are proxy for ESG showed that ENV and GOV had a negative non-statistically significant effect on Tobin’s Q ( $p > .05$ ) while SOC had a positive and non-statistically significant effect on Tobin’s Q. This means that ESG disclosure has no significant effect on the market base performance of petroleum products marketing firms. Furthermore, for the control variables, LEV had a significant positive effect ( $p = 0.0000$ ); while, SIZE had a significant negative effect on Tobin’s Q ( $p = 0.000$ ) in the regression output.

The results revealed a combined and non-significant effect of ESG disclosure proxy by ENV, SOC and Gov on the market base performance of petroleum product marketing firm, this finding is consistent with Aydomus et al. (2022). The result showed that the ESG disclosure proxy of ENV and GOV had a negative and insignificant effect on Tobin's Q, while SOC had a positive and insignificant effect on Tobin's Q. Therefore on the nature of the effect of the ESG disclosure index on Tobin's Q the result showed that there is no significant effect which is consistent with the findings of Atan et al. (2018), Aydomus et al. (2022) and Igbinovia & Agbadua (2023). However, this is in contrast with the study by Okpa et al. (2019), Abiodun (2021) and Paulino et al. (2022) all reporting that ESG reporting has a significant effect on firm performance, therefore a significant association. This explains the assertions of Legitimacy theory which considered in the works of Burhan and Rahmanti (2012), Buallay (2019), and Uwuigbe et al. (2018). That Non-financial disclosure give the organization an opportunity to communicate to stakeholders how they have been performing regarding the environmental, social, and economic issues that are of major concern to the stakeholders. The communication of this information helps the organization to become more socially responsible thus increasing its legitimacy.

Similarly, it also upholds the stand of the stakeholder theory the incorporation of all stakeholders is built on the narrative of sustainable development and the premise that humans should not jeopardize the environment and a clear and concise communication of our actions should be sustainable to allow future generation to meet their needs.

## **5. Conclusions and Recommendations**

The study investigated the effect of environmental social and governance (ESG) disclosure on the market-based performance of petroleum products marketing firms in Nigeria. Three proxy environment (ENV), social (SOC) and governance (GOV) were used to represent the concept of ESG disclosure while Tobin's Q was used to represent market-based performance of the firms under consideration. The study concludes that environmental social and governance (ESG) reporting of petroleum product marketing firms has a mixed and no significant effect on firm's market base performance. The conclusion was drawn from the result of the analysis which showed that ENV and SOC had a negative and insignificant effect on Tobin's Q at 10% level of significance while GOV had a positive and insignificant effect on Tobin's Q at 10% level of Significance. LEV and SIZE which were adopted as control variables had a significant and mixed effect equally on Tobin's Q at 10% level of significance.

The study therefore recommends that there is need for petroleum product marketing firms in Nigeria to economically, reasonably and conveniently report and communicate their environmental, social and governance practice in such a way that investors will always see them as a responsible corporate citizen on one hand and it will not create too much cost burden on the firms. Also, it will not be easy generalizing the results of this study to firms in other sectors of the Nigerian stock market. This study was anchored on petroleum product marketing firms in the oil and gas sector and this alone may limit the degree of generalization as this is not the only sector in Nigerian stock exchange market. Therefore, further researches are recommended in other sectors of the Nigeria stock exchange.

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