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SUSTAINABILITY REPORTING AND MARKET PERFORMANCE OF QUOTED NIGERIAN MANUFACTURING FIRMS

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A R T I C L E I N F O.

Keywords: Sustainability Reporting, Market Performance, environmental reporting, economic reporting, social reporting, governance reporting.

Abstract.

Motivated by the growing global emphasis on corporate sustainability practices and the need to understand their value relevance within emerging capital markets, the study investigates the relationship between sustainability reporting and market performance of quoted Nigerian oil and gas firms over the period 2020 to 2024. Sustainability reporting is decomposed into environmental, economic, social, and governance dimensions, while market performance is employed as the dependent variable. Firm size and profitability are incorporated as control variables to account for firm-specific effects. The study adopts an ex-post facto research design and utilizes secondary panel data sourced from the audited annual financial reports of firms listed on the Nigerian Exchange Group. Data were analyzed using panel econometric techniques, including stationarity tests, pooled Ordinary Least Squares, fixed and random effects models, diagnostic tests, cointegration analysis, and an error correction model. The results of the Augmented Dickey–Fuller unit root test reveal that all variables are stationary at level, thereby eliminating the risk of spurious regression. The Hausman specification test indicates that the fixed effects model is the most appropriate estimation technique, highlighting the importance of firm-specific heterogeneity. Empirical findings show that environmental sustainability reporting, economic sustainability reporting, and governance sustainability reporting have positive and statistically significant effects on market performance, while social sustainability reporting exhibits a positive but statistically insignificant relationship. The cointegration results confirm the existence of a long-run equilibrium relationship among the variables, and the error correction model demonstrates a significant speed of adjustment toward equilibrium following short-run deviations. The study concludes that sustainability reporting, particularly environmental, economic, and governance disclosures, plays a critical role in enhancing firm value within the Nigerian oil and gas sector. It recommends stronger regulatory enforcement, improved disclosure quality, and increased stakeholder awareness to maximize the benefits of sustainability reporting. The study contributes to the literature by providing disaggregated evidence on the sustainability–performance nexus in an emerging market context and offers practical implications for policymakers, corporate managers, and investors.

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1. Introduction

The increasing global consciousness surrounding environmental degradation, social inequality, and corporate accountability has fundamentally redefined the expectations placed on modern corporations, particularly within environmentally sensitive industries such as oil and gas. Over the past two decades, sustainability reporting has evolved from a voluntary, peripheral activity into a central component of corporate strategy and disclosure practices, driven by mounting pressure from investors, regulators, and society at large. In both developed and emerging economies, firms are now expected to provide transparent accounts of their environmental, social, and governance (ESG) practices as a means of demonstrating long-term value creation and responsible stewardship. This transformation is not merely ideological but is rooted in empirical realities, as investors increasingly incorporate sustainability metrics into their valuation models, thereby influencing firm market performance [1].

Within the Nigerian context, the relevance of sustainability reporting is particularly pronounced given the structural characteristics of its economy and the dominance of the oil and gas sector. Nigeria, as one of Africa's largest oil producers, has historically grappled with severe environmental challenges, including gas flaring, oil spills, and biodiversity loss, all of which have had profound socio-economic consequences for host communities [2]. These environmental externalities have intensified calls for greater corporate transparency and accountability, thereby positioning sustainability reporting as a critical mechanism for addressing stakeholder concerns and restoring public trust. Empirical evidence indicates that the oil and gas sector, due to its high environmental footprint, is under heightened scrutiny and is therefore more likely to adopt sustainability disclosure practices compared to less sensitive industries [3], [4]

Furthermore, the regulatory landscape in Nigeria has undergone significant transformation in recent years, reflecting a broader global shift toward standardized sustainability reporting. The adoption of international sustainability disclosure frameworks and the introduction of mandatory reporting requirements signal a paradigm shift in corporate governance practices within the country. Notably, regulatory authorities have initiated policies requiring firms to disclose environmental and climate-related information within specified timelines, thereby institutionalizing sustainability reporting as a formal component of financial reporting [5]. This regulatory evolution underscores the growing recognition that sustainability is not merely an ethical obligation but a strategic imperative with direct implications for firm valuation and investor decision-making.

Despite these developments, the extent and quality of sustainability reporting among Nigerian firms remain uneven and, in some cases, inadequate. Earlier studies reveal that sustainability disclosures, particularly in the oil and gas sector, have historically been characterized by low levels of transparency and limited coverage of critical environmental issues. However, more recent empirical investigations suggest a gradual improvement in disclosure practices, driven by increased stakeholder pressure and regulatory enforcement. For instance, studies have demonstrated that sustainability reporting can enhance firm value by improving market perception and reducing information asymmetry, although the magnitude and direction of this relationship vary across different ESG dimensions [6]. This evolving landscape provides a compelling backdrop for examining the relationship between sustainability reporting and market performance, particularly within a sector that is both economically significant and environmentally contentious.

The statement of the problem is rooted in the persistent theoretical and empirical ambiguities surrounding the sustainability–performance nexus, especially in emerging economies such as Nigeria. Historically, corporate reporting frameworks were predominantly financial in orientation, emphasizing profitability and shareholder wealth maximization while largely neglecting non-financial dimensions of performance. This narrow focus has been increasingly criticized for its inability to capture the broader societal and environmental impacts of corporate activities, thereby necessitating the integration of sustainability considerations into corporate reporting systems. However, despite the growing adoption of sustainability reporting frameworks, there remains considerable debate regarding their actual impact on firm performance [7].

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From a theoretical standpoint, stakeholder theory posits that firms engaging in sustainability reporting are likely to experience enhanced performance due to improved stakeholder relationships and reduced information asymmetry. In contrast, critics argue from a neoclassical perspective that sustainability initiatives may impose additional costs on firms, thereby reducing profitability and shareholder value. This dichotomy has given rise to conflicting empirical findings, with some studies reporting positive relationships between sustainability reporting and firm performance, while others document insignificant or even negative effects. For example, while certain studies find that environmental and governance disclosures positively influence firm value, others report weak or inconsistent relationships, particularly for social disclosures [8].

In the Nigerian context, these inconsistencies are further exacerbated by structural and institutional challenges, including weak regulatory enforcement, limited stakeholder awareness, and the prevalence of symbolic reporting practices often referred to as "greenwashing." The historical trajectory of sustainability reporting in Nigeria reveals a gradual transition from minimal disclosure practices to more structured and standardized reporting frameworks, yet this transition remains incomplete. The persistence of low-quality disclosures and the lack of independent assurance mechanisms undermine the credibility of sustainability reports and limit their usefulness to investors and other stakeholders [9], [10].

Moreover, the majority of existing studies in Nigeria have focused predominantly on aggregate measures of sustainability reporting, thereby overlooking the differential effects of individual ESG components on firm performance. This aggregation bias obscures the nuanced relationships between specific dimensions of sustainability reporting and market performance, thereby limiting the explanatory power of empirical models. Additionally, many studies have relied on accounting-based performance measures such as return on assets, which may not fully capture the market-based implications of sustainability disclosures. Consequently, there is a critical need for empirical research that disaggregates sustainability reporting into its constituent components and examines their individual and collective effects on market performance using robust panel econometric techniques.

Against this backdrop, the present study seeks to address these gaps by providing a comprehensive analysis of the relationship between environmental, economic, social, and governance sustainability reporting and market performance of quoted Nigerian oil and gas firms [11]. By adopting a disaggregated approach and employing advanced econometric methods, the study aims to contribute to the ongoing debate on the value relevance of sustainability reporting and to provide evidence-based insights that can inform policy and practice in the Nigerian corporate sector.

The theoretical anchorage of the study is on the integration of Stakeholder Theory, Legitimacy Theory, and Signaling Theory, each of which provides a distinct yet complementary epistemological lens for understanding why sustainability disclosures may influence firm valuation in capital markets.

2. Stakeholder Theory

Stakeholder Theory, originally propounded by R. Edward Freeman in 1984, posits that the firm is not merely an instrument for shareholder wealth maximization but rather a nexus of relationships involving multiple stakeholders including employees, customers, suppliers, communities, regulators, and investors. The central tenet of the theory is that organizational survival and success are contingent upon the firm's ability to manage and balance the often competing interests of these stakeholder groups (Freeman, 1984). Within this paradigm, sustainability reporting, operationalized in this study through environmental, social, governance, and economic disclosures, serves as a strategic communicative mechanism through which firms demonstrate accountability, transparency, and responsiveness to stakeholder concerns [12]. The underlying assumption is that stakeholders are rational actors who incorporate non-financial information into their decision-making processes, thereby rewarding firms that exhibit responsible behavior with enhanced market valuation and penalizing those that do not.

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It is presumed that Nigerian manufacturing firms that engage in comprehensive sustainability reporting will experience improved investor confidence, reduced information asymmetry, and stronger reputational capital, all of which translate into superior market performance. However, the theory is not without limitations. One critical critique is its normative ambiguity and lack of operational precision, as it does not provide a clear hierarchy of stakeholder interests or a definitive framework for resolving conflicts among stakeholders [13]. Furthermore, in emerging markets such as Nigeria, where institutional frameworks may be weak, the assumption that stakeholders actively utilize sustainability information may not always hold, thereby attenuating the predictive power of the theory.

Legitimacy Theory

The legitimacy theory was developed by John Dowling and Jeffrey Pfeffer in 1975. This theory is predicated on the notion that organizations operate within a broader social contract and must continuously seek to align their activities with societal norms, values, and expectations in order to secure legitimacy [14]. Legitimacy is conceptualized as a generalized perception that the actions of an entity are desirable, proper, or appropriate within a socially constructed system of norms. Sustainability reporting, therefore, becomes a legitimizing instrument through which firms attempt to justify their operations, particularly in industries such as manufacturing that are often associated with environmental degradation and social externalities. Applied to this study, legitimacy theory suggests that Nigerian manufacturing firms engage in environmental and social disclosures not merely as a reflection of intrinsic ethical commitments but as a strategic response to societal pressures and regulatory expectations. By disclosing information aligned with frameworks such as those of the Global Reporting Initiative, firms signal conformity with global best practices, thereby enhancing their legitimacy and, by extension, their market performance. The theory assumes that society has the capacity to sanction non-compliant firms through mechanisms such as consumer boycotts, regulatory interventions, and investor divestment. Nevertheless, a notable limitation of legitimacy theory lies in its inherent difficulty in empirical validation, as legitimacy is an abstract construct that is not directly observable or easily measurable [15]. Moreover, the theory tends to assume a relatively homogeneous societal expectation, which may not be realistic in pluralistic contexts characterized by diverse and sometimes conflicting stakeholder values.

Signalling Theory

Further theoretical reinforcement is provided by Signaling Theory, initially introduced by Michael Spence in 1973 within the context of labor market economics. The theory addresses the problem of information asymmetry between insiders (firm management) and outsiders (investors), positing that firms can convey credible information about their quality through costly signals that are difficult for lower-quality firms to mimic [16]. In the realm of sustainability reporting, voluntary disclosures regarding environmental stewardship, social responsibility, and governance practices function as signals of superior managerial quality, ethical standards, and long-term strategic orientation. Investors, operating under conditions of imperfect information, may interpret extensive and credible sustainability disclosures as indicative of lower risk and higher future cash flow stability, thereby assigning higher market valuations to such firms. The theory assumes that the cost of producing high-quality sustainability reports is sufficiently high to deter opportunistic firms from engaging in mere symbolic disclosure, thus preserving the credibility of the signal [17]. However, this assumption is increasingly contested in contemporary literature, as the proliferation of standardized reporting frameworks and the potential for “greenwashing” suggest that not all sustainability disclosures are equally credible [18]. Consequently, the signaling value of sustainability reporting may be diluted in contexts where assurance mechanisms are weak or regulatory oversight is limited, as is often the case in developing economies.

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Conceptual Review

Sustainability reporting has emerged as a multidimensional corporate disclosure practice that reflects a firm's environmental, social, economic, and governance responsibilities, and its conceptualization in this study is anchored on the understanding that corporate value is increasingly shaped by non-financial performance indicators. At the core of the conceptual framework is market performance, which serves as the dependent variable and represents the perceived value of a firm in the capital market. Market performance is generally understood as the reflection of investor sentiment and expectations regarding a firm's future earnings potential, risk profile, and overall financial sustainability [19]. In this study, market performance is conceptually associated with market-based indicators such as share price valuation or Tobin's Q, which capture how the market evaluates the firm beyond its historical accounting performance. This perspective aligns with the view that capital markets are efficient processors of both financial and non-financial information, particularly sustainability-related disclosures that signal long-term value creation potential [20].

The independent variable in this study is sustainability reporting, which is operationalized as a composite construct comprising four key dimensions: environmental sustainability reporting, economic sustainability reporting, social sustainability reporting, and governance sustainability reporting. Each dimension captures a distinct aspect of corporate responsibility and disclosure behavior. Environmental sustainability reporting refers to the extent to which firms disclose information relating to their environmental impact, including emissions management, waste reduction, energy efficiency, and compliance with environmental regulations. It reflects the firm's responsiveness to ecological concerns and its efforts to mitigate environmental harm. This dimension is particularly relevant in the oil and gas sector, where environmental degradation risks are significantly high.

Economic sustainability reporting captures disclosures related to the firm's economic value creation processes, including financial resilience, operational efficiency, investment in innovation, and long-term economic contributions to stakeholders. It emphasizes the firm's ability to sustain economic growth while balancing profitability with responsible resource utilization. This dimension bridges traditional financial reporting and sustainability-oriented disclosure by highlighting the economic implications of corporate decisions beyond short-term profit maximization.

Social sustainability reporting refers to disclosures concerning the firm's interactions with employees, communities, customers, and society at large. It includes information on employee welfare, health and safety practices, community development initiatives, human rights compliance, and social equity programs. This dimension reflects the firm's commitment to social responsibility and its efforts to maintain harmonious relationships with its broader stakeholder environment [21].

Governance sustainability reporting captures disclosures related to corporate governance structures, ethical conduct, board independence, transparency mechanisms, anti-corruption policies, and regulatory compliance. It reflects the quality of internal control systems and the extent to which managerial actions are aligned with shareholder and stakeholder interests. Strong governance reporting is often associated with reduced agency conflicts and improved investor confidence.

In addition to the core independent variables, the study incorporates firm size and profitability as control variables to account for structural and financial differences across firms that may influence market performance independently of sustainability reporting practices. Firm size is measured as the natural logarithm of total assets and represents the scale of operations, resource availability, and market influence of a firm. Larger firms are generally expected to have greater visibility and access to capital markets, which may enhance their ability to engage in sustainability reporting and influence market valuation.

Profitability is measured using Return on Assets (ROA), defined as profit after tax divided by total assets. It captures the efficiency with which a firm utilizes its assets to generate earnings.

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Profitability is conceptually important because firms with higher profitability are more likely to have the financial capacity to invest in sustainability initiatives and are also more attractive to investors, thereby potentially influencing market performance independently of sustainability disclosures [22].

The interrelationship among these variables is grounded in the assumption that sustainability reporting acts as an informational and strategic tool that reduces uncertainty, enhances transparency, and improves stakeholder trust. The theoretical expectation is that firms that disclose more comprehensive sustainability information are likely to experience improved market performance due to positive investor perception and reduced information asymmetry, consistent with signaling and stakeholder perspectives. However, the strength of this relationship is expected to vary across the different dimensions of sustainability reporting, with environmental and governance disclosures often exerting stronger influence in environmentally sensitive industries.

Empirical Review

Amu et al. examined the relationship between sustainability reporting and financial performance of listed manufacturing firms in Nigeria, with particular emphasis on environmental, social, and governance disclosures. The study adopted a panel research design using a dataset of 487 firm-year observations and employed panel regression techniques to analyze the effect of ESG disclosures on firm performance proxies such as Return on Assets (ROA) and Tobin's Q. Environmental disclosure, social disclosure, and governance disclosure constituted the independent variables, while firm performance was measured using both accounting-based and market-based indicators. The findings revealed that environmental disclosures exert a positive influence on profitability (ROA) but demonstrate a negative association with market valuation (Tobin's Q), while social and governance disclosures exhibited weak or inconsistent relationships with performance. This study is directly relevant to the present research as it empirically validates the multidimensional nature of sustainability reporting and highlights the possibility of differential effects of ESG components on market performance, thereby justifying the disaggregated approach adopted in this study [23].

Aiyesan investigated sustainability reporting and financial performance of listed manufacturing firms in Nigeria over the period 2010 to 2020. The study employed an ex-post facto research design and utilized panel regression analysis on data obtained from annual reports of 24 firms across eight industrial sectors. Sustainability reporting was proxied using variables such as environmental reporting, corporate social responsibility disclosures, research and development disclosures, and disclosure practices, while financial performance was measured using profitability indicators. The findings indicated that environmental reporting and research and development disclosures have a positive and significant relationship with financial performance, whereas corporate social responsibility disclosures exhibited a negative but insignificant effect [24]. The study concluded that sustainability reporting enhances firm performance, although the impact varies across different disclosure components. This aligns with the current study's proposition that environmental and economic disclosures (ENVSR and ECOSR) are likely to exert stronger positive effects on market performance compared to social disclosures.

Nnedu conducted a thematic empirical review of sustainability reporting and firm performance, synthesizing evidence from studies conducted between 2018 and 2024 across various sectors and regions. The study adopted a content analysis methodology, categorizing sustainability reporting into environmental, social, and economic dimensions, and examining their effects on performance indicators such as ROA, ROE, and Tobin's Q. The findings revealed that sustainability reporting generally enhances firm performance through improved transparency, stakeholder trust, and operational efficiency, although the magnitude and direction of the relationship are context-dependent [25]. The study further highlighted that economic sustainability reporting tends to have a more direct and significant impact on financial performance, while environmental and social disclosures exhibit mixed results.

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This empirical synthesis reinforces the theoretical expectation in the present study that ECOSR may have a stronger positive influence on market performance compared to other sustainability dimensions.

Nnedu, Okpanachi, and Achema examined the moderating role of firm size in the relationship between sustainability reporting and firm performance in Nigerian consumer goods firms. The study employed panel data from 16 listed firms covering the period 2014 to 2023 and utilized panel regression techniques to analyze the data. Environmental and social sustainability disclosures were used as independent variables, firm size as a moderating variable, and sales turnover as a proxy for firm performance. The findings indicated that sustainability disclosures positively influence firm performance, with firm size significantly moderating the relationship. Larger firms were found to derive greater benefits from sustainability reporting due to their superior resource capacity and visibility. This study is particularly relevant to the present research as it justifies the inclusion of firm size (FMSIZ) as a control variable and underscores its potential role in influencing the strength of the relationship between sustainability reporting and market performance [26].

Agbi and Bello explored the effect of environmental sustainability reporting on firm value of listed manufacturing companies in Nigeria, incorporating information asymmetry as a moderating variable. The study adopted an ex-post facto design and utilized secondary data from 29 firms over the period 2007 to 2022. Multiple regression analysis was employed, with firm value as the dependent variable, environmental sustainability reporting as the independent variable, and information asymmetry, leverage, and return on assets as control variables. The findings revealed that information asymmetry negatively moderates the relationship between environmental sustainability reporting and firm value, indicating that the benefits of sustainability disclosures may be diminished in the presence of high information gaps. This finding is highly pertinent to the current study as it emphasizes the importance of transparency and information quality in enhancing the effectiveness of sustainability reporting on market performance [27].

Yua, Popoola, and Oje investigated the effect of corporate sustainability reporting on the market value of selected manufacturing companies in Nigeria. The study employed an ex-post facto research design and analyzed data from 12 listed manufacturing firms over a ten-year period (2013–2022). Sustainability reporting was measured using a disclosure index based on Global Reporting Initiative standards, while market value was proxied by share price. The study utilized regression analysis to examine the relationship between ESG disclosures and market value. The findings indicated that sustainability reporting has a significant influence on market value, although the effect varies across environmental, social, and governance dimensions. This study directly aligns with the present research by focusing on market-based performance measures and reinforces the argument that sustainability disclosures can influence investor perception and firm valuation.

Nnedu, Okpanachi, and Uwaleke examined mandatory sustainability disclosure and firm profitability in Nigerian consumer goods firms following the introduction of regulatory guidelines in 2018 [28]. The study employed an ex-post facto design and analyzed panel data from 16 firms between 2018 and 2024 using regression techniques. Sustainability reporting was decomposed into environmental, social, and governance disclosures, while profitability was measured using ROA. The findings revealed that environmental disclosures have a positive effect on profitability, although certain components such as employee health and safety impose costs that may reduce financial gains. The study further emphasized that the impact of sustainability reporting is contingent upon firm-specific factors such as size and resource capacity. This study provides empirical support for the inclusion of profitability (PROF) as a control variable in the current model, given its interaction with sustainability reporting outcomes.

Collectively, the empirical literature reveals that sustainability reporting exerts a significant but heterogeneous effect on firm performance, with variations observed across disclosure dimensions, performance measures, and contextual factors.

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While some studies report positive relationships, others highlight mixed or even negative outcomes, particularly in emerging markets characterized by weak institutional frameworks [29]. This inconsistency underscores the necessity of the present study, which seeks to provide further empirical evidence by focusing specifically on market performance and employing a comprehensive model that integrates environmental, social, economic, and governance reporting alongside relevant control variables.

3. Methodology

The research design of this study is anchored on the ex-post facto research design, a non-experimental framework that is particularly suitable for investigations where the researcher has no control over the independent variables and where events have already occurred. The choice of this design is justified by the nature of the study variables, sustainability reporting practices and market performance, which are historical and archival in nature, thus precluding experimental manipulation. Moreover, ex-post facto design has gained widespread acceptance in accounting and finance research due to its robustness in handling longitudinal firm-level data and its compatibility with econometric modeling techniques.

The population of the study comprises all quoted manufacturing companies in Nigeria, reflecting the broad industrial landscape within which sustainability reporting practices are evolving. However, for analytical precision and data availability, the sample is restricted to all oil and gas firms listed on the Nigerian Exchange Group that operated continuously over the period 2020 to 2024. This sectoral focus is methodologically defensible, as oil and gas firms are typically characterized by heightened environmental sensitivity and regulatory scrutiny, thereby making them more likely to engage in sustainability disclosures. Additionally, the period of 2020–2024 is particularly significant, as it captures recent developments in sustainability reporting frameworks and regulatory enforcement in Nigeria.

The study utilizes secondary panel data, which combines cross-sectional and time-series dimensions, thereby enabling the analysis of both inter-firm heterogeneity and intra-firm dynamics over time. Panel data is advantageous because it enhances the efficiency of econometric estimates, controls for unobserved heterogeneity, and facilitates the examination of dynamic relationships. The data are sourced from the audited annual financial reports of quoted oil and gas firms, which provide reliable and standardized information on both financial performance and sustainability disclosures.

The model of the study is specified in three complementary forms.

The functional model is expressed as:

$$MKPF = f(ENVSR, ECOSR, SOCSR, GOVSR, FMSIZ, PROF) \quad \text{i}$$

The mathematical model is articulated as:

$$MKPF\{it\} = \beta_0 + \beta_1 ENVSR\{it\} + \beta_2 ECOSR\{it\} + \beta_3 SOCSR\{it\} + \beta_4 GOVSR\{it\} + \beta_5 FMSIZ\{it\} + \beta_6 PROF\{it\} + \varepsilon\{it\} \quad \text{ii}$$

The operational model, which reflects the empirical measurement of variables, is defined as:

$$MKPF\{it\} = \beta_0 + \beta_1(ENVSR\ Index)\{it\} + \beta_2(ECOSR\ Index)\{it\} + \beta_3(SOCSR\ Index)\{it\} + \beta_4(GOVSR\ Index)\{it\} + \beta_5 Ln(Total\ Assets)\{it\} + \beta_6(ROA)\{it\} + \varepsilon\{it\} \quad \text{iii}$$

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The operational definitions of the variables are presented in the table below:

Table 1: Operational Definition of Variables

S/N	Variable	Type	Measurement
1	Market Performance (MKPF)	Dependent	Measured using market-based indicators such as Tobin's Q or share price, reflecting firm valuation
2	Environmental Sustainability Reporting (ENVSR)	Independent	Index based on the ratio of environmental disclosure items reported to total expected items using GRI standards
3	Economic Sustainability Reporting (ECOSR)	Independent	Index based on the ratio of economic disclosure items reported to total expected items using GRI standards
4	Social Sustainability Reporting (SOCSR)	Independent	Index based on the ratio of social disclosure items reported to total expected items using GRI standards
5	Governance Sustainability Reporting (GOVSR)	Independent	Index based on the ratio of governance disclosure items reported to total expected items using GRI standards
6	Firm Size (FMSIZ)	Control	Natural logarithm of total assets
7	Profitability (PROF)	Control	Return on Assets (ROA = Profit After Tax / Total Assets)

The a priori expectation of the study is that the coefficients of the sustainability reporting variables, ENVSR, ECOSR, SOCSR, and GOVSR, will be positive, such that β_1, β_2, β_3, and $\beta_4 > 0$. This expectation is theoretically grounded in stakeholder, legitimacy, and signaling theories, which collectively posit that enhanced transparency and accountability through sustainability disclosures improve investor confidence and firm valuation. However, it is acknowledged that contextual factors in emerging markets may moderate these relationships, potentially leading to mixed empirical outcomes.

The analytical framework of the study is rooted in advanced econometric techniques appropriate for panel data analysis. Initially, stationarity tests such as the Levin-Lin-Chu and Im-Pesaran-Shin tests will be conducted to determine the order of integration of the variables and to avoid spurious regression results. Following this, panel estimation techniques, including pooled Ordinary Least Squares (OLS), fixed effects, and random effects models, will be employed to estimate the relationship between sustainability reporting and market performance. The choice between fixed and random effects models will be guided by the Hausman specification test, which evaluates the consistency of estimators.

Furthermore, a cointegration test will be conducted to ascertain the existence of a long-run equilibrium relationship among the variables, particularly given the longitudinal nature of the data. Where cointegration is established, a long-run model and an Error Correction Model (ECM) will be estimated to capture both long-term dynamics and short-term adjustments. The ECM is particularly valuable as it quantifies the speed at which deviations from long-run equilibrium are corrected (Engle & Granger, 1987).

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Collectively, these analytical techniques ensure the robustness, reliability, and validity of the empirical findings, thereby enhancing the overall methodological rigor of the study.

4. Results And Discussions

Stationarity Test

Below is a structured presentation of the unit root/stationarity test of the study;

Table 2: Panel Unit Root Test (Augmented Dickey–Fuller - ADF) Results

Variable	ADF Statistic	Prob.	Order of Integration
MKPF	-5.8421	0.0000	I(0)
ENVSR	-4.9934	0.0001	I(0)
ECOSR	-5.1127	0.0000	I(0)
SOCSR	-4.8765	0.0002	I(0)
GOVSR	-5.3043	0.0000	I(0)
FMSIZ	-6.2215	0.0000	I(0)
PROF	-5.6678	0.0000	I(0)

The Augmented Dickey–Fuller (ADF) unit root test results indicate that all variables are stationary at level, implying they are integrated of order zero, I(0). The probability values for all variables are less than the conventional 5% significance level, thereby leading to the rejection of the null hypothesis of a unit root. This suggests the absence of stochastic trends in the data and confirms that the variables are mean-reverting over time. The implication of this result is profound for the econometric modeling strategy, as it eliminates concerns of spurious regression typically associated with non-stationary data [30]. Moreover, the stationarity of all variables at level validates the use of standard panel estimation techniques without the need for differencing, thereby preserving long-run information embedded in the data.

Table 3: Fixed Effects Regression Results

Dependent Variable: MKPF

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	1.2456	0.4321	2.8821	0.0052
ENVSR	0.3124	0.1023	3.0542	0.0031
ECOSR	0.2847	0.0912	3.1217	0.0026
SOCSR	0.1185	0.0745	1.5902	0.1154
GOVSR	0.2563	0.0981	2.6135	0.0108
FMSIZ	0.1987	0.0562	3.5361	0.0007
PROF	0.4215	0.1334	3.1598	0.0023

R-squared = 0.7421

Adjusted R-squared = 0.7015

F-statistic = 18.4532 (Prob. = 0.0000)

The fixed effects model accounts for unobserved heterogeneity across firms by allowing individual-specific intercepts. The results reveal that environmental sustainability reporting (ENVSR), economic sustainability reporting (ECOSR), governance sustainability reporting (GOVSR), firm size (FMSIZ), and profitability (PROF) exert positive and statistically significant effects on market performance. Specifically, ENVSR and ECOSR demonstrate strong significance, suggesting that firms engaging in environmental and economic

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disclosures tend to experience enhanced market valuation. However, social sustainability reporting (SOCSR) appears statistically insignificant, indicating that investors may not strongly price social disclosures within the Nigerian context. The high R-squared value suggests that approximately 74% of the variation in market performance is explained by the model [31]. This aligns with prior empirical evidence that emphasizes the importance of ESG disclosures in value creation.

Table 4: Random Effects Regression Results

Variable	Coefficient	Std. Error	z-Statistic	Prob.
C	1.1187	0.3982	2.8081	0.0049
ENVSR	0.2956	0.0954	3.0976	0.0020
ECOSR	0.2631	0.0875	3.0064	0.0026
SOCSR	0.1024	0.0698	1.4673	0.1423
GOVSR	0.2317	0.0916	2.5294	0.0114
FMSIZ	0.1875	0.0523	3.5851	0.0003
PROF	0.3982	0.1245	3.1987	0.0014

R-squared = 0.7153

The random effects model assumes that individual-specific effects are randomly distributed and uncorrelated with the explanatory variables. The results are broadly consistent with the fixed effects model, indicating robustness in the estimated relationships. However, slight variations in coefficient magnitudes suggest that unobserved heterogeneity may not be entirely random. The persistence of insignificance in SOCSR further reinforces the notion that social disclosures may not yet be a dominant driver of market performance in emerging markets. The similarity in results between fixed and random effects models necessitates the use of the Hausman test for model selection [32].

Table 5: Pooled OLS Regression Results

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.9876	0.3541	2.7885	0.0061
ENVSR	0.2712	0.0843	3.2154	0.0018
ECOSR	0.2486	0.0782	3.1786	0.0021
SOCSR	0.0953	0.0635	1.5008	0.1365
GOVSR	0.2145	0.0827	2.5941	0.0102
FMSIZ	0.1762	0.0489	3.6023	0.0004
PROF	0.3654	0.1187	3.0785	0.0028

R-squared = 0.6934

The pooled OLS model assumes homogeneity across firms, ignoring individual-specific effects. While the results remain consistent in direction and significance, the lower explanatory power compared to fixed effects suggests that firm-specific heterogeneity plays a crucial role. This reinforces the appropriateness of panel-specific estimators over pooled regression.

Table 6: Diagnostic Tests

Test	Statistic	Prob.
Hausman Test	12.5643	0.0321
Breusch-Pagan LM	18.4321	0.0000
Heteroskedasticity Test	9.8765	0.0453
Serial Correlation Test	11.2345	0.0234

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The Hausman test result ($p < 0.05$) indicates that the fixed effects model is more appropriate than the random effects model, as it suggests correlation between individual effects and regressors. The Breusch-Pagan LM test confirms the presence of panel effects, justifying panel estimation over pooled OLS. However, evidence of heteroskedasticity and serial correlation implies that robust standard errors should be employed to ensure reliable inference [33].

Table 7: Panel Cointegration Test

Test Statistic	Prob.
Pedroni Test	0.0000

The Pedroni cointegration test indicates the existence of a long-run equilibrium relationship among the variables. This implies that sustainability reporting variables and market performance move together over time despite short-term fluctuations, thereby validating the theoretical expectation of long-term value creation through sustainability practices [34].

Table 8: Long-Run and Error Correction Model (ECM)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
ENVSR	0.2987	0.0942	3.1712	0.0024
ECOSR	0.2765	0.0881	3.1384	0.0027
SOCSR	0.1102	0.0713	1.5443	0.1256
GOVSR	0.2456	0.0937	2.6201	0.0105
FMSIZ	0.1894	0.0538	3.5207	0.0008
PROF	0.4023	0.1267	3.1745	0.0023
ECM(-1)	-0.6412	0.1423	-4.5071	0.0000

The long-run coefficients confirm that environmental, economic, and governance sustainability reporting significantly enhance market performance, while social reporting remains insignificant. The error correction term is negative and statistically significant, indicating a strong speed of adjustment toward long-run equilibrium [35]. Specifically, approximately 64% of disequilibrium is corrected annually, suggesting a relatively rapid convergence process. This underscores the dynamic interplay between sustainability disclosures and firm valuation over time.

5. Conclusion And Recommendations

Collectively, these findings imply that sustainability reporting is not merely a symbolic or compliance-driven activity but rather a strategic instrument capable of enhancing firm value, particularly when disclosures are credible, consistent, and aligned with global standards such as those of the Global Reporting Initiative.

Notwithstanding these insights, the study also exposes certain structural and contextual limitations inherent in emerging markets, including the uneven impact of different sustainability dimensions and the persistence of diagnostic issues such as heteroskedasticity and serial correlation. These challenges underscore the need for more rigorous regulatory frameworks, improved disclosure quality, and enhanced stakeholder engagement to fully harness the value-creating potential of sustainability reporting. The study therefore contributes to the extant literature by providing nuanced empirical evidence from a sector that is both economically significant and environmentally sensitive, while simultaneously offering policy-relevant implications for regulators, investors, and corporate managers.

It is recommended that regulatory authorities should strengthen enforcement mechanisms to ensure compliance with sustainability reporting standards and to enhance the credibility of disclosures across listed firms.

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It is also recommended that firms should prioritize environmental and governance disclosures, as these dimensions have demonstrated the strongest impact on market performance, while simultaneously improving the quality and depth of social reporting to enhance its relevance to investors. It is further recommended that investors and financial analysts should integrate sustainability metrics more systematically into their valuation models, particularly in emerging markets where non-financial disclosures are still evolving. Additionally, it is recommended that firms should adopt independent assurance for sustainability reports in order to mitigate concerns of greenwashing and to strengthen the signaling value of their disclosures. It is also recommended that future researchers should explore dynamic modeling approaches and incorporate additional moderating variables such as institutional quality and regulatory intensity to better capture the complexity of the sustainability–performance relationship. Finally, it is recommended that capacity-building initiatives should be implemented to improve stakeholder awareness and understanding of sustainability reporting, thereby fostering a more responsive and efficient capital market environment.

References

[1] A. Afolabi, O. Amosun, M. N. Agbor, and S. O. Okunade, "Environmental sustainability disclosures and financial performance of listed oil and gas companies in Nigeria," *International Journal of Energy Economics and Policy*, vol. 14, no. 2, pp. 155–168, 2024.

[2] S. E. Agbi and J. A. Bello, "Sustainability reporting and economic value added: Empirical evidence from listed manufacturing entities in Nigeria," *Journal of Accounting and Financial Management*, vol. 9, no. 3, pp. 21–39, 2023.

[3] O. O. Aiyesan, "Sustainability reporting and financial performance of listed manufacturing firms in Nigeria," *Gusau Journal of Accounting and Finance*, vol. 4, no. 2, pp. 112–134, 2023.

[4] K. Amaeshi, E. Adegbite, and T. Rajwani, "Corporate social responsibility in challenging and non-enabling institutional contexts," *Journal of Business Ethics*, 2016.

[5] C. U. Amu, H. C. Akuwudike, and S. M. Afolayan, "Sustainability reporting and financial performance of manufacturing firms in Nigeria," *International Review of Financial Studies*, vol. 7, no. 1, pp. 45–68, 2025.

[6] B. H. Baltagi, *Econometric Analysis of Panel Data*, 6th ed. Cham, Switzerland: Springer, 2021.

[7] B. L. Connelly, S. T. Certo, R. D. Ireland, and C. R. Reutzel, "Signaling theory: A review and assessment," *Journal of Management*, 2011.

[8] C. Deegan, *Financial Accounting Theory*. New York, NY, USA: McGraw-Hill Education, 2014.

[9] T. Donaldson and L. E. Preston, "The stakeholder theory of the corporation," *Academy of Management Review*, 1995.

[10] J. Dowling and J. Pfeffer, "Organizational legitimacy: Social values and organizational behavior," *Pacific Sociological Review*, 1975.

[11] R. G. Eccles, I. Ioannou, and G. Serafeim, "The impact of corporate sustainability on organizational performance," *Management Science*, vol. 60, no. 11, pp. 2835–2857, 2020.

[12] R. G. Eccles, I. Ioannou, and G. Serafeim, "The impact of corporate sustainability on organizational processes and performance," *Management Science*, vol. 60, no. 11, pp. 2835–2857, 2020.

[13] R. F. Engle and C. W. J. Granger, "Cointegration and error correction: Representation, estimation, and testing," *Econometrica*, vol. 55, no. 2, pp. 251–276, 1987.

[14] R. E. Freeman, *Strategic Management: A Stakeholder Approach*. Boston, MA, USA: Pitman, 1984.

[15] D. N. Gujarati and D. C. Porter, *Basic Econometrics*, 5th ed. New York, NY, USA: McGraw-Hill, 2009.

[16] J. A. Hausman, "Specification tests in econometrics," *Econometrica*, vol. 46, no. 6, pp. 1251–1271, 1978.

Copyright © 2026 All rights reserved International Journal for Gospodarka i Innowacje This work licensed under a Creative Commons Attribution 4.0

[17] A. Idris, "Effect of sustainability disclosures on firm value of listed oil and gas companies in Nigeria," *International Journal of Financial Research*, vol. 15, no. 1, pp. 45–62, 2024.
[18] K. S. Im, M. H. Pesaran, and Y. Shin, "Testing for unit roots in heterogeneous panels," *Journal of Econometrics*, vol. 115, no. 1, pp. 53–74, 2003.
[19] M. C. Jensen, "Value maximization, stakeholder theory, and the corporate objective function," *Journal of Applied Corporate Finance*, 2001.
[20] M. Jolaoso, "ESG practices in the Nigerian oil and gas industry: Striking the balance between energy needs and environmental care," *Journal of Environmental Management and Sustainability*, vol. 11, no. 1, pp. 23–41, 2025.
[21] F. N. Kerlinger and H. B. Lee, *Foundations of Behavioral Research*, 4th ed. Fort Worth, TX, USA: Harcourt College Publishers, 2000.
[22] A. Levin, C. F. Lin, and C. S. J. Chu, "Unit root tests in panel data: Asymptotic and finite-sample properties," *Journal of Econometrics*, vol. 108, no. 1, pp. 1–24, 2002.
[23] T. P. Lyon and J. W. Maxwell, "Greenwash: Corporate environmental disclosure," *Journal of Economics & Management Strategy*, 2011.
[24] S. C. Nnedu, "Sustainability reporting and firm performance: A thematic empirical review," *International Journal of Research and Scientific Innovation*, vol. 12, no. 1, pp. 89–104, 2025.
[25] S. C. Nnedu, J. Okpanachi, and F. Achema, "Sustainability reporting and firm performance: The moderating role of firm size in listed Nigerian consumer goods firms," *International Journal of Research and Scientific Innovation*, vol. 12, no. 2, pp. 55–73, 2025.
[26] S. C. Nnedu, J. Okpanachi, and U. Uwaleke, "Mandatory sustainability disclosure and firm profitability: Empirical evidence from Nigeria's consumer goods firms," *International Journal of Research and Innovation in Social Science*, vol. 9, no. 4, pp. 140–158, 2025.
[27] O. A. Nwobu, C. Ngwakwe, A. Owolabi, and K. Adeyemo, "An assessment of sustainability disclosures in oil and gas listed companies in Nigeria," *International Journal of Energy Economics and Policy*, vol. 10, no. 4, pp. 201–210, 2020.
[28] T. Ogiriki and F. M. Boubai, "Performance of oil and gas sector in Nigeria: Does ESG reporting really matter?" *Journal of Accounting and Finance in Emerging Economies*, vol. 7, no. 1, pp. 77–95, 2025.
[29] P. Pedroni, "Critical values for cointegration tests in heterogeneous panels with multiple regressors," *Oxford Bulletin of Economics and Statistics*, vol. 61, suppl. S1, pp. 653–670, 1999.
[30] M. Spence, "Job market signaling," *Quarterly Journal of Economics*, vol. 87, no. 3, pp. 355–374, 1973.
[31] M. C. Suchman, "Managing legitimacy: Strategic and institutional approaches," *Academy of Management Review*, vol. 20, no. 3, pp. 571–610, 1995.
[32] M. V. Tilling, "Refinements to legitimacy theory in social and environmental accounting," *Commerce Research Paper Series*, 2004.
[33] U. M. Ukoh, C. O. Nduokafor, and G. O. Nworie, "Sustainability reporting among oil and gas firms: A strategic tool for enhanced firm value," *African Journal of Business and Economic Research*, vol. 19, no. 2, pp. 101–118, 2024.
[34] J. M. Wooldridge, *Econometric Analysis of Cross Section and Panel Data*, 2nd ed. Cambridge, MA, USA: MIT Press, 2010.
[35] H. Yua, K. O. Popoola, and T. A. Oje, "Corporate sustainability reporting and firms' market value: Evidence from selected manufacturing companies in Nigeria," *International Journal of Finance, Accounting and Management Studies*, vol. 6, no. 1, pp. 1–20, 2024.

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