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Abstract
In the wake of increased volatility in firm value, firms are continually seeking strategies to enhance corporate success, and sustainability reporting has gained traction as a possible value enhancing strategy. The study sought to evaluate the relationship between sustainability reporting and value of companies by exploring how environmental disclosure, social disclosure and governance disclosure affect firm value. The target population was all the sixty-three firms listed at the Nairobi Securities Exchange (NSE) as of December 2025. Secondary data was collected from the annual sustainability reports, integrated reports and company websites using a structured data collection sheet and random effects Generalized Least Square (GLS) model with robust standard errors estimated. The results revealed that environmental, social and governance disclosures have a significant positive effect on firm value. The study recommends that firms should embed robust disclosure frameworks into their strategies, while regulators such as the NSE strengthen mandatory sustainability disclosure requirements.

Keywords: *Sustainability Reporting, ESG, Firm Value, Environmental Disclosure, Social Disclosure, Governance Disclosure.*

1. INTRODUCTION

1.1 Background

The traditional profit maximization objective of the firm is increasingly being challenged by contemporary demands for ecological integrity, social equity, good governance and economic prosperity. Firm value today is not perceived as a mere financial outcome, but a dynamic balance between financial and non-financial outcomes (Aliyu et al., 2024). In the 21st century, intangible and non-financial aspects now play a dominant 84% role in shaping firm success as opposed to financial aspects' such dominant role in the past (Aksan & Gantyowati, 2020). As firms continue to experience increased volatility in their value, they are seeking strategies to create a competitive advantage and sustainability reporting has gained traction as a possible mechanism for enhancing

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corporate success by blending financial prosperity with societal contributions and environmental stewardship (Buallay, 2020; Sołoducho-Pelc & Sulich, 2020).

Credible ESG reporting is linked to organizational legitimacy and reputation, strengthened employee and customer satisfaction and loyalty, increased operational efficiency, investor confidence, reduced capital costs and higher firm value (Friske et al., 2022; Agutu & Githira ,2023). According to Alsayegh et al. (2020), sustainability initiatives contribute to brand equity and provide a firm with distinct competitive advantage. On the flip side, poor or superficial sustainability reporting can erode investor confidence if disclosures are inconsistent, lack materiality or appear as greenwashing, investors may perceive them as unreliable, leading to reputational damage and reduced firm value (Ojha, 2025). Harrison et al. (2023) argue that sustainability investments may impose costs that firms could otherwise avoid or that might be more appropriately borne by government and such initiatives often involve limited measurable benefits but substantial expenses.

Environmental disclosure being the cornerstone of sustainability reporting reflects a firm's responsibility for their ecological footprint (Alareeni & Hamdan, 2020). It refers to the presentation of a company's objectives, explanatory narratives and quantitative data that together illustrate both its ecological challenges and the measures it undertakes to address them (Wu & Li, 2023). United Nations and Global compact (2017) describe environmental disclosure as a requirement for companies to provide structured information on how their activities affect ecological systems, resource use, compliance with environmental laws and their contribution to sustainable development. Despite the relative importance of environmental disclosures, literature is replete with mixed evidence on its impacts on firm value. Wu and Li (2023), examining heavy-polluting enterprises in China, established that both mandatory and voluntary environmental disclosures positively influenced financial performance. Further, Akwuobi (2022) found that environmental sustainability reporting significantly improved return on equity and net assets per share among Nigerian consumer goods firms, while Onoh et al. (2023) confirmed similar positive effects in Nigeria's oil and gas sector. In kenya, Ikapel et al. (2023), Mbuthia and Gatauwa (2022) and Agutu and Githira (2023) similarly found that environmental sustainability practices contributed positively to firm outcomes. Conversely, evidence from Turkey by Saygili et al. (2021)

revealed negative association between environmental disclosure and corporate financial performance while Aydogmuş et al. (2022) found no effect of environmental disclosures on firm value among listed firms in Turkey. In Asia, Pawar and Munuswamy (2024) reported that environmental reporting in India's banking sector had a significant negative effect on return on assets and market value suggesting short-term profitability trade-offs. Collectively, the findings highlight that environmental disclosure is not universally beneficial and these regional contrasts create need to extend test on the environmental disclosure and firm value nexus in Kenya.

Social disclosure indicates the practice of companies openly reporting information about how their decisions, policies, and activities affect people, communities, and broader societal systems (Prayanthi & Budiarso, 2022). It involves communicating both qualitative and quantitative details that reflect a firm's responsibilities toward employees, customers, and the public (Kesari & Rawatt, 2023). Social disclosures are expected to legitimize the firm to stakeholders including employees, customers, community and the public and in turn create employee productivity, customer loyalty, investor trust and stakeholders support all of which enhance firm success. Alsayegh et al. (2020), Agutu and Githira (2023), Temba et al. (2023) and Zelalem et al. (2022) contend that social initiatives such as community development and employee welfare improve legitimacy and profitability and positively contributes to firm value. However, Alareeni and Hamdan (2020), reported that social disclosure reduces short-term profitability but improve market valuation, indicating that investors reward transparency even when accounting returns are constrained. Conversely, Mardini (2022) contends that social disclosures negatively influence market value suggesting that social initiatives may drain resources or create competitive disadvantages while Serem et al. (2024) and Chininga et al. (2024) find no effect of social disclosure on firm value among Kenyan and South Africa listed firms respectively. The mixed findings create the need for exploration of social disclosure and value nexus among listed firms in Kenya.

Governance reporting addresses the processes and practices that ensure accountability, transparency and ethical decision-making (Mardini, 2022). It refers to the reporting of information that demonstrates how an organization integrates sustainability, accountability and ethical conduct into its governance structures and practices (Loh et al., 2017). Loh and Tan (2020) notes

governance disclosure is reflected through indicators such as sustainable-centric corporate governance, strategy and analysis regarding sustainability, corporate responsibility for sustainability issues, anti-corruption and code of ethics. Affes and Jarboui (2023) reveal that effective governance emphasizes ethical oversight and accountability as mechanisms to reduce agency costs and information asymmetry and increases firm value. Similar insights are found by Alareeni & Hamdan (2020), who reveals that governance reporting is positively linked to operational performance and market valuation even though short-term equity returns may be negatively affected. Alsayegh et al. (2020) contends that governance disclosures reduce risk exposure, making it a key driver of firm value. Further, Masud et al. (2018) highlights that governance structures significantly shape sustainability reporting outcomes, with stronger governance mechanisms linked to higher firm valuation. Conversely, Chininga et al. (2024) found that governance disclosures showed no statistically significant impact on firm value while Guney et al. (2019) demonstrated that governance disclosures scores are negatively linked to financial performance. These mixed findings create the need for exploration of governance disclosure and value link among listed companies in Kenya.

1.2 Research Problem

While listed firms play a pivotal role in Kenya's financial ecosystem contributing approximately 13.3% to GDP, they continually experience volatility in their value as evidenced by the dwindling market capitalization. These firms continually seek strategies to maximize shareholders wealth and enhance their corporate value. Among the strategies adopted, ESG reporting has gained traction as a possible mechanism for achieving competitive advantage and as a strategic choice to balance between financial outcomes, economic prosperity, social equity and ecological integrity encompassing interests of diverse stakeholders. The firms adopt sustainability reporting to communicate their sustainable practices and efforts to stakeholders in a bid to legitimize their actions and signal their performance to investors. Despite the focus on all stakeholders through sustainable business practices and the reporting on these initiatives, firms listed at the NSE still experience notable market volatility. In 2021, market capitalization of all firms listed at the NSE reached a high of about KES 2.59 trillion, supported by post-pandemic recovery. The following year, however, capitalization dropped sharply to KES 1.96 trillion, erasing more than KES 610 billion in shareholders wealth as investors exited and economic uncertainty deepened. In 2023,

market capitalization rose by 22.79% but as of July 2025, the NSE's market capitalization dipped to KES 2.47 trillion, impacted by cautious investor activity highlighting the exchange's sensitivity to socio-economic dynamics (CMA, 2025). Empirical evidence on the relationship between sustainability reporting and firm value remains inconclusive and inconsistent. While some studies report positive relationship, other studies report insignificant or negative relationships. Further, existing empirical literature is characterized by several contextual, conceptual and methodological gaps. To begin with, the majority of empirical studies have been conducted in developed economies, thereby limiting the generalizability of their findings to emerging markets such as Kenya, which operate under different institutional, regulatory and market conditions. Variations in measurement of sustainability reporting with some studies using binary scores and others adopting scoring schemes, have also contributed to inconsistent and inconclusive findings. Consequently, this study sought to bridge inconsistencies in existing academic evidence and build on global and regional discourse by exploring the relationship between environmental, social and governance disclosures on firm value in the Kenyan context.

1.3 Objectives of the Study

The study sought to evaluate the relationship between sustainability reporting and value of companies listed at the Nairobi Securities Exchange by exploring the following specific objectives;

(a) To evaluate the relationship between environmental disclosure and value of companies listed at the Nairobi Securities Exchange.
(b) To assess the relationship between social disclosure and value of companies listed at the Nairobi Securities Exchange.
(c) To establish the relationship between governance disclosure and value of companies listed at the Nairobi Securities Exchange.

1.4 Research Hypotheses

The study was guided by the following research hypotheses,

$H0_{1a}$: There is no statistically significant relationship between environmental disclosure and value of firms listed at the Nairobi Securities Exchange.

$H0_{1b}$: There is no statistically significant relationship between social disclosure and value of firms listed at the Nairobi Securities Exchange.

$H0_{1c}$: There is no statistically significant relationship between governance disclosure and value of firms listed at the Nairobi Securities Exchange.

2. METHODOLOGY

The target population was sixty- three companies listed at the Nairobi Securities Exchange as of 31st December 2025 evaluated for a five-year period from 2021 to 2025. Over the study period, 6 of the firms were suspended from trading while an additional 7 firms did not have complete data for the variables under the study and listwise deletion was used to exclude them from the final sample. The exclusion criteria resulted in the dropping of the 13 firms. As a result, the study final sample was 50 firms representing a capture rate of 79.4% (20 financial and 30 non-financial firms) with 250 firm year observations.

Secondary data was collected from annual sustainability reports, annual integrated reports, CMA publications and NSE website using a structured data collection sheet. Environmental disclosure was measured as the aggregate PCA score of six indicators namely carbon footprint, emissions management, energy consumption, water usage and conservation and waste management practices. Social disclosure was evaluated as the aggregate PCA score on eight indicators namely occupational health and safety, labor and industrial relations, philanthropy, training and development, diversity and inclusion, product responsibility, community engagement and human rights. Governance disclosure was measured as the aggregate PCA score for six indicators namely board structure and independence, ethical business conduct, anti-corruption measures, conflict of interest measures, risk management and public policy engagement. The scoring system was adopted from Taiwo et al. (2022) where 1 represents fully disclosed both qualitative and quantitative data, 0.75 represents largely disclosed either qualitatively or quantitively ,0.5 represents averagely disclosed non-quantitative information, 0.25 represents marginally disclosed mere mention or highlights and 0 represents no disclosure. The environmental, social and governance indexes were constructed using the unrotated loading scores of the retained principal components and normalized using Min-Max transformation to have scores ranging from 0 to 1.

Firm value was measured using Tobin's Q where a ratio above one implies highly valued firms whose market worth is above the replacement cost of the assets and a value below 1 implying

undervalued firms. Tobin's Q was operationalized as the ratio of market value of equity divided by the book value of equity in line with Swarnapali and Le (2018), Putri et al. (2023) and Mukaria et al. (2020). The operationalization of variables is shown in Table 1 below.

Table 1: Measurement of Variables

Variables	Measurement	Authors
Environmental Disclosure	Principal Component Analysis (PCA) $\text{ED i, t} \sum_{J=1}^{06} Si,j$	Taiwo et al. (2022) Ouma (2025) Loh & Tan (2020)
Social Disclosure	$\text{SD i, t} \sum_{J=1}^{08} Si,j$	
Governance Disclosure	$\text{GD i, t} \sum_{J=1}^{06} Si,j$	
Firm Value Tobin Q	$\frac{\text{Market Value of Equity}}{\text{Book Value of Equity}}$	Putri et al. (2023) Mukaria et al. (2020) Swarnapali and Le (2018)

To test the above hypotheses, the following panel data regression models are specified:

$$FV_{it} = \beta_0 + \beta_1 ED_{it} + \varepsilon_{it} \quad \text{eq 1}$$

$$FV_{it} = \beta_0 + \beta_2 SD_{it} + \varepsilon_{it} \quad \text{eq 2}$$

$$FV_{it} = \beta_0 + \beta_3 GD_{it} + \varepsilon_{it} \quad \text{eq 3}$$

Where:

FV_{it}: Firm value for i company and t period

β_0 is the regression constant

β_1, β_2, β_3 are coefficient estimates

ED: Environmental Disclosure

SD: Social Disclosure

GD: Governance Disclosure

$\boldsymbol{\varepsilon}_{it}$: Error term

i: Number of companies

t: Number of years

3. RESULTS

Prior to deriving the PCA scores, Kaiser-Meyer-Olkin (KMO) test was conducted to test suitability for index construction while the Bartlett test of sphericity was used to determine whether the variables in the dataset were sufficiently correlated to justify Principal Component Analysis and the results are presented in Table 2.

Table 2:KMO and Bartlett Test for ESG Disclosures

Indicators	KMO	Bartlett χ^2	DF	p-value	Decision
EV1–EV6	0.882	1673.814	15	0.000	Suitable for PCA
SC1–SC8	0.874	1,717.590	28	0.000	Suitable for PCA
GC1–GC6	0.809	972.075	15	0.000	Suitable for PCA

The results presented in Table 2 indicate that the KMO value for the six environmental indicators (EV1–EV6) was 0.882, for the eight social disclosure indicators (SC1–SC8) was 0.874 and for the six governance indicators (GC1–GC6) was 0.809 demonstrating a high level of sampling adequacy. Further, Bartlett's Test of Sphericity was statistically significant for all constructs with a p -value of 0.00< 0.05, indicating that the correlation matrices were significantly different from an identity matrix. These findings confirm that the indicators were sufficiently correlated and that the data was suitable for PCA. The resulting environmental, social and governance indexes were constructed using the unrotated loading scores of the retained principal components and normalized using the Min–Max transformation, producing values ranging from 0 to 1.

3.1 Descriptive Statistics

The descriptive statistics of the ESG disclosure scores and firm value are presented in Table 3.

Table 3:Descriptive Statistics of ESG Disclosures and Firm Value

Variable	N	Mean	Std. Dev	Min	Max	Skewness	Kurtosis
ED	250	0.5592	0.3290	0.0000	1.0000	-0.0378	1.5046
SD	250	0.7135	0.2450	0.0625	1.0000	-0.8357	2.7590
GD	250	0.7813	0.1857	0.2083	1.0000	-0.7126	2.7051
FV	250	0.8520	1.1105	0.0119	5.7849	2.8599	11.311

The results presented in Table 3 indicate that the aggregate Mean environmental disclosure score is 0.5592. This implies that firms averagely disclosed non-quantitative information on the assessed environmental information during the study period. The minimum value of 0 indicates that at least one firm recorded no environmental disclosure, while the maximum value of 1.0 indicates that

some firms achieved complete disclosure of the assessed environmental indicators. The distribution of environmental disclosure was approximately symmetric, as indicated by the aggregate skewness value of -0.0378, which is close to zero. The kurtosis value of 1.5046 was below the normal distribution benchmark of 3, indicating a relatively flatter distribution with fewer extreme observations.

The aggregate Mean social disclosure score of 0.7135 indicates that firms largely disclosed either quantitatively or qualitatively on the assessed social information during the study period. The aggregate standard deviation of 0.2450 suggests that although differences exist among firms, social disclosure practices are generally concentrated around the average level. The minimum value of 0.0625 indicates that at least one firm recorded a very low level of social disclosure, while the maximum value of 1.0 indicates that some firms achieved complete disclosure of the assessed social indicators. The distribution of social disclosure was moderately negatively skewed, as indicated by the aggregate skewness value of -0.8357, suggesting that the observations were concentrated towards higher levels of social disclosure. The kurtosis value of 2.7590 was slightly below the normal distribution benchmark of 3, indicating a relatively flatter distribution with fewer extreme observations.

The aggregate mean governance disclosure score of 0.7813 indicates that firms largely disclosed either quantitatively or qualitatively on the assessed governance information during the study period. The aggregate standard deviation of 0.1857 indicates moderate variation in governance disclosure suggesting that although firms generally recorded relatively high levels of governance disclosure, they differed in the extent to which they disclosed the assessed governance information though the scores were reasonably concentrated around the mean, indicating that the firms exhibited some degree of consistency in their governance disclosure. The minimum value of 0.2083 indicates that at least one firm recorded a relatively low level of governance disclosure, while the maximum value of 1.00 indicates that some firms achieved complete disclosure of the assessed governance indicators. The distribution of governance disclosure was moderately negatively skewed, as indicated by the aggregate skewness value of -0.7126, suggesting that observations were concentrated towards higher levels of governance disclosure. The kurtosis value

of 2.7051 was slightly below the normal distribution benchmark of 3, indicating a relatively flatter distribution with fewer extreme observations.

Firm valued exhibits a mean of 0.8520. Since the value is below 1, this implies that the market valuation of the sampled firms was on average below the replacement cost of their assets. The standard deviation of 1.1105 shows dispersion in market value across the sampled firms. The minimum value of 0.0119 reflects firms with extremely low market valuation while the maximum of 5.7849 indicates some firms attracted high market premiums relative to the replacement cost of their assets. The distribution of FV is positively skewed with skewness of 2.8599 and leptokurtic with kurtosis of 11.311 above the benchmark of 3 showing strong concentration at lower firm values and a few firms exhibiting extreme market valuations.

3.2 Correlation Analysis

The Pearson Product Moment correlation was used to determine the direction and strength of the relationship between Environmental Disclosure (ED), Social Disclosure (SD), Governance Disclosure (GD) and Firm Value (FV). The Pearson correlation coefficients denoted by r can take any value between -1 for perfect negative correlation and +1 for perfect positive correlation and 0 meaning perfect independence among the variables (Gujarati et al., 2012). Correlation analysis results are presented at a 0.01, 0.05 and 0.1 significance levels and interpreted based on the guidelines proposed by Evans (1996), whereby absolute correlation coefficients of 0.01–0.39 weak relationships 0.40–0.59 moderate relationships, 0.60–0.79 strong relationships and 0.80–1.00 very strong relationships. The results are presented in Table 4.

Table 4:Correlation Analysis between ESG dimensions and Firm Value

Variables	(1)	(2)	(3)	(4)
(1) ED	1.000			
(2) SD	0.820***	1.000		
	(0.000)			
(3) GD	0.674***	0.845***	1.000	
	(0.000)	(0.000)		
(4) FV	0.175***	0.162**	0.204***	1.000
	(0.006)	(0.010)	(0.001)	

p-values in parenthesis, *** p<0.01, ** p<0.05, * p<0.1

The results presented in Table 4 reveals that Environmental disclosure exhibits a significant positive but relatively weak relationship with firm value ($r = 0.175$, $p = 0.006 < 0.05$), imply that firms with more comprehensive environmental reporting tend to achieve higher market valuations. Similarly, social disclosure is weakly and positively significantly related to firm value ($r = 0.162$, $p = 0.010 < 0.05$), indicating that increased disclosure of social initiatives is associated with improved market performance. Governance disclosure records a significant weak positive relationship with firm value ($r = 0.204$, $p = 0.001 < 0.05$), suggesting that stronger governance disclosures are associated with increased firm value.

The correlation results further demonstrate strong positive relationships among the three sustainability disclosure dimensions. Environmental disclosure is very strongly and positively correlated with social disclosure ($r = 0.820$, $p = 0.000 < 0.05$), indicating that firms that provide extensive environmental information also tend to disclose more social responsibility information. Similarly, environmental disclosure is strongly positively associated with governance disclosure ($r = 0.674$, $p = 0.000 < 0.05$), suggesting that firms demonstrating greater environmental transparency also tend to exhibit stronger governance reporting practices. The strongest association is observed between social disclosure and governance disclosure ($r = 0.845$, $p = 0.000 < 0.05$), reflecting the complementary nature of sustainability reporting whereby firms committed to social responsibility are also more likely to maintain comprehensive governance disclosure. These findings suggest that the three sustainability dimensions are implemented as interconnected components of a broader corporate sustainability strategy rather than as isolated reporting practices.

3.3 Hypothesis Testing

Prior to regression analysis, the study conducted preliminary diagnostic tests, namely normality, linearity, heteroscedasticity and autocorrelation to ensure that the assumptions underlying panel regression analysis were satisfied.

The Jarque–Bera (JB) test was conducted to assess the normality of the panel data residuals. The null hypothesis was that the residuals do not deviate from normality. The results are presented in Table 5.

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Table 5:Jarque Bera Normality Test

Model	Jarque-Bera Test:	Chi-square(χ^2)	Degrees of freedom	P-value
$\mathrm{FV_{it}} = \beta_0 + \beta_1 \mathrm{ED_{it}} + \varepsilon_{it}$	Ho: normality:	1382	2	0.000
$\mathrm{FV_{it}} = \beta_0 + \beta_3 \mathrm{SD_{it}} + \varepsilon_{it}$	Ho: normality:	1824	2	0.000
$\mathrm{FV_{it}} = \beta_0 + \beta_4 \mathrm{GD_{it}} + \varepsilon_{it}$	Ho: normality:	1422	2	0.000

The test yielded a Jarque–Bera statistics with a p-value 0.000< 0.05, indicating that the residuals were not normally distributed. Consequently, the null hypothesis of normality was rejected. To address this violation, the final random-effects regression model was estimated using robust standard errors clustered at the firm level, which provide valid statistical inference in the presence of non-normality. Furthermore, the sample comprised 250 panel observations, and with a sufficiently large sample, parameter estimates remain reliable due to large-sample asymptotic properties, provided that robust standard errors are used.

Scatter plots were used to establish whether there was a linear association between environmental social and governance disclosures and firm value. The findings are shown in Figure 2.

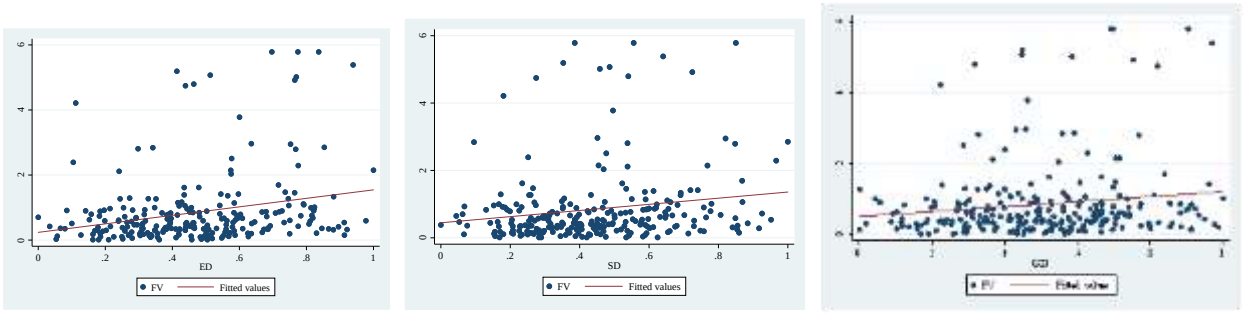


Figure 1:ESG Disclosures and Firm Value Scatter Plots

Visual inspection of the scatter plots indicated that the relationships between environmental social and governance disclosures and firm value were reasonably linear, with no noticeable evidence of curvature or systematic non-linear patterns. Therefore, the assumption of linearity was considered to have been satisfied, supporting the application of linear regression techniques in the analysis.

The Breusch Pagan/Cook Weisberg test was conducted to determine whether the residuals exhibited constant variance. The null hypothesis was that the residuals have constant variance. The results are summarized in Table 6.

Table 6:Breusch -Pagan Test for Heteroscedasticity

Model	Regression Model	BP statistic	Degrees of Freedom	P-value
$FV_{it} = \beta_0 + \beta_1 ED_{it} + \varepsilon_{it}$	Fitted values of FV	40.67	1	0.000
$FV_{it} = \beta_0 + \beta_3 SD_{it} + \varepsilon_{it}$	Fitted values of FV	10.67	1	0.001
$FV_{it} = \beta_0 + \beta_4 GD_{it} + \varepsilon_{it}$	Fitted values of FV	24.56	1	0.000

The test produced a chi-square statistic with p-value less than the 5% significance level. The null hypothesis of constant variance was rejected, indicating the presence of heteroskedasticity in the regression models. To address this issue and ensure valid statistical inference, the final random-effects regression model was estimated using robust standard errors clustered at the firm level.

Autocorrelation was tested using the Wooldridge test for serial correlation in panel data. The null hypothesis was that there is no first-order autocorrelation. The results are presented in Table 7.

Table 7: Wooldridge Test for Autocorrelation

Model	Statistic	p-value	Decision
$FV_{it} = \beta_0 + \beta_1 ED_{it} + \varepsilon_{it}$	F(1,49) = 63.974	0.000 < 0.05	Reject H_0
$FV_{it} = \beta_0 + \beta_3 SD_{it} + \varepsilon_{it}$	F(1,49) = 38.275	0.000 < 0.05	Reject H_0
$FV_{it} = \beta_0 + \beta_4 GD_{it} + \varepsilon_{it}$	F(1,49) = 84.037	0.000 < 0.05	Reject H_0

The test yielded F (1,49) = 63.974, 38.275 and 84.037 with p-values 0.000 < 0.05. Since the p-value was less than the 5% significance level, the null hypothesis of no first-order autocorrelation was rejected. This result indicates the presence of first-order serial correlation in the regression residuals. To ensure reliable statistical inference, the final random-effects regression model was estimated using robust standard errors clustered at the firm level.

Hausman test of specification was utilized to choose between the fixed effects and Random effects regression model. The results of the test are shown in Table 8.

Table 8: Summary of Hausman Specification Test

Model	Chi-square Statistics	P-value
$FV_{it} = \beta_0 + \beta_1 ED_{it} + \varepsilon_{it}$	1.65	0.1984
$FV_{it} = \beta_0 + \beta_3 SD_{it} + \varepsilon_{it}$	0.00	0.9821
$FV_{it} = \beta_0 + \beta_4 GD_{it} + \varepsilon_{it}$	0.01	0.9302

The test yielded a chi-square statistic above. Since the p-values exceeded the 5% level of significance, the null hypothesis that the random-effects estimator is consistent could not be rejected and was considered the appropriate model for examining the relationship between environmental, social and governance disclosures and firm value.

Following the diagnostic tests and Hausman specification test, the random effects Generalized Least Squares (GLS) regression model with robust standard errors clustered at the firm level was estimated for each model to address the presence of heteroscedasticity and autocorrelation. The results are presented in Table 9, 10 and 11.

Table 9:Random Effects Regression Model 1

Random-effects GLS regression				Number of obs =	250	
Group variable: firmid				Number of groups =	50	
R-sq:				Obs per group:		
within =	0.2853			min =	5	
between =	0.0538			avg =	5.0	
overall =	0.0634			max =	5	
Wald chi2(1)	=	28.87				
Corr (u_i, X)	= 0 (assumed)			Prob > chi2	=	0.000
(Std. Err. adjusted for 50 clusters in firmid)						
FV	Coef.	Robust Std. Err.	z	P-value	[95%Conf.	Interval]
ED	1.0457	0.1946	5.37	0.000	0.6643	1.4272
Cons	0.3603	0.1076	3.35	0.001	0.1494	0.5713
sigma_u	1.0175					
sigma_e	0.3673					
rho	0.8846	(fraction of variance due to u_i)				

The regression results reveal that ED has a positive and statistically significant effect on firm value ($\beta = 1.0457$, $p=0.000< 0.05$). The results imply that a one-unit increase in ED leads to a significant increase in firm value by 1.046 units holding firm-specific effects constant. Therefore, the null hypothesis ($H_{01}a$), which states that ED has no significant effect on firm value was not supported in the current study and therefore the hypothesis is rejected. The study concludes that ED significantly influences firm value among the sampled firms. Based on the regression results, the estimated random-effects prediction model of ED on FV is expressed as follows:

FV=0.3604+1.0458ED

Table 10:Random Effects Regression Model 2

Random-effects GLS regression				Number of obs =	250	
Group variable: firmid				Number of groups =	50	
R-sq:				Obs per group:		
within =	0.2060			min =	5	
between =	0.0044			avg =	5.0	
overall =	0.0290			max =	5	
Wald chi2(1)	=	23.73				
Corr (u_i, X)	= 0 (assumed)			Prob > chi2	=	0.000
(Std. Err. adjusted for 50 clusters in firmid)						
FV	Coef.	Robust Std. Err.	z	P-value	[95%Conf.	Interval]
SD	0.9053	0.1858	4.87	0.000	0.5410	1.2695
Cons	0.4494	0.1336	3.36	0.001	0.1875	0.7113
sigma_u	1.0430					
sigma_e	0.3872					
rho	0.8788	(fraction of variance due to u_i)				

The regression results reveal that SD has a positive and statistically significant effect on firm value ($\beta = 0.9053$, $p=0.000 < 0.05$). The results imply that a one-unit increase in SD leads to a 0.905 unit increase in firm value holding firm-specific effects constant. The positive coefficient indicates that firms with higher levels of social disclosure tend to exhibit higher firm value, suggesting that stronger social disclosure practices may enhance firms' valuation. The statistically significant relationship provides evidence that social disclosure significantly contributes to explaining variations in firm value among the sampled firms. Therefore, the null hypothesis ($H_{01}b$), which states that social disclosure has no significant effect on firm value, is not supported in the current study and is consequently rejected. The study concludes that social disclosure significantly and positively influences firm value among the sampled firms. Based on the results the estimated random effects model of SD on FV is expressed as follows:

FV=0.4494+0.9053SD

Table 11:Random Effects Regression Model 3

Random-effects GLS regression				Number of obs =	250	
Group variable: firmid				Number of groups =	50	
R-sq:				Obs per group:		
within =	0.1517			min =	5	
between =	0.0021			avg =	5.0	
overall =	0.0202			max =	5	
Wald chi2(1)	=	23.26				
Corr (u_i, X)	= 0 (assumed)			Prob > chi2 =	0.000	
(Std. Err. adjusted for 50 clusters in firmid)						
FV	Coef.	Robust Std. Err.	z	P-value	[95%Conf.	Interval]
SD	0.7350	0.1524	4.82	0.000	0.4363	1.0338
Cons	0.4838	0.1150	4.21	0.000	0.2584	0.7093
sigma_u	1.0432					
sigma_e	0.4002					
rho	0.8716	(fraction of variance due to u_i)				

The regression results reveal that GD has a positive and statistically significant effect on firm value ($\beta = 0.7350$, $p=0.000 < 0.05$). This indicates that a one-unit increase in GD is associated with an increase of 0.735 units in firm value, while controlling for firm-specific random effects. The positive coefficient suggests that firms with stronger governance disclosure practices tend to exhibit higher firm value. The statistically significant coefficient confirms that GD contributes meaningfully to explaining differences in firm value among the sampled firms. Therefore, the null hypothesis (H01c), which states that governance disclosure has no significant effect on firm value was not supported in the current study and therefore the hypothesis is rejected. The study concludes that governance disclosure has a significant positive effect on firm value among the sampled firms. Based on the results, the random effects prediction model of GD on FV is expressed as follows:

FV=0.4839+0.7351GD

4. DISCUSSION

The findings suggest that environmental disclosures improve firm value among NSE listed firms in Kenya. Effective environmental sustainability practices promote efficient use of resources, lower carbon emissions, improve waste management and environmental restoration efforts, thereby improving corporate reputation and improving firm value (Agutu & Githira, 2023). Furthermore, adherence to environmental regulations demonstrates accountability to various stakeholder groups, thereby creating legitimacy for the firm in the eyes of investors and attracting

increased firm valuation. The positive relationship observed is consistent with Alareeni and Hamdan (2020) who reported that environmental disclosure was positively associated with firm value among S&P 500 firms, suggesting that investors value transparency even when short-term profitability is negatively affected. In Nigeria, Akwuobi (2022) also documented a significant positive link between environmental sustainability reporting and firm performance in consumer goods firms. In the Kenyan context, several studies reinforce the present findings. Mbuthia and Gatauwa (2022), Ikapel et al. (2023) and Kipngetich and Gatauwa (2024) all reported significant positive effects of environmental disclosure on firm performance among NSE-listed firms. Likewise, Agutu and Githira (2023) and Serem et al. (2024) found that environmental disclosure enhanced firm value across financial and non-financial sectors. Collectively, these studies support the conclusion that environmental transparency strengthens firm valuation. The convergence of these findings may be explained by the increased global awareness of climate change and sustainable investment practices that have heightened investor preference for environmentally responsible firms. Consequently, environmental disclosures help to reduce operational risks, enhance corporate reputation and signals long term sustainability leading to improved firm valuation.

The findings further suggest that improved social disclosure practices are associated with improved firm valuation among NSE listed firms in Kenya. This indicates that firms that demonstrate greater commitment to social sustainability practices, such as employee welfare, stakeholder engagement, and community responsibility, are perceived more positively by investors and other stakeholders (Prayanthi & Budiarso, 2022). Effective social sustainability practices can enhance corporate reputation, strengthen stakeholder relationships, and support long-term value creation, thereby contributing to higher firm value (Kesari & Rawatt, 2023). Several studies support the current finding of a positive relationship between SD and firm value. Aydogmuş et al. (2022); Atanda et al. (2021) and Dan et al. (2025) documented significant positive relationships between social sustainability disclosure and firm value suggesting that initiatives such as community development and employee welfare enhance corporate valuation. The findings elucidate that investors appear to interpret social transparency as an indicator of stronger relational capital and thereby rewarding firms with higher market valuations. The studies also relate to periods of rising ESG awareness when non-financial reporting has gained prominence. Although

the study samples differ in composition, they consist of publicly listed firms whose valuations are sensitive to reputational enhancing signals. In contrast, Mardini (2022) and Alareeni and Hamdan (2020) found that social disclosure exerted a negative and significant effect on market indicators, suggesting that social initiatives may drain resources and create competitive disadvantages. Chininga et al. (2024) found no significant impact of SD on firm value, while Serem et al. (2024) reported an insignificant effect among non-financial NSE-listed firms.

Governance disclosure practices were found to be positively associated with enhanced firm valuation among NSE listed firms in Kenya. This implies that firms with stronger governance-related sustainability practices are perceived by investors as having better accountability mechanisms, effective oversight structures and improved strategic management leading to increased firm value. Consistent with the present findings, previous studies also affirm that governance disclosure enhances firm value. Saygili et al. (2021); Affes and Jarboui (2023) and Aydogmuş et al. (2022) documented significant positive relationships between governance disclosure scores and firm value s. The convergence of findings can be attributed to governance disclosure being widely regarded as the most directly value-relevant pillar of ESG because it addresses core agency problems (Lo & Shekhar, 2018). Transparent reporting on board structure, shareholder rights, audit processes, and managerial accountability reduces information asymmetry between managers and investors, lowers agency costs and signals effective oversight. In contrast, the findings contradict those of Guney et al. (2019), who found that governance quality scores were negatively and significantly associated with financial performance, suggesting that governance mechanisms may impose costs or be perceived as compliance driven rather than value-enhancing

4.1 Proposed Theory of Change

The findings contribute to sustainability literature by providing empirical evidence from the Kenyan capital market that environmental, social and governance disclosures are value relevant strategic resources. The findings extend the stakeholder theory by demonstrating that firms use ESG transparency to meet stakeholders' expectations and create economic value. The findings further extend the triple bottom line theory that seeks a balance between the people, planet and profit. Stakeholder theory as advanced by Freeman (1984), posits that a firm is under obligation to

different groups of people who are influenced and who influence the activities of the organization. It places emphasis on the need to balance the interests of these stakeholders and to manage potential conflict between their interests. Stakeholder theory explains how sustainability reporting reduces information asymmetry and enhances corporate reputation (Cui et al., 2018). This strengthens trust between firms and stakeholders, ultimately contributing to long-term sustainability. By voluntarily disclosing sustainability information beyond mandatory requirements, firms reduce conflicts with shareholders, enhance corporate governance and fulfill their broader obligations to stakeholders (Gavana et al., 2017). Velte (2019) from a stakeholders' theory perspective establishes that, it is in management's best interest to meet the concerns of all stakeholders rather than just those of shareholders to enhance corporate success.

The Triple Bottom Line (TBL) theory, introduced by Elkington in 1994, provides a holistic framework for evaluating organizational performance by integrating economic, social, and environmental dimensions. Unlike traditional approaches that focus solely on financial outcomes, TBL emphasizes that long-term business success depends on balancing profitability with social responsibility and environmental stewardship (Elkington, 1994). This framework has become central to sustainability discourse, encouraging firms to align their strategies with broader societal expectations and global development goals. The theory highlights that the economic dimension of TBL remains essential, as firms must remain financially viable to sustain operations. However, the social dimension underscores the importance of employee welfare, community engagement, and equitable practices, while the environmental dimension emphasizes resource efficiency, pollution reduction, and ecological preservation (Nica et al., 2025). Together, these three pillars provide a comprehensive lens for understanding how organizations contribute to sustainable development beyond shareholder value. By adopting the TBL perspective, sustainability reporting can be understood not merely as compliance but as a strategic tool for enhancing firm value through balanced attention to profit, people and planet.

4.2 Conclusions

The study concludes that environmental, social and governance sustainability reporting is positively linked to firm value and is essential for promoting firm success. Firms with strong disclosures across the three dimensions build resilience and enhance their corporate value.

Environmental disclosure safeguards against climate related vulnerabilities, social disclosure improves customer and employee loyalty and governance disclosures provide enhanced monitoring efficiency, reduced compliance risks and strengthens competitive advantage. These findings are aligned to the expectations of stakeholders' theory and the triple bottom line theory that emphasize the balance between profitability and the diverse stakeholders needs.

4.3 Recommendations

Based on the findings, the study recommends that

i. The management should transition from the traditional profit maximization orientation to sustainable business models that will enhance shareholders wealth and create firm competitive advantage
ii. Firms should embed ESG elements into the corporate strategies to enhance long term value and success
iii. Firms should adhere to the sustainability reporting guidelines manual issued by the Nairobi Securities Exchange to enhance comparability, minimize subjectivity and strengthen credibility in ESG reporting.
iv. The study only focused on the effect of sustainability reporting on firm value of NSE listed firms. Further studies should examine the relationship among non-listed firms to provide comparison.

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