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The Relationship between Sustainability Reporting, Good Corporate Governance, and Internal Audit with Corporate Sustainability Performance in Mining Companies Listed on the IDX

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ABSTRACT

This study explores the association between sustainability reporting, good corporate governance (BSIZE, IND, AC_MEET), and internal audit with corporate sustainability performance in mining companies listed on the IDX from 2020 to 2024. Employing a quantitative approach, the research utilizes secondary data drawn from financial reports, sustainability reports, and annual reports from eight companies, yielding 40 company-year observations. The analysis was conducted using a multiple linear regression method involving five predictors. The findings reveal that, partially, BSIZE (p = 0.005) and IND (p = 0.027) demonstrate a significant association with corporate sustainability performance, whereas the other three predictors SR (p = 0.065), AC_MEET (p = 0.831), and IA_ACT (p = 0.192) do not show a statistically significant relationship. However, when considered simultaneously, all independent variables exhibit a significant overall association with corporate sustainability performance (F = 3.125, p = 0.020). The adjusted R-square value of 0.214 indicates that these five predictors together account for 21.4% of the variability in corporate sustainability performance, leaving 78.6% of the variance unexplained by this model. These results underscore the importance of integrating a comprehensive governance structure in relation to corporate sustainability performance.

Keywords: Sustainability Reporting, Good Corporate Governance, Internal Audit, Corporate Sustainability Performance.

INTRODUCTION

Indonesia's economic growth often causes environmental degradation from irresponsible business activities, highlighting the importance of sustainable development. Companies must balance financial profit with ecosystem preservation and social well-being, particularly in the mining sector, which serves as a crucial national economic pillar (Sapitri & Zulvia, 2026).

Table 1.
GDP by Mining and Quarrying Business Sector, 2020–2024

Year	Mining Sector GDP	
2020	IDR	993,541.90
2021	IDR	1,523,650.10
2022	IDR	2,393,390.90

2023	IDR	2,198,018.10
2024	IDR	2,026,589.20

Source: (Badan Pusat Statistik, 2026)

Data from the (Badan Pusat Statistik, 2026) highlights the substantial macroeconomic scale of the Indonesian mining and quarrying sector. Measured at current market prices, the sector's nominal GDP reached IDR 993,541.90 billion in 2020, escalated significantly to IDR 1,523,650.10 billion in 2021, and peaked at IDR 2,393,390.90 billion in 2022. Although the industry experienced corrections to IDR 2,198,018.10 billion in 2023 and IDR 2,026,589.20 billion in 2024, its economic output remained robust. Although it decreased in the following two years, this high economic value actually triggered public concern. This is because massive field activities carry the risk of environmental damage and spark community protests (Boiral et al., 2025). This phenomenon ultimately raises major questions regarding the accuracy of oversight systems and sustainability reports from companies (Sapitri & Zulvia, 2026).

CSP evaluation utilizes objective numerical scores (0.000–1.000 scale) from the IDX ESG Sustainability Portal, reflecting the ESGi Universitas Airlangga (2026) Database. These ratings evaluate actual operational integration outcomes rather than voluntary reporting volumes. A longitudinal review of mining issuers (2020–2024) shows an upward trend, such as ADRO (0.275 to 0.840) and ANTM (0.432 to 0.938). This highlights a clear separation: SRDI tracks the nominal quantity of disclosures, while CSP scores capture third-party ratings across 40 observations analyzed through multiple linear regression in SPSS. To ensure empirical replicability, the comprehensive original dataset, scoring methodology coverage, and full annual values for all eight sample firms are systematically documented within the manuscript Appendix.

Table 2.
Realization of ESG Scores for Major Mining Issuers on the IDX (2020–2024)

No	Stock Code	Company Name	ESG Scores					Key Operational Risk / Issues Identified
			2020	2021	2022	2023	2024	
1	ADRO	Alamtri Resources Indonesia Tbk	0.275	0.723	0.704	0.790	0.840	Slow green portfolio diversification and high operational carbon exposure.
2	ANTM	Antam (Persero) Tbk	0.432	0.571	0.864	0.901	0.938	Smelter energy transition volatility and post-mining reclamation risks.
3	INCO	Vale Indonesia Tbk	0.795	0.839	0.975	1.000	0.882	Open-pit waste sedimentation risking land biodiversity and local ecosystems.
4	MBAP	PT Mitrabara Adiperdana Tbk	0.396	0.406	0.444	0.432	0.827	Stagnant low ESG values until 2023, showcasing potential reporting formality lag.

Source: IDX Sustainability ESG Portal (Data Compiled, 2026)

To complement this statistical matrix, the descriptive profiles highlighted in Table 2 isolate a purposive subset of four key issuers to illustrate the distinct structural segments of the Indonesian extractive sector. Each selected firm encapsulates specific market dimensions and operational risk environments: ADRO represents top-tier coal mining confronted with intensive carbon exposure challenges; ANTM signifies diversified metal

and integrated smelter operations managing post-mining reclamation volatility; INCO outlines large-scale nickel production exposed to open-pit waste sedimentation hazards; and MBAP acts as a mid-cap energy firm demonstrating initial reporting formality lags. Rather than serving as firm-specific empirical findings tested directly within the standardized continuous index framework, these risk annotations are integrated strictly as illustrative contextual challenges derived from corporate annual report disclosures.

Weaknesses in sustainability reporting stem from GCG and internal audit limitations (Surbakti et al., 2025). GCG components are ineffective (Serly et al., 2023) because management prioritizes profits over environmental impacts, requiring deeper study (Tjahjadi et al., 2021). Additionally, despite high meeting frequencies, internal audits fail to detect field-level green regulation violations (Appiah et al., 2024).

Weak internal oversight is proven by the emergence of various environmental damage cases in the national mining sector (Boiral et al., 2025). This issue entangles large companies such as PT Timah (illegal mining), ANTM (mud pollution), and PTFI (waste issues). These gaps highlight the need to test the influence of Sustainability Reporting, GCG, and Internal Audit on sustainability performance (Prima et al., 2023).

Prior findings on sustainability outcomes remain inconsistent. For the Sustainability Reporting dimension, Fitriani & Sari (2025) studied 138 Indonesian universities in 2023 using OLS via EViews, finding that aggregate report disclosures positively influence CSP under the UI GreenMetric framework. Conversely, Triwacananingrum & Silphianie (2023), analyzed 45 non-banking firms (126 observations) for the 2019–2021 period using multiple linear regression, revealing that SRDI disclosures have no significant effect on SDG achievements. This contrast highlights a measurement distinction: Fitriani & Sari (2025) use direct performance frameworks, whereas Triwacananingrum & Silphianie (2023) focus on indirect disclosure evidence.

Corporate governance and internal audit findings remain contradictory. Tjahjadi et al. (2021) found that larger board sizes positively affect economic and social dimensions but have a non-significant or negative association with environmental scores. Conversely, Husna et al. (2023) used an aggregated GCG index and found no significant relationship due to measurement divergence. On internal audits, Appiah et al. (2024) showed that audit efficacy drives energy-saving behavioral changes in Ghana. However, Prima et al. (2023), found that Indonesian manufacturing internal audit frequencies fail to increase actual sustainability performance, focusing on activity volume rather than direct operational outcomes.

These mixed empirical patterns highlight a gap: prior studies conflate self-reported disclosures with third-party ratings and ignore the specific risk profiles of extractive industries. Consequently, this study addresses an unanswered research question: can separate, performance-based governance proxies (board size, independent commissioners, and audit meetings) and internal audit frequencies collectively predict actual operational sustainability performance in listed mining firms?

Unlike manufacturing studies, this research focuses on mining (basic materials and energy sectors, 204 entities) using updated classifications and ESG scores (Cantele et al., 2024; Tjahjadi et al., 2021). It simultaneously tests Sustainability Reporting, GCG, and Internal Audit for the 2020–2024 period using multiple linear regression amid strict law enforcement (Marpaung et al., 2023; Prima et al., 2023).

LITERATURE REVIEW

Stakeholder Theory

Stakeholder theory posits that corporate survival depends on providing benefits to all stakeholders (Nainggolan et al., 2025). Since mining operations generate negative ecological and social externalities (Lohart & Nainggolan, 2025) companies must shift from shareholder profit to creating sustainable shared value (Surbakti et al., 2025). Strengthening internal governance ensures ethical management, which ultimately determines corporate social legitimacy and market reputation (Gu et al., 2023).

Triple Bottom Line (TBL)

The Triple Bottom Line (TBL) framework expands performance measurement by integrating economic (profit), social (people), and environmental (planet) aspects (Tjahjadi et al., 2021) as a strategic investment to mitigate business risks (Widarti et al., 2022). Crucially, TBL is a normative conceptual framework and not synonymous with empirical ESG scores or specific indices like SRDI (Madyan & Widuri, 2023). Distinguishing these definitions prevents measurement overlap in regression models (Carissa & Marpaung, 2025).

Corporate Sustainability Performance (CSP)

Companies must balance material profits with environmental preservation and community welfare. To ensure regression model independence, this framework differentiates Corporate Sustainability Performance (CSP) as the dependent variable (Y) from the Sustainability Reporting Disclosure Index (SRDI) as an independent predictor (X1).

To ensure data reliability, he numerical values for Corporate Sustainability Performance (Y) are retrieved directly from the ESGi Database developed by ESGi Universitas Airlangga (2026). According ESGi Universitas Airlangga (2026), Environmental, Social, and Corporate Governance (ESG) data is defined as a benchmark or index that is directly related to, and thus affects, corporate tangible and intangible assets. This institutional ESG label or index has been endorsed and accepted internationally to disclose a company's objective performance, including the key business activities relevant to environmental sustainability and social responsibility. Furthermore, the corporate governance dimension explores and ventilates the specific areas of interest within a company namely its executive owners and shareholders through various analytical perspectives including rights, responsibilities, transparency, and power relations. The scoring architecture of this platform operates on a comprehensive coverage of specific sustainability sub-indicators encompassing environmental disclosures, social labor standards, and corporate governance compliance. The underlying scoring algorithm converts these multi-dimensional metrics into a continuous performance rating using a standardized mathematical normalization technique, establishing a final bounded index ranging from 0.000 to 1.000. Under the platform’s methodology, missing-data rules are treated through strict non-substitution protocols, ensuring that unverified attributes are recorded as a zero baseline to maintain data integrity rather than relying on subjective corporate reporting values. Conversely, the binary weighting system assigning a score of one for information provided and zero for absent items is strictly reserved for the operationalization of the independent variable, SRDI (X1), based on the framework of Madyan & Widuri (2023). By separating the documentation of the provider's technical criteria from voluntary disclosure breadth, this study eliminates any functional measurement overlap within the regression model. Crucially, while the historical metrics from the IDX Sustainability ESG Portal conceptually mirror these ratings due to shared structural frameworks, the statistical analysis relies exclusively on the raw values provided by the ESGi database to trace potential operational outcomes.

Sustainability Reporting (SR)

External parties often struggle to gauge a company's real environmental impact (Wijaya & Novianto, 2024), highlighting the importance of Sustainability Reporting (SR) or CSR reports (Barker, 2025) as non-financial communication tools. SR is a report disclosing company activities related to economic, social, and environmental impacts, serving as a performance communication tool outside conventional financial reports (Khunkaew et al., 2023). To measure the disclosure level of these reports, the following index formula is used (Wijaya & Novianto, 2024):

$$SRDI = n/k$$

Notes:
SRDI = Sustainability Reporting Disclosure Index
n = number of disclosures made by the company
k = Total disclosures per GRI 2021 guidelines

Good Corporate Governance (GCG)

GCG is a system regulating relationships among stakeholders to achieve organizational goals (Kosasi & Situmorang, 2025). Increasing investor and public attention toward Environmental, Social, and Governance (ESG) aspects drives enhanced GCG practices in decision-making and business operations (Nainggolan et al., 2025). This study uses three main indicators for GCG:

- Board of Directors Size (BSIZE): Determined by counting the total number of board members within the current year (Febriyani & Kusumawardhani, 2025).
- Proportion of Independent Commissioners (IND): Assessed by dividing the number of independent commissioners by the total number of commissioners on the board (Lohart & Nainggolan, 2025).
- Audit Committee Meeting Frequency (AC_MEET): Evaluated based on the number of formal meetings held by the audit committee over a single observation year (Appiah et al., 2024).

Internal Audit

The internal audit function enhances value by providing independent assurance to mitigate ecological risks (Elisabeth et al., 2023; Wahyuni et al., 2022). While Pagiarri & Afriyenti (2025), focus on financial sectors, their framework justifies the activity-count operationalization of the internal audit proxy. In extractive contexts, independent literature explains the core oversight mechanism (Boiral et al., 2025), where a higher volume of operational audits improves early detection of ecological anomalies (Gherai et al., 2024), guiding management toward genuine sustainability and preventing reporting bias (Appiah et al., 2024).

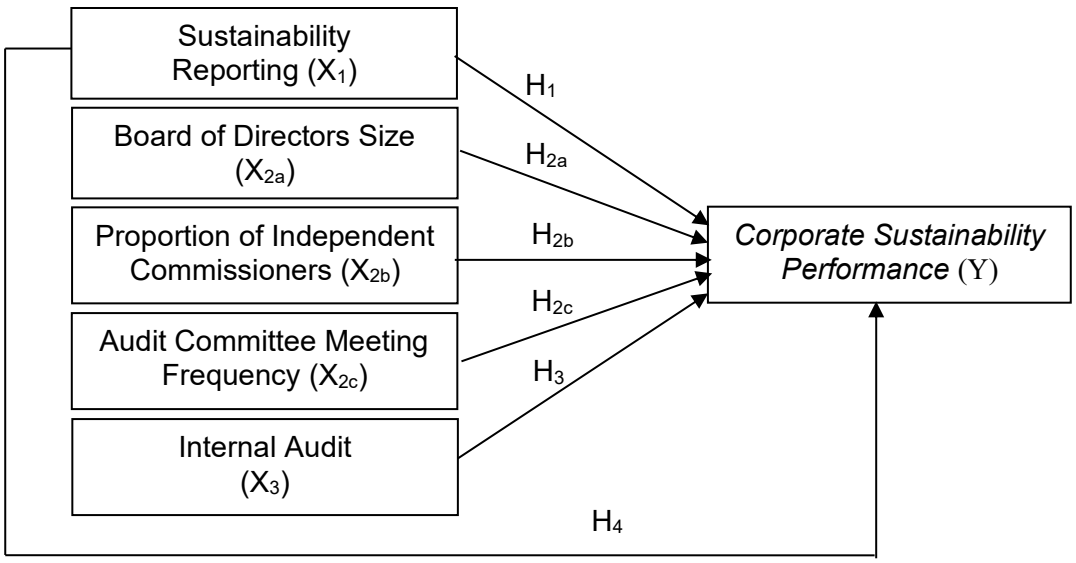


Figure 1. Conceptual Framework

Companies demonstrate environmental concern through Sustainability Reporting (SR) (Khunkaew et al., 2023), which compels management to control negative mining impacts(Wijaya & Novianto, 2024). This transparency enhances capital market confidence and green investment values (ESG scores) (Kurnianto & Tjahjadi, 2025), thereby improving overall sustainability performance. Based on this, the first hypothesis is proposed:

H_1: Sustainability Reporting has a positive effect on Corporate Sustainability Performance.

Internal oversight links governance to sustainability performance through board engagement (Serly et al., 2023). Independent directors compel management to prioritize ecology and safety over short-term profits (Gu et al., 2023), improving legal compliance and ESG scores (Cantele et al., 2024). Due to mixed empirical results in Indonesia (Surbakti et al., 2025), this study treats BSIZE, IND, and AC_MEET as individual predictors to isolate their distinct effects. The second hypotheses are proposed:

H_{2a}: Board of Directors Size has a positive effect on Corporate Sustainability Performance

H_{2b}: Proportion of independent commissioners has a positive effect on Corporate Sustainability Performance.

H_{2c}: Audit committee meeting frequency has a positive effect on Corporate Sustainability Performance.

The oversight team acts as a line of defense linking internal auditing to sustainability performance, optimized through the audit committee (Aprianti et al., 2022). Regular meetings detect violations early, preventing illegal mining and hazardous waste dumping (Marpaung et al., 2023; Yani et al., 2024). Diligent auditors ensure environmental conservation, bolstering investor confidence and enhancing ESG scores (Appiah et al., 2024). Therefore, the third hypothesis is proposed:

H_3: Internal Audit has a positive effect on Corporate Sustainability Performance.

Under a holistic framework, internal controls, transparency channels, and board oversight function as an integrated governance system rather than operating in isolation. Their collective intensity creates a check-and-balance environment that reinforces regulatory compliance and operational sustainability, motivating a joint evaluation. Based on this, the fourth hypothesis is proposed:

H_4: Sustainability reporting, good corporate governance, and internal audit jointly affect on corporate sustainability performance.

RESEARCH METHOD

This research employs a quantitative methodology, defined as a systematic investigation using numerical data to gain insights and interpret details regarding the subject of interest (Sinaga et al., 2023).

Information for this study was compiled from corporate annual reports, corporate sustainability disclosures, and historical Environmental, Social, and Governance (ESG) metrics. The primary dataset for the Corporate Sustainability Performance (CSP) dependent variable was formally purchased and retrieved through three consecutive archival acquisitions from the ESGi Database, an institutional platform developed by ESGi Universitas Airlangga (2026), accessible via the official portal at esgi.ai. These sequential purchases encompass the complete timeline from 2020 to 2024, acquiring the comprehensive performance records for the listed mining entities. Under this framework, the continuous ESG scores serve as a verified index directly related to, and affecting, corporate tangible and intangible assets, tracking third-party objective performance rather than subjective internal voluntary corporate disclosure weights. To establish

empirical consistency, a comprehensive balanced panel of 40 distinct company-year observations encompassing eight specific mining entities tracked continuously over this five-year horizon was successfully extracted on August 26, 2026. While the historical rankings from the IDX Sustainability ESG Portal conceptually mirror these ratings due to shared structural attributes, the regression calculations in this study rely exclusively on the raw values provided by the ESGi Universitas Airlangga database to evaluate potential operational outcomes.

Within this framework, internal audit activity is operationalized strictly as audit activity frequency (IA_ACT) to capture quantitative program intensity rather than effectiveness. Calculated via content analysis of the annual report's corporate governance section, one activity unit equals one completed non-financial engagement. Every distinct program including non-financial operational, compliance, and environmental risk audits is counted individually, including repeated tasks within the same year, while administrative and financial statement audits are excluded. Missing records are coded with a numerical zero baseline. To ensure reproducibility, ADRO's 2022 annual report serves as a benchmark. In that fiscal year, the internal audit function formally completed a total intensity of 8 distinct non-financial programmatic metrics, comprising 6 finalized audit reports and 2 completed consulting reports, yielding an exact baseline IA_ACT score of 8.

This research uses purposive sampling to ensure only businesses meeting specific requirements, such as regularly publishing annual reports during the observation period, are included.

Table 4.
Sample Selection Criteria

No	Sample Selection Criteria	Amount
1	Energy and Basic Materials Sector Issuers on the IDX	204
2	Non-pure mining entities or direct mining service providers (e.g., cement, chemical, paper, non-mining logistics issuers)	(146)
3	Mining companies conducting Initial Public Offerings (IPO) after 2020 or delisted before the end of 2024	(15)
4	Mining companies not publishing complete annual reports or sustainability reports during 2020–2024	(26)
5	Mining companies not providing complete data during 2020–2024	(9)
Total	Final Sample Count of Eligible Mining Companies	8
Observations	Total Processed Data Points (8 Companies × 5 Observation Years)	40 Data

To analyze this data, a pooled Ordinary Least Squares (OLS) multiple linear regression via SPSS was executed based on Table 4 criteria. The purposive sample yields a balanced composition of 40 company-year observations, tracking eight listed mining firms from 2020 to 2024: ABMM, ADRO, ANTM, BRMS, INCO, ITMG, MBAP, and PTBA. Following Ghozali (2021), the dataset was organized chronologically to build a systematic observation matrix.

The methodological decision to employ a pooled OLS estimator via SPSS is explicitly acknowledged as a baseline inference framework, recognizing the inherent limits of this cross-sectional approach on repeated-measure observations. Because the analysis relies on a pooled Ordinary Least Squares specification without dynamic panel-model comparisons (such as Fixed Effects or Random Effects) or firm-level error clustering, the standard errors do not structurally control for unobserved firm-specific heterogeneities. This limitation is managed strictly by enforcing standard classical linear assumption diagnostics specifically focusing on the Durbin-Watson statistic and residual variance distributions in the subsequent results section to ensure the mathematical robustness of the baseline regression parameters within the constraints of the available sample. Consequently, the displayed t and F test statistics correspond directly to this pooled

linear framework, and the results should be interpreted as localized statistical associations rather than dynamic, cluster-controlled panel inferences. Under these unified parameters, the five-predictor model is mathematically expressed as follows:
$CSP_it = \alpha + \beta 1\ SR_it + \beta 2\ BSIZE_it + \beta_3\ IND_it + \beta 4\ AC_MEET_it + \beta 5\ IA_ACT_it + \varepsilon_it$

Where CSP_it is Corporate Sustainability Performance, α is the intercept/constant, SR_it is Sustainability Reporting, BSIZE_it is Board of Directors Size, IND_it is Proportion of independent commissioners, AC_MEET_it is Audit committee meeting frequency and IA_ACT_it is is Internal Audit Activity Frequency and ε_it is the error term.

Analysis steps include descriptive statistics, classical assumption tests (normality, multicollinearity, heteroscedasticity, autocorrelation), multiple regression, and hypothesis testing using t-tests, F-tests, and the coefficient of determination (Fanny & Situmorang, 2025).

RESULTS

Descriptive Statistics

Table 5.
Descriptive Statistics (N = 40)

	N	Minimum	Maximum	Mean	Std. Deviation
SR (X1)	40	0.4274	0.6838	0.502880	0.0659437
BSIZE (X2.1)	40	3	10	5.68	1.886
IND (X2.2)	40	0.2000	0.6000	0.370536	0.0936757
AC_MEET (X2.3)	40	4	60	16.50	12.981
IA_ACT (X3)	40	3	52	21.55	15.863
CSP (Y)	40	0.2745	1.0000	0.752785	0.2121642
Valid N (listwise)	40				

Source: Processed data, 2026

Based on the data analysis, the descriptive statistics (Min; Max; Mean) for the variables are: SR (0.4274; 0.6838; 0.5029), Board Size [BSIZE] (3; 10; 5.6800), Independent Commissioners [IND] (0.2000; 0.6000; 0.3705), Audit Meetings [AC_MEET] (4; 60; 16.5000), Internal Audit [IA_ACT] (3; 52; 21.5500), and Corporate Sustainability Performance [CSP] (0.2745; 1.0000; 0.7528).

Classical Assumption Tests

Normality Test

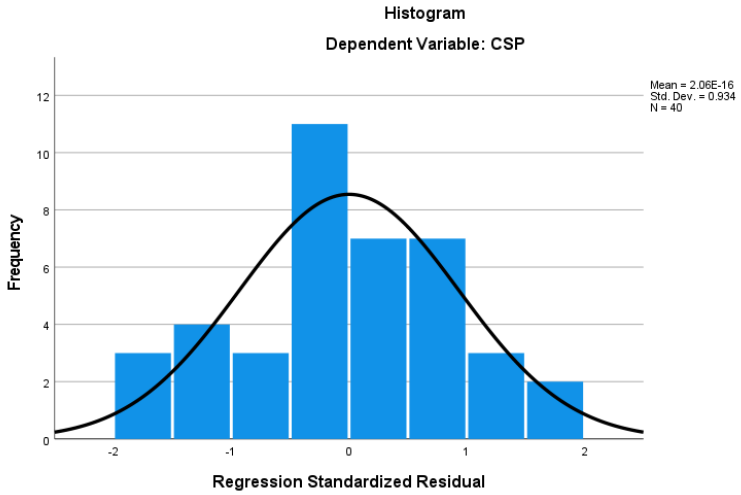


Figure 2. Histogram Chart

Source: Processed data, 2026

Figure 2 shows a symmetrical bell-shaped data distribution, indicating that the data is normally distributed.

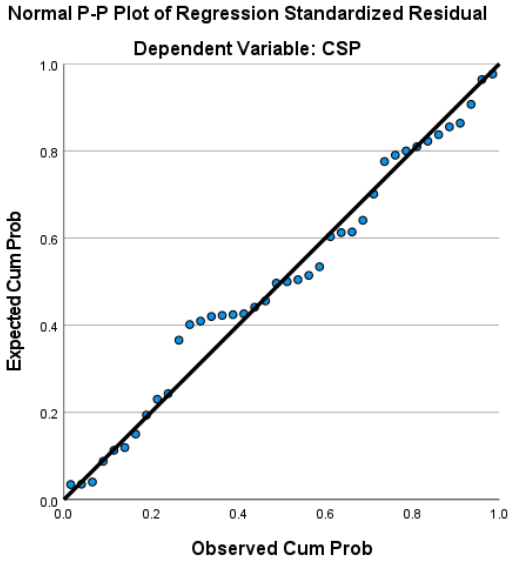


Figure 3. P-Plots Chart
Source: Processed data, 2026

Figure 3 shows data points near the diagonal line, confirming a normal distribution pattern.

Table 6.
1-Sample KS Test

		Unstandardized Residual
N		40
Normal Parameters[a,b]	Mean	0.0000000
	Std. Deviation	0.17561912
Most Extreme Differences	Absolute	0.120
	Positive	0.063
	Negative	-0.120
Test Statistic		0.120
Asymp. Sig. (2-tailed)[c]		0.153

Source: Processed data, 2026

Table 6 indicates a significance level of 0.153, which is greater than 0.05. This suggests that the residual values from the research model follow a normal distribution. While satisfying this baseline normality assumption confirms that the error terms are symmetrically distributed, these conventional diagnostics do not fully assess or rule out potential within-firm dependence arising from the repeated-measure observations. To evaluate the relative operational stability of the error covariance matrix within the constraints of the pooled Ordinary Least Squares (OLS) framework in SPSS, these diagnostic parameters are verified through the specific heteroscedasticity scatterplot analysis and Durbin-Watson autocorrelation test documented in the subsequent subsections. However, because specialized firm-level robustness clustering is not implemented, these parameters are not treated as conclusively verified, and the standard error distributions should be interpreted with caution regarding unobserved institutional dependencies.

Multicollinearity Test

Table 7.
Multicollinearity Test

Model	Collinearity Statistics	
	Tolerance	VIF
SR (X1)	0.841	1.189
BSIZE (X2.1)	0.658	1.520
IND (X2.2)	0.561	1.784
AC_MEET (X2.3)	0.555	1.800
IA_ACT (X3)	0.617	1.620

Source: Processed data, 2026

Table 7 shows tolerance values above 0.1 and VIF below 10 for each variable, indicating no multicollinearity problems among the independent variables.

Heteroskedasticity Test

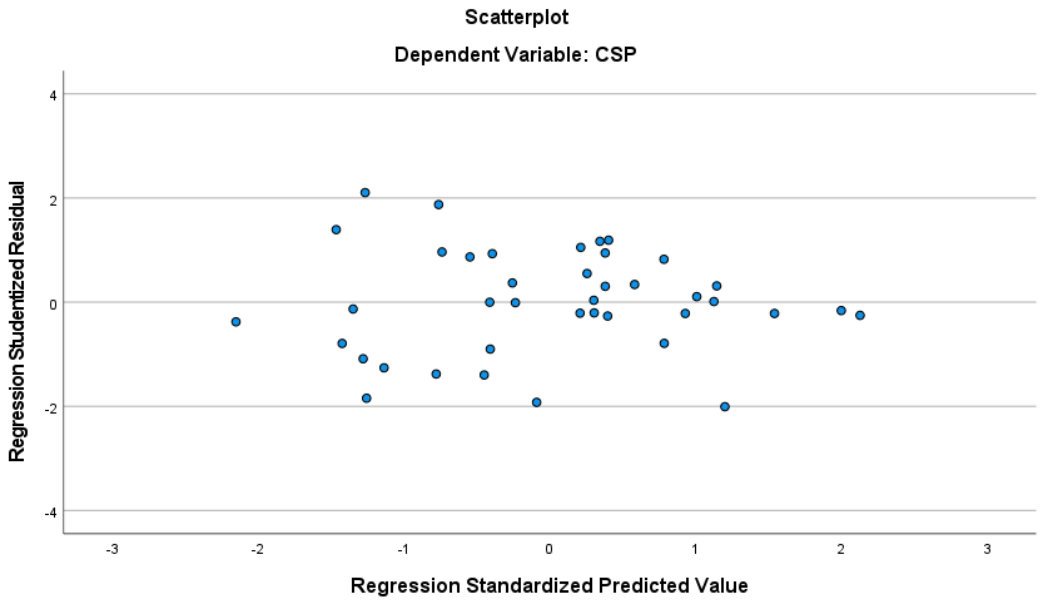


Figure 4. Scatterplot Chart

Source: Processed data, 2026

Consistent with Figure 4, the scatterplot shows residual data points randomly scattered around the Y-axis zero line with no pattern, confirming the model is free of heteroskedasticity.

Autocorrelation Test

Table 8.
Autocorrelation Test

Model	Durbin-Watson
1	1.668[a]

Source: Processed data, 2026

Table 8 shows the Durbin-Watson value satisfies criterion V (1.6589 < 1.668 < 2.3411), falling between du and 4-du, confirming the regression model is free of autocorrelation.

Multiple Linear Regression Analysis

Table 9.
Multiple Linear Regression Analysis

Model		Unstandardized Coefficients		Standardized Coefficients
		B	Std. Error	Beta
1	(Constant)	0.443	0.275	
	SR (X1)	-0.949	0.498	-0.295
	BSIZE (X2.1)	0.060	0.020	0.529
	IND (X2.2)	0.996	0.429	0.440
	AC_MEET (X2.3)	0.001	0.003	0.041
	IA_ACT (X3)	0.003	0.002	0.240

Source: Processed data, 2026

Based on Table 9, the multiple linear regression equation is as follows:

$$CSP = 0.443 – 0.949\ X1 + 0.060\ X2.1 + 0.996\ X2.2 + 0.001\ X2.3 + 0.003\ X3$$

This is how the regression equation above may be explained:

1. The value of constant (a) is 0.443, which indicates that CSP is anticipated at 0.443 if independent variables equal zero.
2. -0.949 is the SR regression coefficient. This indicates that, if all other variables are held constant, the CSP value falls by 0.949 units for every unit rise in SR.
3. The BSIZE regression coefficient is 0.060. This indicates that, assuming all other variables are held constant, the CSP value increases by 0.060 units for every unit increase in BSIZE.
4. The IND regression coefficient is equal to 0.996. This indicates that, under the assumption that all other variables are held constant, the CSP value rises by 0.996 units for every unit increase in IND.
5. The regression coefficient for AC_MEET is 0.001. This indicates that, assuming all other variables are held constant, the CSP value rises by 0.001 units for every unit increase in AC_MEET.
6. The regression coefficient for IA_ACT is 0.003. This indicates that, assuming all other variables are held constant, the CSP value rises by 0.003 units for every unit increase in IA_ACT.

Hypothesis Testing

t-Test

Table 10.
T-Test

	Model	t	Sig.
	SR (X1)	-1.905	0.065
	BSIZE (X2.1)	3.024	0.005
1	IND (X2.2)	2.319	0.027
	AC_MEET (X2.3)	0.215	0.831
	IA_ACT (X3)	1.331	0.192

Source: Processed data, 2026

With a sample size of N = 40 and a two-tailed significance level $\alpha = 0.05$, the t critical value is 2.0322. This is based on degrees of freedom df = N – k – 1, where k = 5, so df = 34.

Variables:

1. BSIZE (X2.1) has t-count = 3.024 > 2.0322, and a p-value = 0.005 (< 0.05).
2. IND (X2.2) has t-count = 2.319 > 2.0322, with p = 0.027 (< 0.05).

Non-significant variables:
1. SR (X1) has t-count = −1,905 < 2.0322, and p = 0.065 (> 0.05).
2. AC_MEET (X2.3) has t-count = 0.215 < 2.0322and p = 0.831 (> 0.05).
3. IA_ACT (X3) has t-count = 1.331 < 2.0322 and p = 0.192 (> 0.05).

Partial t-tests show mixed results. BSIZE (β = 0.060, t = 3.024, p = 0.005) and IND (β = 0.996, t = 2.319, p = 0.027) significantly and positively affect CSP, supporting their directional hypotheses. Conversely, (SR) (β = -0.949, t-count = -1.905, p = 0.065), audit committee meetings (AC_MEET) (β = 0.001, t-count = 0.215, p = 0.831), and internal audit frequency (IA_ACT) (β = 0.003, t-count = 1.331, p = 0.192) are non-significant. Because GCG was evaluated via separate proxies rather than an aggregated construct, these findings do not imply holistic GCG support. The non-significance of SR, AC_MEET, and IA_ACT merely indicates they operate outside the current sample's linear parameters.

F-test

Table 11.
F Test

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	0.553	5	0.111	3.125	0.020
	Residual	1.203	34	0.035		
	Total	1.756	39			

Source: Processed data, 2026

At df = (5, 34), the F-table value is 2.49. Since the F-count of 3.125 > 2.49 with a significance of 0.020 < 0.05, the five-predictor model is jointly significant, proving that all independent variables combined significantly influence Corporate Sustainability Performance. However, this overall model significance does not imply that every individual predictor is statistically significant on its own.

Coefficient of Determination Test

Table 12.
Adjusted R Square Test

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.561	0.315	0.214	0.1880895

Source: Processed data, 2026

The adjusted R-square value is 0.214, meaning 21.4% of the variance in Corporate Sustainability Performance is explained by the study's independent variables, while the remaining 78.6% is attributed to external factors. This unexplained variation suggests valuable avenues for future research to explore unexamined institutional or external metrics to enhance predictive capacity.

DISCUSSION

For Sustainability Reporting (SR), the non-significant negative association (β = -0.949, p = 0.065) aligns with Triwacananingrum & Silphianie (2023), suggesting POJK 51 mandates function primarily as a compliance formality rather than driving operational shifts, differing from Fitriani & Sari (2025) due to output-based metrics. Conversely, board

size [BSIZE] (β = 0.060, p = 0.005) and independent commissioners [IND] (β = 0.996, p = 0.027) show significant positive relationships. These dynamics validate the structural advantages noted by Tjahjadi et al. (2021), where board scale elevates cumulative sustainability outcomes despite mixed regression pathways among individual component dimensions.

Audit committee meetings [AC_MEET] (β = 0.001, p = 0.831) are statistically insignificant, consistent with Chulim et al. (2025), suggesting high-frequency sessions may focus on short-term survival rather than long-term ESG integration. Similarly, internal audit frequency [IA_ACT] (β = 0.003, p = 0.192) is insignificant, matching Prima et al. (2023) nd aligning with Gherai et al. (2024), who noted that audit programs face structural integration lags in complex extractive risk environments without a direct quantitative performance link. This differs from Appiah et al. (2024), who evaluated behavioral energy optimizations rather than independent performance ratings.

Lastly, the simultaneous significance in the F-test matches Aprilia & Sari (2026). While SR, AC_MEET, and IA_ACT lack independent predictive strength, their joint integration operates as a significant collective predictor. This suggests that managing complex corporate sustainability requires a multi-layered internal control environment, where structured board compositions, committee oversight, and internal audit functions collectively act as an institutional mechanism to reinforce long-term stakeholder confidence.

CONCLUSION

The empirical investigation into the determinants of Corporate Sustainability Performance (CSP) yields distinct insights from both partial and joint statistical evaluations. Based on individual t-test metrics, corporate sustainability performance demonstrates a significant positive association with larger board dimensions (BSIZE) and a higher ratio of independent commissioners (IND). In contrast, sustainability reporting disclosures (SR), audit committee meeting frequencies (AC_MEET), and internal audit activity frequencies (IA_ACT) do not show statistically significant linear relationships with CSP. Nevertheless, the overarching regression framework demonstrates collective significance, proving that the integrated constellation of these five predictors functions as a significant joint predictor of CSP.

This study's scope is bound by methodological limitations restricting external validity. Utilizing observational data via OLS in SPSS establishes statistical associations rather than definitive causal relationships. Additionally, the narrow archival sample of eight corporate entities over a five-year horizon (2020–2024) limits generalizability to other timelines or industries. Finally, with the model explaining only 21.4% of CSP variance, caution is required when extrapolating findings beyond the observed sample.

RECOMMENDATION

Recommendations suggest mining companies re-evaluate Sustainability Reporting disclosures and internal audit activities to align with actual sustainability performance. Future researchers are advised to examine external factors outside this study, such as audit tenure, CPA firm reputation, audit opinions, or compliance levels with green certifications like PROPER.

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