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The Impact of Just Transition Finance, Sustainable Financing, and Environmental Governance on the Sustainability of Mining Companies in Indonesia

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ABSTRACT

Corporate sustainability in the mining industry requires the integration of responsible financing, environmental accountability, and social equity. This study examines the individual and simultaneous relationships of Just Transition Financing, Sustainable Financing, and Environmental Governance with Corporate Sustainability in Indonesian mining companies. A quantitative explanatory approach was employed using cross-sectional survey data collected from 75 respondents involved in mining-related operational, financial, environmental, and sustainability activities. Data were analyzed using multiple linear regression with IBM SPSS Statistics version 25. The findings reveal that Just Transition Financing ($\beta = 0.388$; $p < 0.001$), Sustainable Financing ($\beta = 0.367$; $p < 0.001$), and Environmental Governance ($\beta = 0.207$; $p = 0.027$) are positively and significantly associated with Corporate Sustainability. The simultaneous regression model is statistically significant ($F = 22.585$; $p < 0.001$), explaining 48.8% of the variation in Corporate Sustainability. Just Transition Financing exhibits the strongest standardized association, highlighting the relevance of socially inclusive financial practices alongside sustainability-oriented investment and environmental governance. The study contributes to sustainability literature by integrating three distinct financial and governance mechanisms within a unified empirical framework. The findings offer practical implications for mining companies, financial institutions, and policymakers seeking to strengthen sustainable financing strategies, environmental accountability, and socially equitable transitions. However, the cross-sectional design and reliance on respondent perceptions limit causal interpretation and generalizability.

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1. INTRODUCTION

The sustainability of mining companies has become a critical concern as resource-intensive industries face increasing pressure to balance economic performance, environmental responsibility, and social equity. Although mining contributes significantly to industrial development and employment, its activities generate substantial environmental and socioeconomic challenges, including land degradation, greenhouse gas emissions, biodiversity loss, and community

inequalities. These challenges are particularly relevant in Indonesia, where expanding nickel and coal production has intensified concerns regarding environmental sustainability. The International Energy Agency (2024, 2025) highlights the environmental risks associated with coal-based mineral processing and emphasizes the need for stronger governance and lower-emission production. Previous studies also demonstrate the relevance of environmentally oriented financial practices and environmental, social, and governance (ESG) performance to sustainable mining and financial risk management (Xue et al., 2024; Fu et al., 2024). These developments underscore the importance of integrating financial, environmental, and social considerations into corporate sustainability strategies.

Just Transition Financing and Sustainable Financing represent complementary but conceptually distinct mechanisms for supporting corporate sustainability. Just Transition Financing prioritizes equitable socioeconomic transformation by incorporating workforce protection, community welfare, and social inclusion into financing decisions. The International Labour Organization and United Nations Environment Programme Finance Initiative (2023) emphasize the integration of social considerations into transition finance, while the International Labour Organization (2024) highlights the protection of vulnerable stakeholders during low-carbon transitions. Conversely, Sustainable Financing integrates ESG principles into investment decisions, capital allocation, and long-term financial planning. Such financing supports cleaner technologies, resource efficiency, and environmental rehabilitation. Xue et al. (2024) demonstrate the relevance of environmentally oriented financial practices to mining sustainability, while the Otoritas Jasa Keuangan (2026) strengthens Indonesia's sustainable finance framework through the Indonesia Taxonomy for Sustainable Finance Version 3. Although both mechanisms pursue sustainability objectives, their distinct priorities warrant separate empirical examination.

Environmental Governance provides an additional organizational mechanism for translating sustainability commitments into accountable corporate practices. It encompasses environmental policies, regulatory compliance, risk management, performance monitoring, and transparent reporting. Effective governance is particularly important in mining industries, where environmental risks can threaten operational continuity and stakeholder relationships. Fu et al. (2024) identify the relevance of governance and social responsibility to financial risk management, while Putriningtyas et al. (2024) demonstrate that the relationship between ESG disclosure and financial performance depends partly on governance arrangements and institutional contexts. From a stakeholder-oriented perspective, corporate sustainability requires balancing financial viability with environmental protection and social responsibility. Accordingly, Just Transition Financing addresses socioeconomic equity, Sustainable Financing supports responsible capital allocation, and Environmental Governance strengthens environmental accountability, collectively providing a conceptual foundation for multidimensional corporate sustainability.

Despite growing research on sustainable finance and environmental governance, existing studies have largely examined these mechanisms separately. Xue et al. (2024) investigated green financial accounting and sustainability transitions, Fu et al. (2024) examined ESG ratings and financial risks, and Putriningtyas et al. (2024) explored ESG disclosure, governance, and financial performance. However, these studies have not directly evaluated the respective relationships of Just Transition Financing, Sustainable Financing, and Environmental Governance with Corporate Sustainability within an integrated empirical framework. Moreover, the conceptual distinction between socially inclusive transition financing and broader sustainability-oriented financial practices remains insufficiently examined in the Indonesian mining context. This gap highlights the need for an integrated analysis that distinguishes the individual associations and combined explanatory contribution of these mechanisms to corporate sustainability.

Addressing these gaps, this study examines the relationships between Just Transition Financing, Sustainable Financing, Environmental Governance, and Corporate Sustainability in Indonesian mining companies. Using a quantitative approach and multiple linear regression, the study evaluates the individual and simultaneous associations of these three explanatory variables

with corporate sustainability. Its principal contribution lies in integrating distinct financing and environmental governance mechanisms into a unified analytical framework while clarifying their conceptual differences. By providing respondent-level empirical evidence from Indonesia's mining sector, the study extends discussions of sustainability management in resource-intensive industries. The findings also offer practical implications for corporate managers, financial institutions, and policymakers seeking to align sustainable financing, social equity, and environmental accountability with long-term corporate sustainability.

2. LITERATURE REVIEW

2.1 Theoretical Framework

Corporate sustainability in the mining industry is grounded in Stakeholder Theory, sustainable resource allocation, and environmental accountability, emphasizing the integration of economic performance, social responsibility, and environmental protection. Stakeholder Theory highlights the importance of addressing diverse stakeholder interests through equitable financing, responsible investment, and effective governance (Fu et al., 2024). Sustainable financing supports long-term sustainability by improving capital accessibility, encouraging green investment, and promoting responsible corporate practices (Caldecott et al., 2026; Xue et al., 2024; Jianchun, 2024). Meanwhile, environmental governance strengthens accountability through regulatory compliance, environmental monitoring, and effective management practices, extending beyond formal sustainability disclosures (Howe et al., 2025; Putriningtyas et al., 2024). Collectively, these perspectives establish a theoretical foundation for examining Just Transition Financing, Sustainable Financing, and Environmental Governance as distinct yet complementary factors associated with corporate sustainability in Indonesia's mining industry.

2.2 Just Transition Financing

Just Transition Financing refers to financial mechanisms that support environmentally sustainable economic transformation while ensuring social equity, workforce protection, and community welfare. Unlike conventional transition finance, this approach integrates social considerations into investment decisions to minimize socioeconomic inequalities and protect stakeholders affected by decarbonization and industrial restructuring (International Labour Organization & United Nations Environment Programme Finance Initiative, 2023). In the mining industry, Just Transition Financing facilitates cleaner technologies, environmental rehabilitation, workforce development, and inclusive community investment. For Indonesian mining companies, its implementation encompasses sustainable investment allocation, employee reskilling, community participation, and financial support for transition-related social risks. These mechanisms may strengthen stakeholder trust, organizational resilience, and long-term sustainability by aligning environmental objectives with equitable socioeconomic development. Accordingly, Just Transition Financing is expected to be positively associated with corporate sustainability in Indonesia's mining sector.

2.3 Sustainable Financing

Sustainable Financing refers to the integration of environmental, social, and governance (ESG) considerations into financial planning, investment decisions, and capital allocation to promote long-term corporate sustainability. This approach encourages environmentally responsible investment, resource efficiency, and organizational resilience through improved capital accessibility and sustainable financial practices (Caldecott et al., 2026). In the mining industry, Sustainable Financing

supports cleaner production technologies, renewable energy adoption, waste management, and environmental rehabilitation through green financing instruments and sustainability-oriented investment strategies (Xue et al., 2024). In Indonesia, the Otoritas Jasa Keuangan (2026) reinforces these practices through the Indonesia Taxonomy for Sustainable Finance Version 3, which provides sustainability classifications for economic activities. Unlike Just Transition Financing, which prioritizes social equity and inclusiveness, Sustainable Financing emphasizes broader ESG integration into financial decisions. Accordingly, Sustainable Financing is expected to be positively associated with corporate sustainability by strengthening financial resilience, environmental performance, and responsible resource management in Indonesian mining companies.

2.4 Environmental Governance

Environmental Governance refers to organizational policies, management structures, and accountability mechanisms designed to manage environmental risks and ensure responsible business operations. In the mining industry, effective environmental governance involves regulatory compliance, environmental risk management, performance monitoring, and transparent reporting to minimize ecological impacts and strengthen operational sustainability. Fu et al. (2024) highlight the relevance of governance practices and social responsibility to financial risk management, while Putriningtyas et al. (2024) demonstrate that corporate governance strengthens the relationship between ESG disclosure and financial performance in Indonesian mining companies. However, Howe et al. (2025) emphasize that formal environmental disclosures do not necessarily reflect effective environmental management, underscoring the importance of substantive implementation and organizational accountability. Accordingly, Environmental Governance is expected to be positively associated with corporate sustainability by improving environmental performance, regulatory compliance, stakeholder confidence, and long-term operational resilience in Indonesia's mining sector.

2.5 Sustainability of Mining Companies

Corporate Sustainability refers to an organization's ability to maintain long-term economic viability while ensuring environmental protection and social responsibility. In the mining industry, sustainability encompasses financial resilience, operational efficiency, responsible resource management, employee welfare, and community development. Jianchun (2024) demonstrates that green mining practices contribute positively to corporate sustainable development through green innovation and organizational commitment, highlighting the importance of integrating economic, environmental, and social dimensions. Economic sustainability emphasizes financial stability and operational continuity, environmental sustainability focuses on pollution prevention, resource efficiency, and ecological restoration, while social sustainability addresses employee welfare, occupational safety, and stakeholder engagement. In Indonesia, these dimensions are particularly relevant given the environmental and socioeconomic challenges associated with mining activities. Accordingly, Corporate Sustainability is conceptualized as the perceived ability of mining companies to maintain economic stability, improve environmental performance, and fulfill social responsibilities, serving as the dependent variable in this study.

2.6 Hypothesis Development

Just Transition Financing, Sustainable Financing, and Environmental Governance represent complementary mechanisms that may strengthen corporate sustainability in the mining industry. Just Transition Financing integrates environmental transformation with workforce protection, social inclusion, and equitable community development, potentially improving stakeholder relationships and organizational resilience

(International Labour Organization & United Nations Environment Programme Finance Initiative, 2023). Jindal et al. (2024) further highlight the importance of appropriate financing structures and institutional conditions in supporting equitable energy transitions across Southeast Asia. Meanwhile, Sustainable Financing facilitates environmentally responsible investments through improved capital accessibility, financial incentives, and long-term resource allocation (Caldecott et al., 2026). Previous studies indicate that environmentally oriented financial practices and green mining strategies are associated with sustainable development in resource-intensive industries (Xue et al., 2024; Jianchun, 2024). These findings suggest that both financing mechanisms may contribute to corporate sustainability through distinct pathways, with Just Transition Financing emphasizing socioeconomic equity and Sustainable Financing supporting environmental investment and economic resilience.

Environmental Governance complements these financing mechanisms by establishing environmental policies, regulatory compliance, monitoring systems, and organizational accountability. Fu et al. (2024) demonstrate the relevance of governance practices to financial risk management, while Putriningtyas et al. (2024) identify the role of corporate governance in strengthening the relationship between ESG disclosure and financial performance. However, Howe et al. (2025) emphasize that sustainability disclosures alone do not guarantee effective environmental management, highlighting the importance of substantive governance implementation. Collectively, these findings suggest that Just Transition Financing, Sustainable Financing, and Environmental Governance may independently and jointly contribute to corporate sustainability by integrating social equity, responsible financial allocation, and environmental accountability. Nevertheless, their simultaneous relationships with corporate sustainability remain insufficiently examined in the Indonesian mining sector. Accordingly, this study proposes the following hypotheses:

H1: Just Transition Financing has a positive and significant effect on the sustainability of mining companies in Indonesia.

H2: Sustainable Financing has a positive and significant effect on the sustainability of mining companies in Indonesia.

H3: Environmental Governance has a positive and significant effect on the sustainability of mining companies in Indonesia.

H4: Just Transition Financing, Sustainable Financing, and Environmental Governance simultaneously have a significant effect on the sustainability of mining companies in Indonesia.

3. METHODS

3.1 Research Design

This study employed a quantitative explanatory research design to examine the relationships between Just Transition Financing (X1), Sustainable Financing (X2), Environmental Governance (X3), and Corporate Sustainability (Y) in Indonesian mining companies. A cross-sectional survey was conducted using structured questionnaires to collect respondents' perceptions at a single point in time. Consistent with Saunders et al. (2023), the quantitative approach enables systematic examination of theoretically established relationships through statistical analysis. Data were analyzed using IBM SPSS Statistics version 25, with multiple linear regression employed to assess the individual and simultaneous relationships among the research variables and test the proposed hypotheses.

3.2 Population and Sample

The target population comprised individuals involved in operational, financial, environmental, and sustainability management activities within Indonesian mining companies. A total of 75 respondents with relevant knowledge of corporate financing, environmental governance, and sustainability practices were included in the study, with each questionnaire representing one observation. Sample adequacy was considered in relation to the number of predictors, statistical power, expected effect sizes, and data characteristics, consistent with Hair et al. (2022). Although the sample provided a basis for multiple linear regression analysis, the findings reflect respondent-level perceptions rather than independently verified company-level performance, potentially limiting their generalizability.

3.3 Data Collection Procedures

Primary data were collected using a structured questionnaire measuring four variables: Just Transition Financing (X1), Sustainable Financing (X2), Environmental Governance (X3), and Corporate Sustainability (Y). Each variable comprised five indicators developed from relevant theoretical and empirical literature (Xue et al., 2024; Fu et al., 2024; International Labour Organization & United Nations Environment Programme Finance Initiative, 2023). Respondents evaluated each statement using a five-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree), consistent with quantitative measurement practices (Hair et al., 2023). The variables captured socially inclusive transition financing, ESG-oriented financial practices, environmental accountability, and long-term economic, environmental, and social sustainability. Before analysis, responses were screened for missing values, duplicate entries, and coding inconsistencies. The resulting dataset was analyzed using SPSS version 25 to assess measurement validity, reliability, regression assumptions, and hypothesized relationships. The operational definitions and measurement indicators are presented in Table 1.

Table 1. Operational Definitions and Measurement Indicators

Variable	Indicators	Measurement scale
Just Transition Financing (X1)	X1.1 Financing for environmentally responsible transition; X1.2 Workforce development and protection; X1.3 Community-oriented transition investment; X1.4 Inclusive financing practices; X1.5 Financial support for transition-related social risks.	Likert 1–5
Sustainable Financing (X2)	X2.1 Sustainability-oriented investment allocation; X2.2 Financing for green operational activities; X2.3 Integration of ESG considerations into financial decisions; X2.4 Long-term sustainable financial planning; X2.5 Environmental financial risk management.	Likert 1–5
Environmental Governance (X3)	X3.1 Environmental policy implementation; X3.2 Regulatory compliance; X3.3 Environmental risk management; X3.4 Environmental performance monitoring; X3.5 Environmental transparency and accountability.	Likert 1–5
Corporate Sustainability (Y)	Y1 Economic sustainability; Y2 Environmental sustainability; Y3 Social sustainability; Y4 Resource efficiency and operational continuity; Y5 Long-term organizational resilience.	Likert 1–5

Each variable was represented by five proposed measurement indicators. Composite variable scores were calculated using the mean of the corresponding indicator responses, subject to satisfactory measurement quality. This procedure maintained the original five-point measurement range and enabled the variables to be incorporated into the regression model. Higher composite scores reflected stronger perceptions of Just Transition Financing, Sustainable Financing, Environmental Governance, or Corporate Sustainability.

3.4 Data Analysis Techniques

Data were analyzed using IBM SPSS Statistics version 25 through descriptive statistics, validity and reliability assessments, classical assumption tests, and multiple linear regression, consistent with Hair et al. (2022, 2023). Descriptive statistics included means, standard deviations, minimums, and maximums. Measurement quality was assessed using corrected item–total correlations (≥0.30) and Cronbach's alpha (≥0.70). Regression assumptions were examined through the Kolmogorov–Smirnov test with Lilliefors correction for residual normality, tolerance (>0.10) and VIF (<5 preferred) for multicollinearity, and the Glejser test for heteroscedasticity, supported by residual diagnostics. Multiple linear regression was employed to examine the individual and simultaneous relationships of Just Transition Financing, Sustainable Financing, and Environmental Governance with Corporate Sustainability. Hypotheses were evaluated using partial t-tests and the overall F-test at a 5% significance level ($p < 0.05$), while R^2 and adjusted R^2 were used to assess the model's explanatory power.

4. RESULT AND DISCUSSION

4.1 Descriptive Statistical Analysis

Descriptive statistical analysis was conducted on 75 observations to assess Just Transition Financing, Sustainable Financing, Environmental Governance, and Corporate Sustainability. Each variable comprised five indicators measured on a five-point Likert scale. Mean, standard deviation, minimum, and maximum values were calculated to summarize respondents' assessments.

Table 2. Descriptive Statistics of Research Variables

Variable	N	Minimum	Maximum	Mean	Std. Deviation
Just Transition Financing (X1)	75	1.40	4.60	3.120	0.724
Sustainable Financing (X2)	75	1.60	4.60	3.117	0.689
Environmental Governance (X3)	75	1.60	4.80	3.077	0.662
Corporate Sustainability (Y)	75	1.20	4.80	3.091	0.758

Table 2 presents the descriptive statistics for 75 respondents across the four research variables. Just Transition Financing recorded the highest mean (3.120; SD = 0.724), followed by Sustainable Financing (3.117; SD = 0.689), Corporate Sustainability (3.091; SD = 0.758), and Environmental Governance (3.077; SD = 0.662). The relatively similar mean values indicate moderate levels of respondent agreement across all constructs. Corporate Sustainability exhibited the greatest variability in responses, whereas Environmental Governance showed the lowest dispersion, suggesting more consistent respondent assessments.

4.2 Validity and Reliability Tests

4.2.1 Validity Test

Validity was assessed using corrected item–total correlations, with coefficients above 0.30 considered acceptable for preliminary measurement screening.

Table 3. Validity Test Results

Variable	Item	Corrected Item–Total Correlation	Decision
Just Transition Financing	X1.1	0.761	Valid
	X1.2	0.688	Valid
	X1.3	0.783	Valid
	X1.4	0.606	Valid
	X1.5	0.743	Valid
Sustainable Financing	X2.1	0.723	Valid
	X2.2	0.691	Valid
	X2.3	0.661	Valid

	X2.4	0.647	Valid
	X2.5	0.740	Valid
Environmental Governance	X3.1	0.639	Valid
	X3.2	0.693	Valid
	X3.3	0.635	Valid
	X3.4	0.752	Valid
	X3.5	0.745	Valid
Corporate Sustainability	Y1	0.658	Valid
	Y2	0.712	Valid
	Y3	0.743	Valid
	Y4	0.706	Valid
	Y5	0.760	Valid

Table 3 presents the validity assessment of 20 measurement items across four research variables using corrected item–total correlations. All indicators exceeded the minimum acceptance threshold of 0.30, with coefficients ranging from 0.606 to 0.783 for Just Transition Financing, 0.647 to 0.740 for Sustainable Financing, 0.635 to 0.752 for Environmental Governance, and 0.658 to 0.760 for Corporate Sustainability. These findings indicate satisfactory item–total consistency across all constructs, supporting the retention of all measurement items for subsequent reliability testing and regression analysis. However, the results provide preliminary evidence of measurement quality rather than comprehensive construct validity.

4.2.2 Reliability Test

Reliability testing was performed using Cronbach's alpha to assess the internal consistency of the measurement indicators. A minimum coefficient of 0.70 was adopted as the criterion for acceptable reliability.

Table 4. Reliability Test Results

Variable	Number of Items	Cronbach's Alpha	Decision
Just Transition Financing (X1)	5	0.881	Reliable
Sustainable Financing (X2)	5	0.867	Reliable
Environmental Governance (X3)	5	0.869	Reliable
Corporate Sustainability (Y)	5	0.880	Reliable

Table 4 presents the reliability assessment of the four research variables using Cronbach's alpha. All constructs exceeded the recommended threshold of 0.70, indicating satisfactory internal consistency. Just Transition Financing demonstrated the highest reliability (α = 0.881), followed by Corporate Sustainability (α = 0.880), Environmental Governance (α = 0.869), and Sustainable Financing (α = 0.867). These results confirm that the five indicators measuring each construct exhibit consistent responses, supporting their use in subsequent regression analysis.

4.3 Classical Assumption Tests

4.3.1 Normality Test

Residual normality was assessed using the Kolmogorov–Smirnov test with Lilliefors correction on unstandardized regression residuals, applying a significance level of 0.05.

Table 5. Kolmogorov–Smirnov Normality Test

Test Statistic	Unstandardized Residual
N	75
Kolmogorov–Smirnov Statistic	0.060
Asymp. Sig. (2-tailed), Lilliefors corrected	0.785

Table 5 presents the Kolmogorov–Smirnov normality test results for the unstandardized regression residuals based on 75 observations. The test yielded a Kolmogorov–Smirnov statistic of 0.060 and an asymptotic significance value of 0.785 with Lilliefors correction, exceeding the 0.05 significance threshold. These findings indicate insufficient statistical evidence to reject the null hypothesis of residual normality, suggesting that the residual distribution does not significantly deviate from normality and supporting the normality assumption for multiple linear regression analysis.

4.3.2 Multicollinearity Test

Multicollinearity among Just Transition Financing, Sustainable Financing, and Environmental Governance was assessed using tolerance (>0.10) and Variance Inflation Factor (VIF <5) thresholds.

Table 6. Multicollinearity Test Results

Independent Variable	Tolerance	VIF
Just Transition Financing (X1)	0.859	1.164
Sustainable Financing (X2)	0.912	1.097
Environmental Governance (X3)	0.864	1.157

Table 6 presents the multicollinearity test results for the three independent variables. Just Transition Financing recorded a tolerance value of 0.859 and VIF of 1.164, followed by Sustainable Financing (tolerance = 0.912; VIF = 1.097) and Environmental Governance (tolerance = 0.864; VIF = 1.157). All tolerance values exceeded 0.10, while VIF values remained well below the threshold of 5, indicating no evidence of problematic multicollinearity. These findings suggest that the independent variables exhibit sufficiently low linear intercorrelations to support reliable estimation of their individual regression coefficients.

4.3.3 Heteroscedasticity Test

Heteroscedasticity was assessed using the Glejser test, with significance values above 0.05 indicating insufficient evidence of heteroscedasticity.

Table 7. Glejser Heteroscedasticity Test Results

Independent Variable	Sig.	Decision
Just Transition Financing (X1)	0.535	No significant evidence of heteroscedasticity
Sustainable Financing (X2)	0.393	No significant evidence of heteroscedasticity
Environmental Governance (X3)	0.314	No significant evidence of heteroscedasticity

Table 7 presents the Glejser heteroscedasticity test results for the three independent variables. Just Transition Financing recorded a significance value of 0.535, followed by Sustainable Financing (0.393) and Environmental Governance (0.314). All significance values exceeded the 0.05 threshold, indicating no statistically significant evidence of heteroscedasticity associated with the predictors. These findings suggest that the regression residuals do not exhibit detectable systematic variance differences under the Glejser test, supporting the homoscedasticity assumption for multiple linear regression analysis.

4.4 Multiple Linear Regression Analysis

Multiple linear regression was used to examine the relationships of Just Transition Financing, Sustainable Financing, and Environmental Governance with Corporate Sustainability, reporting regression coefficients, t-statistics, and significance values.

Table 8. Multiple Linear Regression Results

Variable	B	Std. Error	Beta	t	Sig.
Constant	-0.165	0.409	—	-0.403	0.688
Just Transition Financing (X1)	0.406	0.096	0.388	4.238	<0.001
Sustainable Financing (X2)	0.404	0.098	0.367	4.129	<0.001
Environmental Governance (X3)	0.237	0.105	0.207	2.265	0.027

Table 8 presents the multiple linear regression results, indicating that all three independent variables are positively and significantly associated with Corporate Sustainability. Just Transition Financing demonstrated the strongest standardized association (B = 0.406; β = 0.388; t = 4.238; $p < 0.001$), followed by Sustainable Financing (B = 0.404; β = 0.367; t = 4.129; $p < 0.001$) and Environmental Governance (B = 0.237; β = 0.207; t = 2.265; p = 0.027). These findings indicate that higher levels of sustainability-oriented financing and environmental governance are associated with stronger corporate sustainability after controlling for the other predictors. Just Transition Financing exhibited the largest relative contribution based on standardized coefficients, highlighting the relevance of socially inclusive financial practices. Accordingly, H1, H2, and H3 are supported, suggesting that all three mechanisms are statistically significant predictors of Corporate Sustainability in Indonesia's mining sector.

4.5 Simultaneous F-Test

The simultaneous F-test was conducted to determine whether the three independent variables jointly provided statistically significant explanatory information about Corporate Sustainability.

Table 10. ANOVA and Simultaneous F-Test Results

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	20.755	3	6.918	22.585	<0.001
Residual	21.749	71	0.306	—	—
Total	42.503	74	—	—	—

Table 10 presents the ANOVA and simultaneous F-test results, demonstrating that the regression model is statistically significant (F = 22.585; $p < 0.001$). This finding indicates that Just Transition Financing, Sustainable Financing, and Environmental Governance jointly provide significant explanatory information about Corporate Sustainability, supporting H4. The model summary further reports a correlation coefficient (R) of 0.699 and a coefficient of determination (R^2) of 0.488, indicating that the three independent variables collectively explain 48.8% of the observed variation in Corporate Sustainability. The adjusted R^2 of 0.467 indicates an explanatory power of 46.7% after accounting for the number of predictors, while the remaining variation is attributable to factors outside the model and unexplained variability.

4.6 Discussion

The findings demonstrate that Just Transition Financing is positively and significantly associated with Corporate Sustainability, exhibiting the strongest standardized relationship among the three explanatory variables. This result suggests that sustainability in Indonesia's mining sector is closely associated with financing practices that integrate environmental transformation with workforce protection, community development, and social equity. From a Stakeholder Theory perspective, socially inclusive financing may strengthen organizational resilience by addressing the interests of communities and employees affected by mining transitions. This interpretation aligns with Jindal et al. (2024), who emphasize the importance of financing mechanisms and institutional arrangements in supporting equitable energy transitions across Southeast Asia. Similarly, Fraser (2021) highlights the relevance of collaborative relationships between mining companies and local

communities for reducing social risks and advancing sustainable development. These findings extend existing discussions by suggesting that the social dimensions of transition financing are relevant not only to equitable economic transformation but also to broader perceptions of corporate sustainability.

Sustainable Financing also demonstrates a positive and significant relationship with Corporate Sustainability, indicating the importance of integrating environmental, social, and governance considerations into financial planning and investment allocation. This finding supports the theoretical arguments of Caldecott et al. (2026), who identify capital costs, liquidity access, and corporate behavioral changes as mechanisms through which sustainable finance may influence real economic activities. Similarly, Xue et al. (2024) emphasize the relevance of environmentally oriented financial practices to sustainability transitions in mining industries. The findings are also consistent with Yu (2024), who demonstrates that green mining practices are positively associated with corporate sustainable development through green innovation and organizational commitment. Within Indonesia's mining industry, Sustainable Financing may facilitate investments in cleaner technologies, resource efficiency, and environmental rehabilitation. Nevertheless, its contribution to sustainability depends on whether financial commitments are translated into substantive operational improvements rather than remaining limited to ESG classifications or sustainability disclosures.

Environmental Governance exhibits a positive and significant association with Corporate Sustainability, although its standardized coefficient is smaller than those of the financing variables. This finding suggests that environmental policies, regulatory compliance, monitoring systems, and organizational accountability remain relevant to sustainability outcomes. Fu et al. (2024) identify the importance of governance-related practices in managing financial risks, while Putriningtyas et al. (2024) demonstrate the relevance of corporate governance to the relationship between ESG disclosure and financial performance. Furthermore, Howe et al. (2025) highlight that sustainability reporting alone cannot establish the effectiveness of environmental management, emphasizing the need for substantive governance implementation. Collectively, the significant regression model supports the complementary relevance of Just Transition Financing, Sustainable Financing, and Environmental Governance in explaining Corporate Sustainability. The study contributes to sustainability literature by distinguishing socially inclusive financing from broader ESG-oriented financial practices within an integrated framework. However, the cross-sectional design, respondent-level perceptions, and limited sample size restrict causal interpretation and generalizability. Future research should incorporate longitudinal data, independently verified sustainability indicators, and broader mining-company samples to examine these relationships more comprehensively.

5. CONCLUSION

This study concludes that Just Transition Financing, Sustainable Financing, and Environmental Governance are positively and significantly associated with Corporate Sustainability in Indonesian mining companies, both individually and collectively. Just Transition Financing demonstrates the strongest standardized association, highlighting the importance of social equity, workforce protection, and community development in sustainability-oriented financing. Sustainable Financing supports responsible capital allocation and environmentally sustainable investment, while Environmental Governance strengthens regulatory compliance, environmental accountability, and organizational resilience. These findings contribute to sustainability literature by integrating three distinct yet complementary mechanisms within a unified empirical framework. Practically, mining companies should prioritize socially inclusive financing, sustainable investment strategies, and effective environmental governance to strengthen long-term sustainability. However, the cross-sectional design, limited sample size, and reliance on respondent perceptions restrict causal

interpretation and generalizability. Future research should incorporate larger samples, longitudinal designs, and objective sustainability indicators to provide more comprehensive evidence of these relationships.

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