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Research Article

Environmental, Social, and Governance Disclosure and Firm Value

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Abstract: This study aims to obtain empirical evidence regarding the effect of Environmental, Social, and Governance (ESG) disclosure on firm value. The research sample was obtained using purposive sampling on mining firms listed on the Indonesia Stock Exchange (IDX) during the 2020–2023 period, with a total of 102 observations. Data analysis was conducted using panel data regression to test the proposed hypotheses. The results show that environmental disclosure has a significant positive effect on firm value, while social and governance disclosure have a significant negative effect. The theoretical implication of this study refers to agency theory, which asserts that information transparency through ESG can reduce information asymmetry between management and shareholders. However, if disclosure is carried out merely as a formality or symbolic practice, it may instead generate agency costs that are detrimental to the firm. In addition, these findings are also relevant to signaling theory, in which environmental disclosure can serve as a positive signal of a firm's commitment to sustainability practices, thereby enhancing investor trust and strengthening the firm's reputation. Practically, this study contributes to providing a more comprehensive understanding for firms, management, investors, and other stakeholders, while also serving as a reference for future research on ESG and firm value.

Keywords: Environmental Disclosure; ESG Disclosure; Firm Value; Governance Disclosure; Social Disclosure.

1. INTRODUCTION

Environmental, Social, and Governance (ESG) is a concept that assesses firm performance not only from the financial perspective but also from environmental, social, and governance aspects, which have a significant effect on investment decisions (Zheng et al., 2022). ESG reflects the extent to which firms simultaneously incorporate issues related to economic growth, environmental protection, social responsibility, and corporate governance into their businesses. Therefore, as a form of responsibility for the impacts they generate, firms need to present Environmental, Social, and Governance disclosure (ESG disclosure) reports (Propheta & Irmadariyani, 2025).

ESG disclosure is the process by which firms disclose information related to their environmental, social, and governance impacts (Izzah & Darsono, 2024). ESG disclosure is important for firms to communicate the implementation of ESG and how they manage ESG-related risks to stakeholders, including investors (Christy & Sofie, 2023). By disclosing performance in environmental protection, social responsibility, and governance, firms can improve their public image, strengthen investor trust, and maintain competitive advantage in the market (Pu, 2024). ESG disclosure information is generally disclosed to stakeholders through annual reports or stand-alone reports such as sustainability reports or ESG reports (Krueger et al., 2021). In this study, the measurement of ESG disclosure is carried out using

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an approach that analyzes ESG reports prepared in accordance with GRI standards. This standardization process facilitates external stakeholders in comparing sustainability performance across firms on issues considered important by the public (Sullivan & Gouldson, 2012).

Currently, there is a growing global trend in sustainable investment, where investors increasingly prefer firms that adopt ESG principles as a key consideration in making investment decisions. The implementation of ESG disclosure in Indonesia's mining sector has increased significantly in recent years. According to PwC's 18th annual report (2021) on the 40 largest mining firms in 2021, firms with higher ESG ratings delivered a total shareholder return of 34% over the past three years, ten percentage points higher than the general market index. In other words, firms that excel in ESG disclosure provide greater returns compared to the average firm in the stock market as a whole. Net profit in the mining sector also increased by 15% in 2021, with market capitalization rising by nearly two-thirds to US$1.46 trillion, and the demand for minerals vital to clean energy technologies is projected to increase six-fold over the next two decades.

Studies on ESG disclosure can be based on agency theory, where ESG plays a role in reducing information asymmetry between management and investors (Olsen et al., 2021). According to Jensen & Meckling (1976), agency theory explains that information asymmetry can trigger conflicts of interest between agents (management) and principals (investors). Increasing ESG disclosure not only reduces the risk of information asymmetry and adverse selection but also reflects the firm's commitment to social responsibility and provides important information for stakeholders in making better decisions (Zhang et al., 2020). From the perspective of information economics, signaling theory explains that ESG disclosure becomes a positive signal for the market because it indicates firm stability and long-term growth prospects (Pu, 2024). In addition, according to Sanjaya (2023), the disclosure of non-financial information such as ESG can be considered a positive signal for investors, influencing their decision-making. Investors can interpret this signal through the firm's financial reports and understand how ESG contributes to stability (Mutiah & Rusmanto, 2023). Moreover, ESG disclosure shows that firms do not merely pursue profit but also care about community welfare, which can affect stock movements and increase firm value (Sebayang & Surbakti, 2023).

Transparent ESG disclosure can build trust among investors and potential investors toward the firm (Christy & Sofie, 2023). This trust plays an important role in attracting more investment, which ultimately has a positive effect on firm value. In signaling theory, firms use ESG disclosure to demonstrate that they have superior performance and business practices compared to competitors in the market, thereby enhancing reputation and investment appeal (Verrecchia, 1983). The higher the transparency in ESG reporting, the greater the likelihood for firms to gain investor trust, which contributes to an increase in their market value (Chouaibi et al., 2022). Furthermore, the openness of ESG information is increasingly valuable amid rising global regulations on carbon emissions and climate change issues (Fadhali & Purwanto, 2024). Investors are now paying greater attention to sustainability aspects in evaluating firms, so those that proactively disclose their ESG practices tend to gain greater market appreciation. Effective ESG disclosure can serve as a tool for firms to meet investor expectations and enhance their competitiveness, ultimately having a positive effect on firm value (Nanda & Ratnadi, 2024).

Previous studies examining ESG disclosure and firm value have been widely conducted and show varied results. Several studies, such as those conducted by Choi et al. (2024), Melinda & Wardhani (2020), Prayogo et al. (2023), Propheta & Irmadariyani (2025), Sebayang & Surbakti (2023), Jati & Sofie (2024), and Wau (2023), found that ESG disclosure overall has a positive and significant effect on firm value. Similar results were also obtained

by Qureshi et al. (2020), although Qureshi et al. (2020) found that governance disclosure separately had no effect on firm value. Meanwhile, research conducted by Negara et al. (2024) showed that ESG disclosure overall has a positive but not significant effect on firm value.

On the other hand, some studies show that certain components of ESG disclosure have a negative effect on firm value. Abdi et al. (2022) found that governance disclosure has a positive effect, while environmental and social disclosure have a negative effect on firm value. Research by Fadhali & Purwanto (2024) also showed that ESG disclosure overall has a negative effect on firm value, particularly in the banking sector. Meanwhile, Margana & Wiagustini (2024) found that environmental disclosure has a significant negative effect on firm value, while social disclosure has a positive effect, and the governance aspect has no effect.

Furthermore, there are studies that show ESG disclosure or certain components of ESG have no effect on firm value. Christy & Sofie (2023) found that governance disclosure has a positive effect, while environmental and social disclosure have no effect on firm value. Similar results were also found by Hariyanto & Ghozali (2024), who showed that social disclosure has a positive effect on firm value, while environmental and governance disclosure have no effect. Research conducted by Nanda & Ratnadi (2024) also showed that only social disclosure has an effect on firm value, while environmental and governance disclosure have no effect. In addition, Rohendi et al. (2024) found that ESG disclosure overall does not have a significant direct effect on firm value but has a positive effect when moderated by competitive advantage.

This study focuses on the mining sector on the Indonesia Stock Exchange (IDX). The reason for choosing this sector is the abundance of natural resources and its strategic role in the national economy. Each year, the number of mining firms listed on the IDX continues to increase, reflecting the development of this sector. However, mining activities also create negative impacts, particularly on the environment and health, due to the metal and metalloid content they generate (Ode et al., 2024). Nevertheless, the mining sector remains a significant contributor to foreign exchange and investment for Indonesia. Mining firms contribute substantially to state revenue through taxes and exports but also face challenges in sustainability and social responsibility. Therefore, this study aims to analyze how ESG disclosure in the mining sector can affect firm value and investor perception, while also providing insights into sustainability practices in the industry.

Based on the phenomena described and supported by the varied results of previous studies, this study focuses on Indonesia with the mining sector as the research object. This serves as the basis for the researcher to continue with the study entitled "Environmental, Social, and Governance Disclosure and Firm Value.."

2. METHOD

This research employs a quantitative design with an associative approach to analyze the relationship between independent and dependent variables. The study is conducted on mining sector companies listed on the Indonesia Stock Exchange (IDX) during the 2020–2023 period. The research object focuses on firm value, measured by Price to Book Value (PBV) as the dependent variable, while the independent variables consist of environmental disclosure, social disclosure, and governance disclosure, which refer to the Global Reporting Initiative (GRI) indicators. In addition, firm size is used as a control variable, measured through the natural logarithm of total assets (Brigham & Houston, 2019; Sugiyono, 2022).

The population of this study includes all mining sector companies listed on the IDX, with the sample selected using a purposive sampling technique based on specific criteria, namely companies that published sustainability reports during the 2020–2023 period and

disclosed ESG aspects in accordance with GRI standards. The data used are secondary data in the form of financial statements, annual reports, and sustainability reports obtained through the official IDX website and the respective official company websites. Data collection was carried out through non-participant observation by reviewing official documents and supporting literature (Sugiyono, 2022; Christy & Sofie, 2023; Nisa et al., 2023).

Data analysis was conducted using panel data regression with the assistance of EViews 13 software. Descriptive statistics were employed to describe the data, followed by model selection through Chow, Hausman, and Lagrange Multiplier tests to determine the best model among common effect, fixed effect, or random effect. Furthermore, classical assumption tests such as multicollinearity and heteroscedasticity were conducted, followed by model feasibility testing using the F-test, and hypothesis testing using the t-test to examine the significance of the effect of each independent variable on firm value. The coefficient of determination (R^2) was also used to measure the extent to which the independent variables explain the variation in firm value (Basuki & Prawoto, 2016; Ghozali, 2018).

3. RESULTS AND DISCUSSION

Description of Research Data

Descriptive statistics are employed to provide a general overview of the characteristics of each variable examined, including the number of observations, minimum value, maximum value, mean, and standard deviation. The mean represents the central tendency of the data distribution, while the standard deviation indicates the degree of variation or dispersion of the data from the mean.

In this study, the measurement of ESG disclosure is based on the identification of material topics disclosed by each company. Consequently, the number of indicators used as the denominator in calculating the level of disclosure may vary across companies and years of observation. This variation arises because each company adopts different sustainability priorities in line with its operational characteristics and reporting policies. Thus, the ESG disclosure score is relative and adjusted to the number of relevant material topics, ensuring that the measurement reflects the actual level of disclosure made by the company in each research period. Furthermore, the control variable of firm size is measured using the natural logarithm of total assets, while firm value as the dependent variable is measured by the ratio of market price per share to book value per share. The results of the descriptive statistical analysis of the research variables are presented in the following table.

Table 1. Descriptive Statistics

	Environmental Disclosure (X1)	Social Disclosure (X2)	Governance Disclosure (X3)	Firm Size (X4)	Firm Value (Y)
Mean	0.659569	0.763584	0.810491	30.46849	2.543788
Median	0.666667	0.870833	0.898718	30.73643	1.319545
Maximum	1.000000	1.000000	1.000000	32.75780	23.94743
Minimum	0.000000	0.000000	0.276596	25.78128	0.025858
Std. Dev.	0.279720	0.259756	0.196080	1.491023	4.023188
Skewness	-0.406607	-1.072416	-0.688350	-0.996163	3.924235
Kurtosis	2.115204	3.198495	2.190995	3.735481	19.38216
Observations	102	102	102	102	102

Source: Processed secondary data, 2025

Table 1 shows that the number of samples (n) is 102. This indicates a total of 102 observational data, consisting of 35 companies listed on the Indonesia Stock Exchange (IDX) over the four-year research period. The variables of environmental disclosure, social disclosure, governance disclosure, firm size, and firm value were analyzed for the period 2020–2023.

Research Data Analysis

Panel Data Regression Model

Panel data is a combination of time series data and cross-sectional data (Basuki & Prawoto, 2016). To determine the most efficient method among the three regression models, namely the Common Effect Model (CEM), Fixed Effect Model (FEM), and Random Effect Model (REM), tests need to be conducted on each model using panel data regression estimation methods as follows.

1) Common Effect Model

The Common Effect Model (CEM) is a regression model that combines time series and cross-sectional data into one unit, without considering differences across time or individuals (entities). Estimation in this model is carried out using the Ordinary Least Square (OLS) method (Basuki & Prawoto, 2016). The estimation results are presented in the following table:

Table 2. Panel Data Regression ResultsCommon Effect Model

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	19.19176	8.529947	2.249927	0.0267
X1	0.194162	2.300066	0.084416	0.9329
X2	-3.281217	2.374657	-1.381765	0.1702
X3	-1.280217	2.830863	-0.452235	0.6521
X4	-0.434316	0.284259	-1.527888	0.1298
R-squared	0.100857	Mean dependent variable		2.543788
Adjusted R-squared	0.063778	SD dependent var		4.023188
SE of regression	3.892778	Akaike info criterion		5.603901
Sum squared residual	1469,911	Schwarz criterion		5.732576
Log likelihood	-280.7989	Hannan-Quinn criter.		5.656006
F-statistic	2.720112	Durbin-Watson stat		0.389633
Prob(F-statistic)	0.033957			

Source: Processed secondary data, 2025

Based on the regression results using the Common Effect Model (CEM), the constant value is 19.19176 with a probability of 0.0267. The regression equation with an Adjusted R^2 of 0.063778 indicates that the variation in firm value is explained by environmental disclosure, social disclosure, governance disclosure, and firm size by 6.37%, while the remaining 93.63% is influenced by other factors not examined in this study. Therefore, the assumption of using the Common Effect Model is not realistic in determining the effect of environmental, social, and governance disclosure on firm value.

2) Fixed Effect Model

Panel data estimation using the Fixed Effect Model is performed using a dummy variable technique to capture Panel data estimation using the Fixed Effect Model is conducted with the dummy variable technique to capture differences in intercepts among firms. These intercept differences may arise from variations in work culture, managerial style, or incentive systems in each firm. However, the slope values among firms are considered the same. This

model is commonly known as the Least Squares Dummy Variable (LSDV) method (Basuki & Prawoto, 2016). The calculation results are shown in the following table.

Table 3. Panel Data Regression ResultsFixed Effect Model

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	20.33648	15.44507	1.316698	0.1927
X1	6.733226	1.203077	5.596673	0.0000
X2	-6.390918	1.534550	-4.164685	0.0001
X3	-3.603336	1.584607	-2.273961	0.0264
X4	-0.473710	0.522712	-0.906255	0.3683
Effects Specification				
Cross-section fixed (dummy variables)				
R-squared	0.907458	Mean dependent variable		2.543788
Adjusted R-squared	0.851639	SD dependent var		4.023188
SE of regression	1.549639	Akaike info criterion		3.996789
Sum squared residual	151.2870	Schwarz criterion		5.000455
Log likelihood	-164.8362	Hannan-Quinn criter.		4.403207
F-statistic	16.25713	Durbin-Watson stat		2.333919
Prob(F-statistic)	0.000000			

Source: Processed secondary data, 2025

Based on the regression results using the Fixed Effect Model (FEM), the constant value is 20.33648 with a probability of 0.1927. The regression equation with an Adjusted R^2 of 0.851639 shows that variations in firm value are explained by environmental disclosure, social disclosure, governance disclosure, and firm size by 85.16%, while the remaining 14.84% is influenced by other factors not examined in this study. Thus, the assumption of using the Fixed Effect Model is considered realistic in explaining the effect of environmental, social, and governance disclosure on firm value.

3) Random Effect Model

The Random Effect Model is a method that estimates panel data where the disturbance variables (residuals) may be correlated across time and individuals (entities). This model assumes that the error term always exists and may be correlated throughout the time series and cross-sections. The approach used is the Generalized Least Square (GLS) method as the estimation technique (Basuki and Prawoto, 2016). The calculation results are presented in the table below:

Table 4. Regression Results of Panel Data Random Effect Model

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	20.52624	9.202854	2.230422	0.0280
X1	5.696111	1.155960	4.927601	0.0000
X2	-5.783810	1.406552	-4.112048	0.0001
X3	-3.109256	1.489526	-2.087414	0.0395
X4	-0.481955	0.311904	-1.545203	0.1256

Effects Specification	Elementary School	Rho
Random cross-section	3.422845	0.8299
Idiosyncratic random	1.549639	0.1701

Weighted Statistics			
R-squared	0.257594	Mean dependent variable	0.679218
Adjusted R-squared	0.226979	SD dependent var	1.927584
SE of regression	1.674313	Sum squared residual	271.9225
F-statistic	8.414064	Durbin-Watson stat	1.338728
Prob(F-statistic)	0.000007		
Unweighted Statistics			
R-squared	0.038909	Mean dependent variable	2.543788
Sum squared residual	1571,183	Durbin-Watson stat	0.231692

Source: Processed secondary data, 2025

Based on the regression results using the Random Effect Model (REM), it shows that there is a constant value of 20.52624 with a probability of 0.0280. The regression equation with an Adjusted R^2 value of 0.226979 explains that the variation in firm value is affected by environmental disclosure, social disclosure, governance disclosure, and firm size by 22.70%, while the remaining 77.30% is affected by other factors not examined in this study. Thus, the assumption of using the Random Effect Model is considered unrealistic in determining the effect of Environmental, Social, and Governance Disclosure on Firm Value.

Panel Data Regression Model Selection Test

a) Chow Test

The Chow Test is a method used to determine the most appropriate model between the Common Effect Model (CEM) and the Fixed Effect Model (FEM) in panel data estimation. The decision-making criteria are as follows:

b) If the probability value (p-value) for cross-section F > significance level of 0.05, then H_0 is accepted, so the appropriate model to be used is the Common Effect Model (CEM)

c) If the probability value (p-value) for cross-section F < significance level of 0.05, then H_0 is rejected, so the appropriate model to be used is the Fixed Effect Model (FEM).

Table 5. Chow Test Results

Effects Test	Statistics	df	Prob.
Cross-section F	16.150317	(34.63)	0.0000
Cross-section Chi-square	231.925413	34	0.0000

Source: Processed secondary data, 2025

The results of the Chow Test show that the probability value of cross-section F is 0.0000 < 0.05, meaning that H_0 is rejected. Thus, the most appropriate model in estimating the regression equation is the Fixed Effect Model (FEM). If the results of the Chow Test indicate the Fixed Effect Model, then the next step is to conduct the Hausman Test.

d) Hausman test

The Hausman Test is used to determine the most appropriate model between the Random Effect Model (REM) and the Fixed Effect Model (FEM) in panel data estimation. The basis for decision-making is as follows:

a) If the probability value (p-value) for cross-section random is greater than the significance level of 0.05, then H_0 is accepted, so the appropriate model to be used is the Random Effect Model (REM).

b) If the probability value (p-value) for cross-section random is smaller than the significance level of 0.05, then H_0 is rejected, so the appropriate model to be used is the Fixed Effect Model (FEM).

Table 6. Hausman Test Results

Correlated Random Effects - Hausman Test
Equation: Untitled
Cross-section random effects test

Test Summary	Chi-Sq. Statistic	Chi-Sq. df	Prob.
Random cross-section	15.127959	4	0.0044

Source: Processed secondary data, 2025

The results of the Hausman Test show that the probability value of cross-section random is 0.0044 < 0.05, meaning that H_0 is rejected. Thus, the most appropriate model in estimating the regression equation is the Fixed Effect Model (FEM).

Panel Data Regression Test

The panel data regression test is used to examine the extent and direction of the effect of the independent variables on the dependent variable. In this study, the independent variables consist of environmental disclosure (X1), social disclosure (X2), governance disclosure (X3), and the control variable firm size (X4). Meanwhile, the dependent variable used is firm value (Y), applying the Fixed Effect Model.

Table 7. Panel Data Regression

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	20.33648	15.44507	1.316698	0.1927
X1	6.733226	1.203077	5.596673	0.0000
X2	-6.390918	1.534550	-4.164685	0.0001
X3	-3.603336	1.584607	-2.273961	0.0264
X4	-0.473710	0.522712	-0.906255	0.3683

Source: Processed secondary data, 2025

Based on the results above, the panel data regression equation is as follows:

Y=20.3365+6.7332X1−6.3909X2−3.6033X3−0.4737X4+[CX=F]

Description:

Y = Firm Value
A = Constant
β_{1-4} = Regression coefficients
X_1 =Environmental Disclosure
X_2 =Social Disclosure
X_3 =Governance Disclosure
X_4 = Firm Size
[CX=F] = Fixed Effect in the panel data regression model

Based on the multiple linear regression equation, the effect of each independent variable on the dependent variable can be analyzed as follows:

1) The constant value of 20.3365 indicates that if Environmental Disclosure (X1), Social Disclosure (X2), Governance Disclosure (X3), and Firm Size (X4) are equal to zero, the firm value is estimated at 20.3365.

2) The coefficient of X1 (Environmental Disclosure) is 6.7332, showing a positive effect. This means that every increase in Environmental Disclosure by one unit will increase firm value by 6.7332, assuming other variables remain constant. This finding indicates that the higher the level of environmental disclosure by the company, the higher its firm value tends to be.

3) The coefficient of X2 (Social Disclosure) is -6.3909, indicating a negative effect. This means that every increase in Social Disclosure by one unit will decrease firm value by 6.3909,

assuming other variables remain constant. This suggests that, in the context of this study, social disclosure has an inverse relationship with firm value.

4) The coefficient of X3 (Governance Disclosure) is -3.6033, also indicating a negative effect. This means that every increase in Governance Disclosure by one unit will decrease firm value by 3.6033, assuming other variables remain unchanged. This finding suggests that the level of governance disclosure in the research sample has a negative relationship with firm value.

5) The coefficient of X4 (Firm Size) is -0.4737, showing a negative direction. This means that every increase in firm size by one unit will reduce firm value by 0.4737, assuming other variables remain constant. This finding shows that in the research sample, larger firms tend to have slightly lower firm value.

Classical Assumption Test

Based on the results of the model selection test, the most appropriate model is the Fixed Effect Model (FEM). Therefore, the next step is to perform a classical assumption test to ensure that the regression model used meets statistical requirements. According to Basuki & Yuliadi (2014), the classical assumption tests applied in this study include the multicollinearity test and the heteroskedasticity test.

1) Multicollinearity Test

The multicollinearity test aims to determine whether there is a strong correlation among the independent variables in the linear regression model. This test was conducted by examining the correlation coefficient values among the independent variables. If the correlation coefficient exceeds 0.80, it can be concluded that multicollinearity exists. Based on the calculations using EViews 13, all correlation coefficient values among the independent variables were below 0.80, indicating that the estimated model does not contain multicollinearity problems.

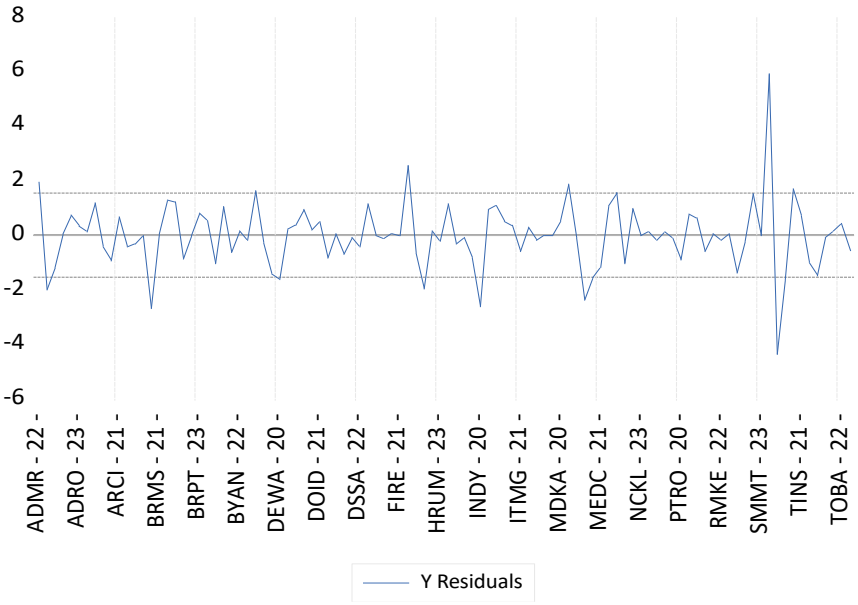
Table 8. Multicollinearity Test Results

	X1	X2	X3	X4
X1	1,000,000	0.729720	0.663816	0.368391
X2	0.729720	1,000,000	0.667031	0.155893
X3	0.663816	0.667031	1,000,000	0.229969
X4	0.368391	0.155893	0.229969	1,000,000

Source: Processed secondary data, 2025

Based on the EViews 13 output presented in the table above, all independent variables show correlation coefficient values below 0.80. Thus, it can be concluded that the model in this study is free from multicollinearity problems.

2) Heteroscedasticity Test



Source: Processed secondary data, 2025

Figure 1. Heteroscedasticity Test Results

Based on the residual plot (blue line), it can be observed that the residual values do not exceed the range of 500 and -500. This indicates that the variance of residuals across observations is constant (homoskedasticity). Therefore, it can be concluded that there are no heteroskedasticity symptoms, and the model successfully passes the heteroskedasticity test (Napitupulu et al., 2021).

Coefficient of Determination Test (R^2)

The coefficient of determination (R^2) is used to measure the extent to which the independent variables are able to explain the variation of the dependent variable. In this study, the test was conducted using the Adjusted R-Squared value in the regression model. Adjusted R-Squared indicates the proportion of changes in the dependent variable that can be explained by changes in the independent variables in the model, while taking into account the number of variables used. The greater the coefficient of determination value (closer to one), the stronger the relationship between the independent and dependent variables. The results of the coefficient of determination test (R^2) are presented in the following table.

Table 9. Coefficient of Determination Test (R^2)

R-squared	0.907458	Mean dependent variable	2.543788
Adjusted R-squared	0.851639	SD dependent var	4.023188
SE of regression	1.549639	Akaike info criterion	3.996789
Sum squared residual	151.2870	Schwarz criterion	5.000455
Log likelihood	-164.8362	Hannan-Quinn criter.	4.403207
F-statistic	16.25713	Durbin-Watson stat	2.333919
Prob(F-statistic)	0.000000		

Source: Processed secondary data, 2025

Based on the test results shown in Table 8, the adjusted R^2 value obtained is 0.851639 or equivalent to 85%. This indicates that 85% of the variation in firm value can be explained by the independent variables used in this study, namely environmental disclosure (X1), social disclosure (X2), governance disclosure (X3), and firm size (X4). The remaining 15% is influenced by other variables outside the regression model that were not analyzed in this study.

Model Feasibility Test (F Test)

The F-test is used to determine whether all independent variables simultaneously affect the dependent variable. The test is conducted at a significance level of 0.05.

Based on the data processing results using EViews 13, the following results were obtained:

Table 10. Model Feasibility Test (F Test)

R-squared	0.907458	Mean dependent variable	2.543788
Adjusted R-squared	0.851639	SD dependent var	4.023188
SE of regression	1.549639	Akaike info criterion	3.996789
Sum squared residual	151.2870	Schwarz criterion	5.000455
Log likelihood	-164.8362	Hannan-Quinn criter.	4.403207
F-statistic	16.25713	Durbin-Watson stat	2.333919
Prob(F-statistic)	0.000000		

Source: Processed secondary data, 2025

Based on the F-statistical test results, the F-value is 16.25713 with a significance level of 0.000000, which is smaller than $\alpha = 0.05$ (0.000000 < 0.05). This finding indicates that Environmental Disclosure (X1), Social Disclosure (X2), Governance Disclosure (X3), and the control variable Firm Size (X4) simultaneously have a significant effect on Firm Value (Y). Thus, the regression model used in this study is feasible to explain the relationship between the independent and dependent variables. This result also suggests that improving the quality of environmental, social, and governance disclosures, as well as managing firm size, collectively has the potential to increase firm value.

Partial Test (t-Test)

The t-test is used to examine the significance of the constant and each independent variable. Based on the EViews version 13 output, the results are as follows:

Table 11. Partial Test (t-Test)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	20.33648	15.44507	1.316698	0.1927
X1	6.733226	1.203077	5.596673	0.0000
X2	-6.390918	1.534550	-4.164685	0.0001
X3	-3.603336	1.584607	-2.273961	0.0264
X4	-0.473710	0.522712	-0.906255	0.3683

Source: Processed secondary data, 2025

Based on the table above, the results of the t-test (the effect of each independent variable X on Y) are as follows:

a) If p (probability) > 0.05, the result is not significant

b) If p (probability) < 0.05, the result is significant.

From the t-test results, the following conclusions can be drawn:

1) Environmental Disclosure Variable (X1) has a t-statistic value of 5.596673 with a significance level of 0.0000 < α (0.05). This means that, partially, this variable has a significant effect on firm value. Thus, every increase in environmental disclosure made by the company will increase firm value. Therefore, the first hypothesis is accepted.

2) Social Disclosure Variable (X2) has a t-statistic value of -4.164685 with a significance level of 0.0001 < α (0.05). This indicates that, partially, social disclosure has a significant effect on

firm value but in a negative direction. In other words, the higher the level of social disclosure by the company, the lower the firm value. Therefore, the second hypothesis is rejected.

3) Governance Disclosure Variable (X3) has a t-statistic value of -2.273961 with a significance level of 0.0264 < α (0.05). This means that, partially, governance disclosure has a significant effect on firm value but in a negative direction. In other words, the greater the governance disclosure by the company, the lower the firm value. Therefore, the third hypothesis is rejected.

4) Firm Size Variable (X4) has a t-statistic value of -0.906255 with a significance level of 0.3683 > α (0.05). This means that, partially, firm size does not have a significant effect on firm value. Thus, the size of the company does not directly affect firm value.

Discussion of Research Results

The discussion of research results is divided into several subsections based on the research hypotheses.

The Effect of Environmental Disclosure on Firm Value

Based on the results of testing using panel data regression analysis, it is stated that environmental disclosure has a positive effect on firm value. It can be concluded that the first hypothesis (H1) is accepted. This means that the more comprehensive the environmental disclosure made by the company, the higher the firm value in the eyes of investors and stakeholders.

This research was conducted on companies in the mining sector, where in carrying out operational activities to meet the needs and expectations of stakeholders, companies cannot be separated from the potential to cause environmental impacts such as pollution, ecosystem damage, and exploitation of natural resources. Therefore, the disclosure of information related to environmental protection efforts, land rehabilitation, and energy efficiency becomes an important factor that can enhance corporate reputation. This positive reputation is then interpreted by the market as added value, thereby contributing to the increase in firm value.

This research is in line with agency theory and signaling theory. Agency theory explains that in the relationship between managers (agents) and shareholders (principals), conflicts of interest often arise due to information asymmetry, where managers have broader information regarding the company's condition compared to shareholders. In this study, environmental disclosure serves as an important instrument to reduce such information asymmetry by increasing corporate transparency and accountability, thereby minimizing potential agency conflicts and ensuring that shareholders' interests are maintained. In line with agency theory, signaling theory also reinforces these findings by emphasizing that environmental disclosure represents a positive signal given by companies to the market. Through comprehensive environmental disclosure, companies not only demonstrate compliance with regulations and stakeholder demands but also communicate a long-term commitment to sustainability, thereby enhancing reputation and attracting investor trust. Thus, environmental disclosure can be viewed as a strategic effort by companies to reduce information asymmetry while simultaneously providing positive signals to the market, ultimately contributing to the increase in firm value.

The results of this study are consistent with previous studies by Sebayang & Surbakti (2023), Wau (2023), and Mutiah & Rusmanto (2023), which concluded that environmental disclosure affects firm value. Based on the results obtained and reviewed from theories, expert opinions, and prior studies concerning the effect of ESG disclosure on firm value, the authors conclude that environmental disclosure has a significantly positive effect on firm value in mining sector companies listed on the Indonesia Stock Exchange (IDX) during the 2020–2023 period.

The Effect of Social Disclosure on Firm Value

Based on the results of panel data regression analysis, this study finds that social disclosure has a significant negative effect on firm value. Thus, the second hypothesis (H2) is rejected. This result indicates that the broader the social disclosure carried out by companies, the more it is followed by a decline in firm value. This suggests that the market has not responded positively to social information disclosure, but rather perceives it as a cost burden that reduces resource efficiency and suppresses profitability, thereby negatively impacting firm value.

This finding contradicts agency theory. From the agency theory perspective, social disclosure is perceived as an agency cost because funds allocated for social activities do not provide direct benefits to shareholders. Furthermore, information asymmetry makes it difficult for investors to distinguish whether social disclosure truly reflects a company's commitment to sustainability or is merely a management strategy to build corporate image (Puteri, 2017). This finding also contradicts signaling theory, which posits that social disclosure should act as a positive signal that generates favorable investor responses toward firm value. In contrast to this theory, excessive social disclosure may create ambiguous signals for investors. Instead of being perceived as corporate responsibility toward sustainability, such disclosure may be interpreted by the market as image-building strategies, leading to risk perceptions and negatively affecting firm value (Asogwa et al., 2020; Rosyid et al., 2022).

The findings of this study are consistent with several previous studies. Abdi et al. (2022) found that social disclosure actually decreases the market-to-book ratio of firms. Rosyid et al. (2022) also stated that signaling theory has not been fully applicable in Indonesia because investors have not utilized social information in making investment decisions, thereby causing firm value to decline when companies disclose more social information. The study by Asogwa et al. (2020) even emphasized that when companies are too aggressive in disclosing social information such as CSR, investors perceive it as risky since companies are considered not focused on their main objective, which is maximizing shareholder wealth. This is supported by Lanjaryanto & Riwayati (2025), who argue that social initiatives require significant costs that reduce short-term profitability. As investors are oriented toward short-term profitability, social activities are perceived as costly expenditures that do not provide direct benefits and do not enhance firm value.

Based on the findings of this study and a review of theories, opinions, and prior research on the effect of social disclosure on firm value, it can be concluded that social disclosure has a significant negative effect on firm value in mining sector companies listed on the Indonesia Stock Exchange (IDX) during the 2020–2023 period.

The Effect of Governance Disclosure on Firm Value

Based on the results of panel data regression testing, it was found that governance disclosure has a significant negative effect on firm value, thus the third hypothesis (H3) is rejected. This shows that the broader the governance disclosure conducted by mining sector companies, the more it is followed by a decline in firm value.

The results of this study are not consistent with agency theory, which, from its perspective, assumes that governance disclosure can reduce the information asymmetry between agents and principals. Excessively detailed disclosure tends to create uncertainty for investors, as it is difficult to distinguish whether governance practices truly reflect the company's commitment or are merely a formality. This is supported by research by Suretno et al. (2022), which stated that corporate governance practices tend to be carried out merely as a formality to comply with government regulations, and thus have not been optimally implemented to enhance firm value. These findings are also not in line with signaling theory, which assumes that governance disclosure should represent a positive signal expected to

generate positive investor responses toward firm value. Disclosure perceived as regulatory compliance may lose credibility and fail to provide a positive signal for investors (Prabawati & Rahmawati, 2022; Prayogo et al., 2023; Suretno et al., 2022). Prior studies also show that governance practices that are merely formal or voluntary are not always appreciated by the market and investors, and therefore, increased governance disclosure does not guarantee an increase in firm value (Difa & Larasati, 2024; Mutmainah, 2015).

Based on the findings of this study and a review of theories, opinions, and previous research regarding the effect of governance disclosure on firm value, it can be concluded that governance disclosure has a significant negative effect on firm value in mining sector companies listed on the Indonesia Stock Exchange (IDX) during the 2020–2023 period.

4. CONCLUSION

Based on the results and discussion regarding The Effect of Environmental, Social, and Governance Disclosure on Firm Value in Mining Firms Listed on the Indonesia Stock Exchange (IDX) for the 2020–2023 Period, the following conclusions can be drawn:

1) Environmental disclosure has a positive effect on firm value. This indicates that transparent and relevant environmental information disclosure can enhance investor trust and create a positive perception of the firm.
2) Social disclosure has a negative effect on firm value. This suggests that excessive or less credible social disclosure may generate negative perceptions and reduce firm value.
3) Governance disclosure has a negative effect on firm value. This shows that ineffective or merely formal governance disclosure may diminish investor confidence and negatively impact firm value.

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