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The Effect of Corporate Social Responsibility, Profitability, and Capital Structure on Firm Value in Coal Mining Sub-Sector Companies Listed on the Indonesia Stock Exchange

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Abstract

Sustainable companies do not focus solely on economic activities but also integrate social and environmental dimensions. This study aims to examine the effect of corporate social responsibility (CSR), profitability, and capital structure zon firm value in companies in the coal mining sub-sector, both partially and simultaneously. A quantitative descriptive approach is employed, with data collected using a documentation technique. Firm value is proxied by price to book value (PBV); CSR is measured using economic, social, and environmental indicators based on GRI G4; profitability is proxied by return on investment (ROI); and capital structure is measured by the debt to equity ratio (DER). The results show that, partially, CSR and profitability have a significant effect on firm value, whereas capital structure does not. Furthermore, CSR, profitability, and capital structure jointly have a significant effect on firm value.

Keywords: Corporate Social Responsibility, Profitability, Capital Structure, Firm Value, companies in the coal mining sub-sector

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1. Introduction

The primary objective of a company is to maximise profit in order to enhance shareholders' wealth (Syaifuddin et al., 2015). However, for firms that have gone public, the long-term objective shifts toward maximising firm value (Fajriana, 2016). Firm value reflects investors' perceptions of the company's level of success and forms the basis for the price they are willing to pay for its shares (Husnan, 2019; Kusumajaya, 2011). On the other hand, companies are not only required to disclose information related to profit and shareholder welfare, but are also expected to report on their corporate social responsibility (CSR) activities (Deegan, 2014). Accordingly, CSR disclosure becomes an aspect that cannot be ignored. CSR represents corporate actions aimed at maximising shareholder value through ethical business practices that contribute to the environment, the economy, and broader social welfare (Rachman et al., 2011).

Various financial aspects of a firm influence its value, one of which is profitability. Profitability measures the firm's ability to generate earnings and thus reflects the effectiveness of managing sales and investments (Husnan, 2019; Kasmir, 2019). Information on the level of profitability serves as a key indicator for investors in assessing the extent to which the funds they have invested are likely to yield returns that are commensurate with their risk preferences and return expectations. From a signalling-theory perspective, firms can enhance their value by conveying credible signals to investors through profitability information, thereby shaping investors' expectations regarding the firm's future business prospects (Ayu & Suarjaya, 2017).

Increases in profitability provide firms with greater room to rely on retained earnings as a source of financing, while at the same time expanding their flexibility to combine retained earnings and debt in their capital structure. Capital structure itself consists of long-term debt and equity (Riyanto, 2010). An optimal capital structure should balance risk and return. Consequently, corporate capital structure decisions must carefully consider the trade-off between risk and expected return, as an increase in the proportion of debt will be accompanied by an increase in the rate of return expected by the firm (Mudjijah et al., 2019).

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Publicly listed coal mining sub-sector companies provide a highly relevant empirical context for examining the interrelationships among profitability, corporate social responsibility (CSR), and capital structure, given the extractive, capital-intensive, and high-risk nature of the industry, as well as its strong exposure to regulatory and public scrutiny. In this sub-sector, financing decisions involving debt and equity determine the firm's risk profile, investment flexibility, and capacity to generate earnings and fund sustainability programmes. Studies on mining companies listed on the Indonesia Stock Exchange indicate that firm value is consistently influenced by a combination of profitability, firm size, and capital structure, although the effect of leverage on value is not always consistent (Mayangsari et al., 2020). Furthermore, evidence from firms in the mining sector shows that capital structure, firm growth, and profitability directly contribute to firm value, underscoring that leverage decisions are a crucial dimension in managing risk and return in resource-based industries (Kanya, 2025). At the same time, empirical findings on publicly listed firms in Indonesia suggest that financing decisions and profitability, when combined with CSR disclosure, affect firm value, indicating that social and environmental commitment is not merely a matter of legitimacy but also an integral component of corporate financial strategy (Octavia et al., 2022).

Table 1. Preliminary Data on CSR, Profitability, Capital Structure, and Firm Value for Selected Coal Mining Sub-Sector Companies, 2018–2020

Company Code	Firm Value (PBV)			CSR (CSRDIj – GRI 4)			Profitability (ROI)			Capital Structure (DER)		
	18	19	20	18	19	20	18	19	20	18	19	20
ADRO	6.34	8.79	8.21	0.63	0.69	0.67	0.068	0.060	0.024	0.6	0.8	0.6
BUMI	1.11	0.61	2.52	0.63	0.67	0.72	0.04	0.001	-0.09	6.76	6.20	24.8
GTBO	0.86	0.65	-	-	-	-	0.04	-0.07	-	0.22	0.29	-
PKPK	0.58	2.76	1.56	-	-	-	-0.03	-0.58	0.003	1.3	4.0	0.67

Source: www.idx .com, 2022 (processed data; authors' calculation)

Table 1 illustrates a gap phenomenon in the coal mining sub-sector, where movements in firm value measured by price to book value (PBV) are not always linear with profitability, capital structure, and CSR. Specifically, an inconsistency is observed in BUMI, which recorded the highest firm value (PBV = 2.52) in 2020 despite posting negative profitability (−0.09). Conversely, ADRO exhibits a consistently declining profitability trend from 2018 to 2020 while maintaining a relatively stable firm value. Furthermore, issuers experiencing financial distress such as GTBO (suspended) and PKPK do not disclose CSR, yet still display their own pattern of market value volatility. These inconsistencies are in line with prior empirical evidence: some studies find that CSR, profitability, and capital structure have a positive effect on firm value (Rizaldi et al., 2014), whereas others report that CSR and profitability and/or capital structure are insignificant or even reduce firm value (Ilyas & Hertati, 2022; Wahyuni, 2018). The contradictory patterns among profitability, capital structure, CSR, and firm value in this sub-sector indicate a potential anomaly that warrants further empirical investigation.

2. Literature Review

2.1 Corporate Social Responsibility

Corporate social responsibility (CSR) refers to corporate actions aimed at maximising shareholder value by conducting business in an ethical manner and contributing to environmental quality, economic development, and societal welfare (Zarlia & Salim, 2014). CSR is implemented through programmes that operationalise the firm's social obligations to the wider community (Rachman et al., 2011). It also reflects a long-term corporate commitment to addressing specific social or environmental issues in order to create a better living environment (Said, 2018). CSR can be measured through the implementation and disclosure of performance indicators based on the Sustainability Reporting Guidelines issued by the Global Reporting Initiative (GRI, 2013), namely economic performance, environmental performance, and social performance (Deegan, 2014). Accordingly, CSR in this study is defined as the firm's social responsibility towards the community and its surrounding environment to maximise shareholder value through ethical business practices, as operationalised by the disclosure of economic, environmental, and social performance.

2.2 Profitability

Profitability is a ratio used to assess a company's ability to generate profit over a given period and to provide a measure of managerial effectiveness, as reflected in earnings derived from sales or investment income (Kasmir, 2019). It measures the firm's capacity to generate profit at a given level of sales, assets, and equity (Hanafi & Halim, 2018; Husnan, 2019). One of the key indicators of profitability is return on investment (ROI), a ratio that shows the profit earned relative to the total assets employed and provides an overall measure of the effectiveness of the firm's operations (Horne et al., 2019; Kasmir, 2019). Accordingly, in this study profitability is defined as the ratio that captures the effectiveness of management in coal mining sub-sector companies in generating profit over a certain period using the assets or capital employed—whether equity or total capital—as proxied by ROI. A higher ROI indicates more effective operational performance, which in turn is expected to increase investor interest in investing in the company.

2.3 Capital Structure

Capital structure is defined as permanent financing reflected in the proportion between equity and long-term debt (Riyanto, 2010). It represents the composition of a firm's long-term permanent financing, typically consisting of debt, preferred stock, and common equity (Effendi, 2017; Horne et al., 2019). In another view, capital structure refers to the dominant sources of funds employed by a firm—whether debt or equity—which ultimately determine the financing composition reported in the statement of financial position (Ikatan Akuntan Indonesia, 2019). One of the key measures of capital structure is the debt to equity ratio (DER), which indicates the extent to which a company relies on debt financing relative to equity financing (Horne et al., 2019). Accordingly, in this study capital structure is defined as the firm's long-term financing used to meet its investment and funding needs, originating from long-term debt and/or equity (common shares, preferred shares, and retained earnings), and is operationalised using the debt to equity ratio, which compares the proportion of debt to equity in the firm's financing structure.

2.4 Firm Value

Firm value represents investors' perception of a company's level of success and is often associated with its share price (Kusumajaya, 2011). Another perspective defines firm value as the price that prospective buyers are willing to pay if the company were to be sold (Husnan, 2019). For publicly listed firms, firm value is reflected in the market price of the company's shares, whereas for non-listed firms, value is realised when the company is sold, taking into account total assets, business prospects, business risk, operating environment, and other relevant factors (Margaretha, 2005, in Rahayu & Sari, 2018). One commonly used proxy for firm value is the price to book value (PBV) ratio, which compares a company's market price per share with its book value per share (Rahayu & Sari, 2018). Accordingly, in this study firm value is defined as investors' perception of the firm's success as reflected in its market share price and is measured using PBV.

Enhancing firm value is one of the key long-term objectives of companies in order to maximise shareholder wealth. However, firm value alone is no longer considered sufficient to ensure long-term corporate sustainability; firms are increasingly expected to be grounded in the triple bottom line, which incorporates CSR performance in terms of economic, environmental, and social dimensions (Zarlia & Salim, 2014). Prior studies by Fajriana (2016) and Rizaldi et al. (2014) provide evidence that CSR has a positive effect on firm value. Profitability, in turn, provides a measure of the effectiveness of corporate management, as reflected in profits generated from sales and investment income (Kasmir, 2019). Higher profitability signals greater shareholder wealth and more promising business prospects, which are likely to be interpreted by investors as a positive signal and consequently increase firm value through higher stock prices. This is consistent with the findings of Zarlia and Salim (2014) and Kusumajaya (2011) and Suprayogi and Kuncoro (2020), who document a positive effect of profitability on firm value.

Meanwhile, capital structure is also recognised as one of the factors that may influence firm value (Atmaja, 2020). Empirical evidence from Mudjijah et al. (2019) and Atmaja (2020) shows that capital structure has a positive effect on firm value, suggesting that decisions regarding the mix of debt and equity financing play an important role in shaping market perceptions of the firm.

Based on the foregoing discussion, this study aims to examine the effect of CSR, profitability, and capital structure on firm value. The conceptual framework and research hypotheses are developed accordingly.

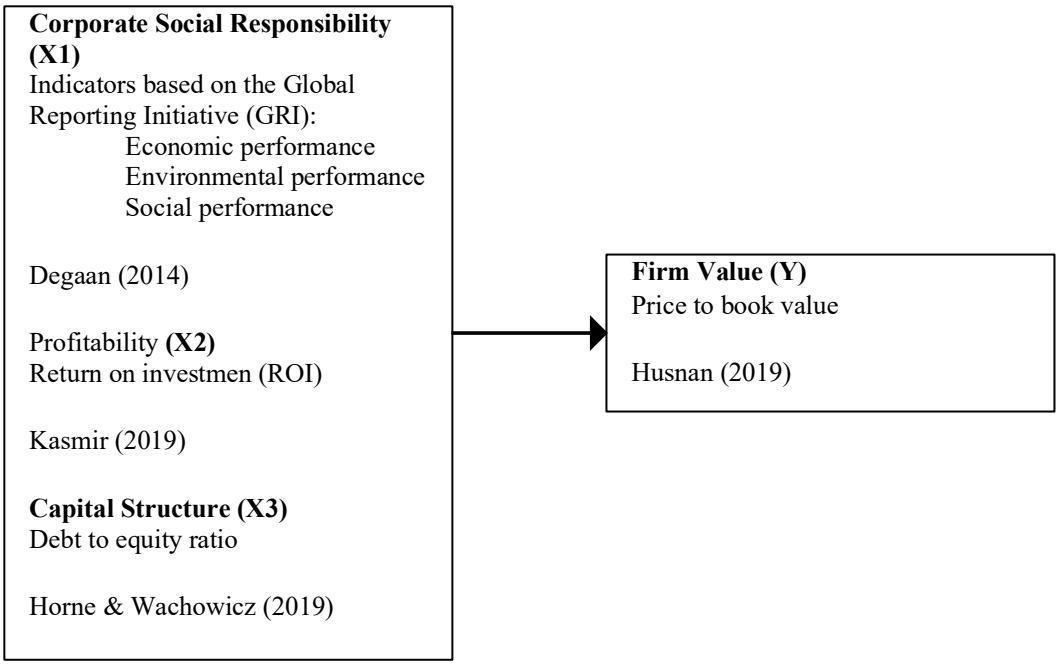

Figure 1. Conceptual Framework

Hypothesis Development
H1: Corporate social responsibility (CSR) has a positive effect on firm value.
H2: Profitability has a positive effect on firm value.
H3: Capital structure has a positive effect on firm value.
H4: CSR, profitability, and capital structure jointly have a positive effect on firm value.

3. Research Method

This study adopts a quantitative approach and aims to examine the effect of the independent variables on the dependent variable, both partially and simultaneously. The independent variables consist of: (1) corporate social responsibility (CSR), measured using a disclosure index based on the Global Reporting Initiative (GRI) guidelines; (2) profitability, proxied by return on investment (ROI); and (3) capital structure, proxied by the debt to equity ratio (DER). The dependent variable is firm value, measured by price to book value (PBV).

The population of this study comprises all coal mining sub-sector companies listed on the Indonesia Stock Exchange (IDX) during the period 2018–2020, totalling 22 firms. The sample was selected using a purposive sampling technique based on the following criteria (Sugiyono, 2020): (1) the company was listed on the IDX throughout the observation period 2018–2020; (2) it published annual reports; (3) it disclosed CSR reports or CSR-related information; and (4) it did not report losses during the observation period. Based on these criteria, 12 companies were selected as the sample, yielding 36 firm-year observations. The study uses secondary data in the form of annual reports and CSR disclosures obtained through documentation from the official IDX website (www.idx.co.id).

The data were analysed using multiple linear regression with the assistance of SPSS version 26. The empirical tests were conducted through the following stages:

Table 2. Research Testing Procedures

Testing Stage	Type of Test	Description
Descriptive Statistics	Mean, standard deviation, minimum, maximum	Provide a concise summary of the distribution of each variable (Gunawan, 2015)
Classical Assumption Tests	Normality, multicollinearity (VIF, tolerance), heteroskedasticity (scatterplot), autocorrelation (Durbin–Watson test)	Ensure that the regression model satisfies the BLUE (Best Linear Unbiased Estimator) assumptions (Ghozali, 2021)
Regression Analysis	Multiple linear regression	Examine the dependence of the dependent variable on the independent variables. Model: $Y = B_0 + B_1X_1 + B_2X_2 + B_3X_3 + e$ (Ghozali, 2021)
Model Goodness-of-Fit	Coefficient of determination (R^2), ANOVA significance test (F-test), individual parameter significance test (t-test)	Assess the accuracy of the sample regression function in estimating the actual values (Ghozali, 2021)

Source: Gunawan (2015); Ghozali (2021)

4. Result and Discussion

4.1 Result

4.1.1 Descriptive Statistics

Descriptive statistics were employed to provide a summary of the data without drawing generalisations or inferences. In this study, the descriptive analysis reports the minimum, maximum, mean, and standard deviation for each variable. The descriptive statistics for all variables are presented in Table 3.

Table 3. Results of Descriptive Statistical Analysis

Variable	N	Min	Max	Mean	Std. Deviation
Corporate Social Responsibility	36	0.319	0.725	0.556	0.089
Profitability	36	0.003	0.456	0.124	0.093
Capital Structure	36	0.097	1.907	0.713	0.477
Firm Value	36	0.288	8.590	2.227	2.213

Source: Processed data using SPSS 26 for Windows

Based on Table 3, all variables are observed for 36 firm-year observations representing 12 coal mining sub-sector companies over the period 2018–2020. The level of corporate social responsibility (CSR) has a mean of 0.556 with a standard deviation of 0.089, indicating that CSR disclosure is at a medium–high level and relatively homogeneous across firms. Profitability, proxied by return on investment (ROI), has an average value of 0.124 with a range of 0.003–0.456 and a standard deviation of 0.093, suggesting substantial variation in earnings performance. Capital structure, measured by the debt to equity ratio (DER), shows an average of 0.713 with a range of 0.097–1.907, implying that, on average, firms rely more on equity than on debt, although leverage policies differ considerably across companies. Firm value, proxied by price to book value (PBV), has a mean of 2.227 with a range of 0.288–8.590 and a standard deviation of 2.213, indicating substantial heterogeneity in market valuation, from firms traded below their book value to those highly valued by investors.

4.1.2 Classical Assumption Tests

Classical assumption tests are required to determine whether the data analysis for hypothesis testing can be validly continued (Gunawan, 2015). In this study, the classical assumption tests conducted are as follows.

4.1.2.1 Normality Test

Normality testing was conducted to determine whether the data used in the study are normally distributed. The normality test employed the skewness and kurtosis statistics using SPSS version 26. The data are considered normally distributed when the skewness and kurtosis ratios fall within the range of −1.96 to 1.96. The results of the skewness–kurtosis normality test are presented as follows.

Table 4. Results of Skewness and Kurtosis Normality Test

Description	N Statistic	Skewness			Kurtosis		
		Statistic	Std. Error	$Z_{Skewness}$	Statistic	Std. Error	$Z_{Kurtosis}$
Unstandardized Residual	36	1.700	0.393	4.331	2.649	0.768	3.449

Source: Processed data using SPSS 26 for Windows

Based on Table 4, the Z-skewness value of 4.331 and the Z-kurtosis value of 3.449 lie outside the ±1.96 range, indicating that the data are not normally distributed. Consequently, the normality assumption for parametric analysis is not satisfied, and normality was further examined using the non-parametric one-sample Kolmogorov–Smirnov test, which is more appropriate for ratio-scale data that deviate from normality. The results of the Kolmogorov–Smirnov test are presented in the following table.

Table 5. Results of One-Sample Kolmogorov–Smirnov Normality Test

Variable	Asymp.Sig	Significance	Description
Unstandardized Residual	0.200	0.05	Normal

Source: Processed data using SPSS 26 for Windows

Based on Table 5, the asymptotic significance value of 0.200 is greater than the 0.05 significance level, indicating that the residuals are normally distributed

4.1.2.2 Multicollinearity Test

The multicollinearity test is conducted to detect the presence of perfect or near-perfect linear relationships among the independent variables in the regression model, which may lead to multicollinearity problems and distort the estimation of regression coefficients. The results of the multicollinearity test are presented in the following table.

Table 6. Results of Multicollinearity Test

Model	*Collinearity Statistics*	
	Tolerance	VIF
Corporate social responsibility	0.889	1.125
Profitability	0.809	1.237
Capital Structure	0.821	1.219

Source: Processed data using SPSS 26 for Windows

Based on Table 6, the multicollinearity test shows that all independent variables have tolerance values above 0.10 and VIF values below 10. The CSR variable has a tolerance of 0.889 and a VIF of 1.125; profitability has a tolerance of 0.809 and a VIF of 1.237; and capital structure has a tolerance of 0.821 and a VIF of 1.219. These results indicate that the regression model in this study is free from multicollinearity problems.

4.1.2.3 Heteroskedasticity Test

A good regression model is characterised by homoskedasticity (Ghozali, 2021). The heteroskedasticity test is conducted to examine whether there are differences in the variance of the residuals across observations. In this study, heteroskedasticity was assessed by inspecting the pattern of residuals in a scatterplot: if the residual points are

randomly dispersed and do not form a specific pattern, it can be concluded that heteroskedasticity is not present. The results of the heteroskedasticity test are presented in the following figure.

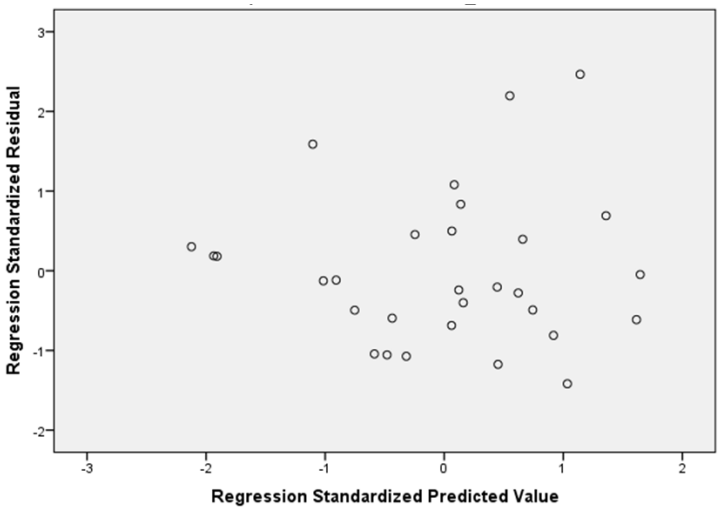

Figure 2 Results of Heteroskedasticity Test

Based on Figure 2, the pattern of residuals in the scatterplot appears randomly dispersed above and below the horizontal axis without forming any discernible pattern or clustering. This indicates that the variance of the residuals is relatively constant, so it can be concluded that the regression model in this study does not suffer from heteroskedasticity and is appropriate for further analysis.

4.1.2.4 Autocorrelation Test

The autocorrelation test is carried out to examine whether there is a correlation between the residuals in period t and those in period t−1 in the linear regression model (Ghozali, 2021). In this study, autocorrelation is tested using the Durbin–Watson (DW) statistic by comparing the estimated DW value with the lower (dL) and upper (dU) bounds of the Durbin–Watson table. The results of the autocorrelation test are presented in the following table.

Table 7. Results of Durbin–Watson Autocorrelation Test

Model	Durbin-Watson	K=3, n=36	
		dL	dU
1	1.611	1.2953	1.6539

Source: Processed data using SPSS 26 for Windows

Based on Table 7, the Durbin–Watson (DW) statistic is 1.611. With a 5% significance level, 36 observations (n = 36), and three independent variables (k = 3), the lower and upper critical values from the Durbin–Watson table are dL = 1.2953 and dU = 1.6539, respectively. Since the DW value lies between dL and dU (1.2953 < 1.611 < 1.6539), the test result falls into the inconclusive region, so no definitive conclusion can be drawn regarding the presence of autocorrelation. Therefore, autocorrelation is further examined using the non-parametric runs test as an additional procedure. The results of the runs test are presented in the following table.

Table 8. Results of Runs Test for Autocorrelation

Variable	Asymp.Sig	Significance	Description
Unstandardized Residual	0.353	0.05	No autocorrelation

Source: Processed data using SPSS 26 for Windows

Based on Table 8, the asymptotic significance value of the runs test is 0.353, which is higher than the 0.05 significance level. Accordingly, the residuals are considered free from autocorrelation and the model is not affected by autocorrelation problems.

4.1.3 Multiple Linear Regression Analysis

Multiple linear regression analysis is employed to examine the effect of the independent variables—corporate social responsibility, profitability, and capital structure—on the dependent variable, namely firm value. The results of the multiple linear regression model are presented in the following table.

Table 9. Results of Multiple Linear Regression Analysis

Model	*Unstandardized Coefficients*	
	B	***Std. Error***
Constant	-3.813	2.447
Corporate Social Responsibility	9.053	4.078
Profitability	9.707	3.992
Capital Structure	-0.212	0.770

Source: Processed data using SPSS 26 for Windows

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

$$Y=-3.813+9.053X_1+9.707X_2-0.212X_3+e$$

Where Y denotes firm value, X_1 corporate social responsibility, X_2 profitability, and X_3 capital structure. The constant of −3.813 represents the predicted firm value when all independent variables are equal to zero; economically, this term mainly serves as the intercept of the model and does not necessarily reflect a realistic condition. The CSR coefficient of 9.053 indicates that a one-unit increase in CSR is associated with an increase in firm value of 9.053, holding other variables constant. The profitability coefficient of 9.707 implies that a one-unit increase in profitability raises firm value by 9.707, ceteris paribus. By contrast, the capital structure coefficient is −0.212, meaning that a one-unit increase in leverage (DER) reduces firm value by 0.212, assuming other independent variables remain unchanged, so capital structure exerts a negative effect on firm value.

4.1.4 Model Goodness-of-Fit

4.1.4.1 Coefficient of Determination (R^2)

The coefficient of determination (R^2) is used to assess the goodness-of-fit of the model, specifically the extent to which the independent variables are able to explain the variation in the dependent variable. The value of R^2 ranges from 0 to 1; the closer it is to 1, the greater the proportion of the variance in the dependent variable that is explained by the independent variables, and the better the explanatory power of the model. The results of the R^2 test are presented below.

Table 10. Results of Coefficient of Determination (R^2) Test

Model	**R**	**R *Square***	***Adjusted* R *Square***	***Std. Error of the Estimate***
1	0.470	0.221	0.148	2.042898

Source: Processed data using SPSS 26 for Windows

Based on Table 10, the R^2 value of 0.221 indicates that 22.1% of the variation in firm value is jointly explained by corporate social responsibility (X_1), profitability (X_2), and capital structure (X_3). The remaining 77.9% of the variation in firm value is attributable to other factors outside the scope of this research model.

4.1.4.2 ANOVA Significance Test (F-test)

The F-test is used to assess whether the independent variables jointly have a statistically significant effect on the dependent variable at the 5% significance level ($\alpha = 0.05$). The model is considered significant if the F significance value is less than 0.05 or if $F_{calculated} > F_{critical}$, indicating that the independent variables simultaneously exert a significant influence on the dependent variable. The results of the F-test are presented in the following table.

Table 11. Results of ANOVA Significance Test (F-test)

Model		F	Sig	$F_{critical}$ (3;33)
1	Regression	3.026	0.044	2.892

Source: Processed data using SPSS 26 for Windows

Based on Table 11, the calculated F-statistic of 3.026 exceeds the critical value of 2.892 and the significance value of 0.044 is below 0.05. Thus, the regression model is statistically significant as a whole, indicating that corporate social responsibility, profitability, and capital structure jointly exert a significant effect on firm value in coal mining sub-sector companies listed on the Indonesia Stock Exchange over the 2018–2020 period.

4.1.4.3 Individual Parameter Significance Test (t-test)

The t-test is used to assess the partial effect of each independent variable on the dependent variable at the 5% significance level ($\alpha = 0.05$). An independent variable is considered to have a significant effect when its significance value is less than 0.05 or when the calculated t-value exceeds the critical t-value. The results of the t-test are presented in the following table.

Table 12. Results of Individual Parameter Significance Test (t-test)

Variable	t	Sig	$t_{critical}$ (0.025;32)
Corporate Social Responsibility	2.220	0.034	
Profitability	2.432	0.021	2.037
Capital Structure	-0.275	0.785	

Source: Processed data using SPSS 26 for Windows

Based on the t-test results in Table 12, corporate social responsibility has a t-value of 2.220 with a significance level of 0.034 (< 0.05), indicating a significant effect on firm value. Profitability likewise has a significant effect, with a t-value of 2.432 and a significance level of 0.021 (< 0.05). In contrast, capital structure shows a t-value of −0.275 with a significance level of 0.785 (> 0.05), indicating that it does not have a significant effect on firm value for coal mining sub-sector companies listed on the Indonesia Stock Exchange during the 2018–2020 period.

4.2 Discussion

4.2.1 Effect of Corporate Social Responsibility (GRI G4 Indicators) on Firm Value (Price to Book Value)

The individual parameter significance test shows that corporate social responsibility (CSR), measured using a disclosure index based on GRI G4, has a positive and significant effect on firm value proxied by price to book value (PBV) for coal mining sub-sector companies listed on the IDX during 2018–2020 ($p = 0.034 < 0.05$). Thus, the first hypothesis is accepted. This finding is consistent with Deegan (2014), who emphasises that corporate sustainability is determined not only by economic performance but also by social and environmental accountability through adequate information disclosure. Empirically, the result is in line with Rizaldi et al. (2014), who find that higher-quality CSR disclosure strengthens market reactions and increases share prices, which ultimately translates into higher firm value.

4.2.2 Effect of Profitability (Return on Investment) on Firm Value (Price to Book Value)

The individual parameter significance test indicates that profitability, measured by return on investment (ROI), has a positive and significant effect on firm value (PBV) for coal mining sub-sector firms listed on the IDX in 2018–2020

($p = 0.021 < 0.05$; $t = 2.432$). Accordingly, the second hypothesis is accepted. This finding supports the signalling perspective of Ayu and Suarjaya (2017), which argues that strong earnings performance sends a positive signal regarding the firm's future prospects to investors, thereby encouraging share price appreciation and increasing firm value. The result is also consistent with Atmaja (2020) and Kasmir (2019), who assert that higher profitability ratios are associated with higher investment returns and an enhanced attractiveness of the firm in the eyes of investors.

4.2.3 Effect of Capital Structure (Debt to Equity Ratio) on Firm Value (Price to Book Value)

The individual parameter significance test shows that capital structure, proxied by the debt to equity ratio (DER), does not have a significant effect on firm value (PBV) for coal mining sub-sector companies listed on the IDX over the 2018–2020 period ($p = 0.785 > 0.05$; $t = -0.275$). Thus, the third hypothesis, which posited a significant effect of capital structure on firm value, is rejected.

Theoretically, this result is not consistent with Horne and Wachowicz (2019), who argue that a lower DER indicates a higher proportion of equity financing provided by shareholders, which should be positively received by the market through higher share prices and firm value; conversely, a higher DER reflects greater reliance on debt and higher financial risk, which should, in theory, exert downward pressure on firm value. In other words, capital structure theory posits that variation in the debt–equity mix ought to be an important determinant of firm value. The absence of a significant DER effect in this study suggests that, in the context of the coal mining sub-sector, the market does not respond to leverage differences in the way predicted by theory and may instead place greater emphasis on other factors such as profitability and CSR disclosure. This finding also contrasts with the empirical evidence of Mudjijah et al. (2019), who document a significant effect of capital structure on firm value, but is consistent with Dewi et al. (2014), who report that variations in leverage do not always translate into changes in market valuation.

4.2.4 Joint Effect of Corporate Social Responsibility, Profitability, and Capital Structure on Firm Value

The ANOVA significance test shows that CSR (measured using GRI G4 indicators), profitability (ROI), and capital structure (DER) jointly have a significant effect on firm value (PBV) for coal mining sub-sector companies listed on the IDX during 2018–2020 ($F = 3.026$; $p = 0.044 < 0.05$). Thus, the fourth hypothesis is accepted. This result is consistent with Rizaldi et al. (2014), who demonstrate that CSR, profitability, and capital structure together significantly influence firm value.

The coefficient of determination of 22.1% indicates that the combination of these three variables explains only part of the variation in firm value, while the remaining 77.9% is driven by other factors outside the model. As noted by Atmaja (2020), there are still various financial and non-financial variables—such as growth opportunities, dividend policy, ownership structure, and macroeconomic conditions—that may contribute significantly to the formation of firm value.

5. Conclusion

This study finds that corporate social responsibility (CSR), measured in accordance with the Global Reporting Initiative (GRI) G4 guidelines—covering economic, environmental, and social performance (labour practices and decent work, human rights, society, and product responsibility)—has a significant effect on firm value as proxied by price to book value (PBV). This indicates that the market values corporate sustainability commitments, so firms are no longer assessed solely on their ability to generate profit but also on the extent to which they support long-term sustainability.

Profitability, measured by return on investment (ROI), is also shown to have a significant positive effect on firm value. Higher profitability is interpreted by investors as a signal of stronger future prospects, which increases investment interest and, in turn, enhances firm value. In contrast, capital structure, proxied by the debt to equity ratio (DER), does not have a significant effect on firm value. This may suggest that a high proportion of debt financing is perceived by the market as increased financial risk and potential pressure on operating performance to meet interest and principal obligations, so leverage does not become a primary determinant in investors' valuation of the firm.

Taken together, CSR, profitability, and capital structure have a statistically significant joint effect on firm value, with a coefficient of determination of 22.1%. This implies that these three variables collectively explain 22.1% of the

variation in firm value, while the remaining 77.9% is attributable to other financial and non-financial factors not captured in the model.

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