

The Effect of Intellectual Capital and Corporate Governance on Firm Value with Profitability as a Moderating Variable

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ABSTRACT

This study examines the effect of intellectual capital and corporate governance on firm value, with profitability as a moderating variable, in the context of coal mining companies listed on the Indonesia Stock Exchange (IDX). The research aims to analyze and develop a model that incorporates profitability as a moderating factor in the relationship between intellectual capital, corporate governance, and firm value. Employing a quantitative approach, the study uses a descriptive and verificative design with panel data from 24 coal mining companies over the period 2021–2024, yielding 96 observations. Data were analyzed using Moderated Regression Analysis (MRA) in EViews 12 after classical assumption tests. The results indicate that intellectual capital and corporate governance individually have no significant effect on firm value. However, both variables simultaneously exert a significant influence on firm value. Furthermore, profitability does not moderate the relationship between intellectual capital and firm value, nor between corporate governance and firm value. These findings imply that in the coal mining sector, firm value is more influenced by the combined effect of intellectual capital and corporate governance, whereas profitability does not strengthen their individual impacts. This study contributes to the literature by providing empirical evidence on the moderating role of profitability in a resource-based industry.

Keywords: *Intellectual Capital; Corporate Governance; Firm Value; Profitability.*

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INTRODUCTION

Company value is an assessment given by investors of the company's success and performance, which is directly reflected through the stock price in the market. The creation of company value through stock market prices indicates prospective investment opportunities. This positive signal convinces investors of the potential prosperity they will obtain as well as the company's future growth prospects (Hidayat & Khotimah, 2022).

The value of the company plays an important role as the main benchmark for shareholders in evaluating the stock price. Strategically, the company balances its short-term goals of revenue optimization through resource management with its long-term goal of maximizing company value for the welfare of shareholders. The increase in stock prices indicates an increase in the company's value and the welfare of shareholders. Because a high company value not only gives a positive signal to potential investors but also indicates a high level of return on investment for shareholders (Arini, 2022).

Fluctuations in stock prices occur due to demand and supply in the capital market (Harrison & Liu, 2021; Fama, 2019). These price changes are influenced by external factors and internal factors. External factors—such as economic crises, political influences, and inflation—are generally difficult for company management to control (Graham & Harvey, 2020; Nugroho et al., 2021). On the contrary, internal factors come from within the company, which include the company's performance, future financial projections, and the level of effectiveness and efficiency of the company in achieving its goals (Josephine et al., 2019; Zhang & Li, 2022; Niazi & Iqbal, 2020).

The coal mining industry has unique characteristics that make it highly dependent on non-renewable natural resources as well as fluctuations in global commodity prices, so its management must be carried out optimally and sustainably (Directorate General of Minerals and Coal, 2021).

The availability of sizable reserves of medium- and low-quality coal makes Indonesian coal very competitive in the international market. This is partly due to the low cost of production from labor wages. Considering that most of Indonesia's coal is destined for the export market, the production and export volumes are influenced by fluctuations in global market prices (Haryadi, 2021).

Previous studies have explored the relationship between intellectual capital, corporate governance, profitability, and firm value, though with mixed findings and limited focus on the mining sector. Research on intellectual capital, pioneered by Edvinsson & Malone (1997), posits that intangible assets are key drivers of corporate value. In the Indonesian context, studies such as those by Chen, Cheng, & Hwang (2005) and Prastiyo & Riduwan (2024) found that intellectual capital, measured by VAIC™, has a positive effect on firm value in various sectors. However, research specifically in the mining sector, such as by Dewi & Dewi (2020), suggests that the impact may be less pronounced due to the industry's capital-intensive and resource-based nature, where tangible assets often take precedence in investor valuation.

Regarding corporate governance, seminal work by Berle & Means (2017) highlights its role in mitigating agency problems and enhancing firm value. Studies in Indonesia, including those by Darniaty et al. (2023) and Fadila & Rahmiyatun (2024), have examined the impact of governance mechanisms—such as the proportion of independent commissioners—on firm value. Their findings are inconsistent; some indicate a positive influence, while others, like Bakhtiar et al. (2021), find no significant effect, suggesting that governance structures may sometimes be merely ceremonial, especially in industries with high information asymmetry like mining.

Profitability, often measured by return on assets (ROA), is widely recognized as a critical mediator or moderator in the value creation process. Research by Brigham & Houston (2019) establishes profitability as a direct indicator of operational efficiency affecting market perception. Studies examining its moderating role, such as Natsir & Sadikin (2021), indicate that profitability can strengthen the relationship between intellectual capital and firm value, though this effect is not always consistent across all industry sectors.

However, a significant research gap remains. Few studies have integratively examined the moderating role of profitability on the effects of both intellectual capital and corporate governance on firm value, particularly within the cyclical and volatile coal mining sector in Indonesia. Most existing research focuses on these variables in isolation or within more stable industries. Furthermore, the unique characteristics of the Indonesian mining sector—marked by regulatory complexities, commodity price dependence, and specific governance challenges—necessitate a focused investigation.

Based on the press release of the Ministry of Energy and Mineral Resources Number: 442.Pers/04/SJI/2021 dated December 8, 2021, the reference coal price (HBA) for December 2021 was USD 159.79 per ton. This value shows a significant decrease of USD 55.22 per ton compared to the previous month's HBA, which reached USD 215.01 per ton. This decline was influenced by intervention policies carried out by the Chinese government to ensure fulfillment

of their domestic coal needs (Ministry of Energy and Mineral Resources of the Republic of Indonesia, 2021). The reference coal price (HBA) in December 2022 was set at USD 281.48 per ton, a decrease of 8.67% or USD 26.72 per ton compared to November 2022, which reached USD 308.2 per ton. This price decline was mainly due to India's plan to reduce coal-fired power plant capacity and Covid-19 control policies in China that limit factory activities, thus impacting declining global coal demand (Ministry of Energy and Mineral Resources of the Republic of Indonesia, 2022).

Based on data from the Official Gazette of Statistics No. 67/10/Th.XXVI, issued by the Central Statistics Agency (BPS) on October 16, 2023, Indonesia's non-oil and gas exports by the processing industry sector decreased by 10.86% from January to September 2023 compared to 2022, contributed by a decline in palm oil exports. Exports of agricultural, forestry, and fishery products decreased by 9.03% due to a decline in annual fruit exports, while exports of mining and other products decreased by 19.83%, contributed by a decline in coal exports.

In accordance with the identification of the above problems, this research was carried out with the aim of identifying, analyzing, and developing the role of profitability as a moderating variable in the influence of intellectual capital and corporate governance on the value of companies in mining companies in the coal subsector whose shares are listed on the Indonesia Stock Exchange for the 2021–2024 period.

This research provides significant benefits, both theoretically and practically. Theoretically, this research contributes to the development of financial and strategic management literature by specifically examining the moderating role of profitability in the relationship between intellectual capital, corporate governance, and firm value within the context of the capital-intensive and cyclical coal mining industry. Practically, the findings of this study are expected to provide valuable insights for corporate management in the sector, offering guidance on how to better leverage intellectual assets and governance structures to enhance firm value, even amidst commodity price volatility. For investors and regulators, the study offers a nuanced understanding of the factors that drive valuation in the extractive industries, potentially informing more robust investment decisions and policy frameworks.

METHOD

This research was a quantitative study that employed descriptive and verificative approaches. The descriptive approach outlined the profile of the research data, while the verificative approach tested hypotheses regarding the influence of independent variables on the dependent variable, with profitability as a moderating variable. The study used panel data (pooled data), combining time-series data for the 2021–2024 period and cross-sectional data from coal mining companies listed on the Indonesia Stock Exchange. The analytical method applied was Moderated Regression Analysis (*MRA*) to examine the moderating role of profitability in the relationship between intellectual capital, corporate governance, and firm value.

This study relied on secondary data sourced from coal mining companies listed on the Indonesia Stock Exchange (IDX) in the coal subsector for the 2021–2024 period, obtained from the www.idx.co.id website (Nuryaman & Christina, 2015).

Data collection was conducted using two techniques:

1. Documentation method: Data were gathered from financial statements and annual reports related to the research topic.
2. Literature method: Relevant journals, books, and other sources were reviewed to establish the theoretical foundation (Sugiyono, 2019).

The population consisted of financial statements and annual reports from coal mining companies listed on the Indonesia Stock Exchange for 2021–2024.

Table 1. Population of Coal Mining Sector Companies

No	Company Code	Company Name
1	AADI	PT Adaro Andalan Indonesia Tbk
2	ADRO	PT Alamtri Resources Tbk
3	AIMS	PT Artha Mahiya Investama Tbk / PT Akbar Indo Makmur Stimec Tbk
4	KING	PT Atlas Resources Tbk
5	BBRM	PT Pelayaran Nasional Bina Buana Raya Tbk
6	BESS	PT Batulicin Nusantara Maritim Tbk
7	BOSS	PT Borneo Olah Sarana Sukses Tbk
8	BSSR	PT Baramulti Suksessarana Tbk
9	EARTH	PT Bumi Resources Tbk
10	BYAN	PT Bayan Resources Tbk
11	DOGS	PT Capitol Nusantara Indonesia Tbk
12	CNKO	PT Eksploitasi Energi Indonesia Tbk
13	COAL	PT Black Diamond Resources Tbk
14	DSSA	PT Dian Swastatika Sentosa Tbk
15	DWGL	PT Dwi Guna Laksana Tbk
16	FIRE	PT Alfa Energi Investama Tbk
17	GEMS	PT Golden Energy Mines Tbk
18	GTBO	PT Garda Tujuh Buana Tbk
19	HRUM	PT Harum Energy Tbk
20	INDY	PT Indika Energy Tbk
21	ITMG	PT Indo Tambangraya Megah Tbk
22	KKGI	PT Resource Alam Indonesia Tbk
23	MBAP	PT Mitrabara Adiperdana Tbk
24	MBSS	PT Mitrabahtera Segara Sejati Tbk
25	PSSI	PT Pelita Samudera Shipping Tbk / PT IMC Pelita Logistik
26	PTBA	PT Bukit Asam Tbk
27	PTIS	PT Indo Straits Tbk
28	RIGS	PT Rig Tenders Tbk
29	SGER	PT Sumber Global Energy Tbk
30	SMMT	PT Golden Eagle Energy Tbk
31	TCPI	PT Transcoal Pacific Tbk
32	YOU	PT Dana Brata Luhur Tbk
33	TOBA	PT TBS Energi Utama Tbk
34	TPMA	PT Trans Power Marine Tbk
35	TRAM	PT Trada Alam Mineral Tbk

Source: www.idx.co.id, 2025

The sample consisted of a subset of the population with representative characteristics. The author employed nonprobability purposive sampling based on specific criteria.

The criteria for sample selection were as follows:

1. Mining companies in the coal subsector, not suspended and listed on the Indonesia Stock Exchange for the 2021–2024 period.
2. Mining companies in the coal subsector that issued consecutive financial statements and annual reports for the 2021–2024 period.
3. Companies with complete data in their financial statements for all variables related to intellectual capital, corporate governance, profitability, and firm value.

Based on these criteria, the final sample comprised the following coal mining companies:

Table 2. Sampling Results

No	Criteria	Quantity
1	The number of population of coal mining subsector companies listed on the Indonesia Stock Exchange during the period 2021-2024	35
2	Mining companies in the coal subsector that have been <i>suspended</i> are listed on the Indonesia Stock Exchange for the 2021-2024 period.	(2)
3	Mining companies in the coal subsector that do not issue financial statements and annual reports consecutively in the 2021-2024 period.	(7)
4	The completeness of data that is not owned in the company's financial statements with variables related to <i>corporate governance research</i> .	(2)
Number of Companies		24
Research Period		4
Number of Observation Samples		96

Source: www.idx.co.id, 2025

Based on the results of data processing using purposive sampling, a sample of 24 coal mining subsector companies listed on the Indonesia Stock Exchange (IDX) was obtained with a research period of 4 years, so that the number of data used in this study was 96 data. The list of companies used as a research sample is as follows:

Table 3. List of Sample Mining Companies in the Coal Subsector for the 2021-2024 period

No	Company Code	Company Name
1	NURSERY	PT Alamtri Resources Tbk
2	BBRM	PT Pelayaran Nasional Bina Buana Raya Tbk
3	BESS	PT Batulicin Nusantara Maritim Tbk
4	BSSR	PT Baramulti Suksessarana Tbk
5	EARTH	PT Bumi Resources Tbk
6	BYAN	PT Bayan Resources Tbk
7	CNKO	PT Eksploitasi Energi Indonesia Tbk
8	DSSA	PT Dian Swastatika Sentosa Tbk
9	DWGL	PT Dwi Guna Laksana Tbk
10	FIRE	PT Alfa Energi Investama Tbk
11	GEMS	PT Golden Energy Mines Tbk
12	HRUM	PT Harum Energy Tbk
13	INDY	PT Indika Energy Tbk
14	ITMG	PT Indo Tambangraya Megah Tbk
15	KKGI	PT Resource Alam Indonesia Tbk
16	MBAP	PT Mitrabara Adiperdana Tbk
17	MBSS	PT Mitrabahera Segara Sejati Tbk
18	PSSI	PT Pelita Samudera Shipping Tbk / PT IMC Pelita Logistik
19	PTBA	PT Bukit Asam Tbk

No	Company Code	Company Name
20	SMMT	PT Golden Eagle Energy Tbk
21	TCPI	PT Transcoal Pacific Tbk
22	YOU	PT Dana Brata Luhur Tbk
23	TOBA	PT TBS Energi Utama Tbk
24	TPMA	PT Trans Power Marine Tbk

Source: www.idx.co.id, 2025

Data Analysis Methods

Descriptive Statistics

Descriptive statistics provided an overview of the data through measures such as mean (Sugiyono, 2019), standard deviation, variance, maximum, minimum, sum, range, kurtosis, and skewness (Ghozali, 2018).

Panel Data Regression Analysis

Panel data combined time series and cross-sectional data. Three models were evaluated: common effect (pooled least squares/PLS), fixed effect (FEM), and random effect (REM) (Priyatno, 2023). The most appropriate model was selected based on the Chow test, Hausman test, and Lagrange Multiplier test (Widarjono, 2018). The panel data regression model was specified as:

$$Y_{it} = \beta_0 + \beta_1 X_{1it} + \beta_2 X_{2it} + \varepsilon_{it}$$

Description:

Y = Company value

β_0 = Constant

β_1, β_2 = Regression coefficients

X_1 = Intellectual capital

X_2 = Corporate governance

i = Company

t = Time

ε = Error term

Panel Data Regression Model Selection

1) Chow Test

The Chow test determined whether the common effect or fixed effect model was more appropriate (Priyatno, 2023).

Hypotheses:

a) H_0 : Common effect model

b) H_1 : Fixed effect model

Decision criteria:

a) If Prob. (cross-section F) < 0.05 or F-count > F table, H_0 rejected (use fixed effect).

b) If Prob. (cross-section F) > 0.05 or F-count < F table, H_0 accepted (use common effect).

2) Hausman Test

The Hausman test compared fixed effect and random effect models (Priyatno, 2023).

Hypotheses:

- a) H_0 : Random effect model
- b) H_1 : Fixed effect model

Decision criteria:

- a) If Prob. < 0.05 or χ^2 count $> \chi^2$ table, H_0 rejected (use fixed effect).
- b) If Prob. > 0.05 or χ^2 count $< \chi^2$ table, H_0 accepted (use random effect).

The Lagrange Multiplier test was conducted only if Chow and Hausman tests yielded different results.

3) Lagrange Multiplier Test

The Lagrange Multiplier test compared common effect and random effect models (Priyatno, 2023).

Hypotheses:

- a) H_0 : Common effect model
- b) H_1 : Random effect model

Decision criteria:

- a) If Prob. (Breusch-Pagan) < 0.05 or LM $> \chi^2$ table, H_0 rejected (use random effect).
- b) If Prob. (Breusch-Pagan) > 0.05 or LM $< \chi^2$ table, H_0 accepted (use common effect).

4) Moderated Regression Analysis (MRA)

Moderated Regression Analysis (MRA), or interaction testing, examined profitability's moderating effect (Ghozali, 2018). The regression equation was:

$$Y = \alpha + \beta_1 X_1 + \beta_2 X_2 + \beta_3 Z + \beta_4 (X_1 \times Z) + \beta_5 (X_2 \times Z) + \varepsilon$$

Description:

Y = Company value

α = Intercept

β_1 – β_5 = Regression coefficients

X_1 = Intellectual capital

X_2 = Corporate governance

Z = Profitability

$X_1 \times Z$ = Intellectual capital \times profitability interaction

$X_2 \times Z$ = Corporate governance \times profitability interaction

ε = Error term

Hypothesis Testing

1) t-Test

The t-test assessed individual effects of independent variables on the dependent variable at $\alpha = 0.05$ (Ghozali, 2018).

Decision criteria:

- If $|t\text{-count}| > t$ table or $p < 0.05$, H_a accepted (significant effect).
- If $|t\text{-count}| < t$ table or $p > 0.05$, H_0 accepted (no significant effect).

2) F-Test

The F-test evaluated simultaneous effects of independent variables at $\alpha = 0.05$ (Ghozali, 2018).

Decision criteria:

- If Sig. F < 0.05, H_0 rejected (simultaneous significant effect).
- If Sig. F > 0.05, H_0 accepted (no simultaneous effect).

3) Coefficient of Determination (R^2)

R^2 measured the proportion of variance in the dependent variable explained by the independent variables, ranging from 0 to 1 (Ghozali, 2018).

RESULTS AND DISCUSSION

Descriptive Analysis

The descriptive statistical analysis in this study provides a comprehensive overview of the data profile of 96 observations from 24 mining sector companies listed on the Indonesia Stock Exchange during the observation period from 2021 to 2024. The first variable analyzed was Company Value (Y) which was proxied using Tobin's Q. Data showed that the average company value during the study period was 2.3683 with a standard deviation of 3.2115, which indicates that there is a fairly wide variation in the market valuation of mining issuers. The highest company value was recorded at 18.1100 achieved by PT Transcoal Pacific Tbk (TCPI) in 2021, reflecting the very high market appreciation of the company's assets during that period. In contrast, the lowest value of 0.5000 was experienced by PT Harum Energy Tbk (HRUM) in 2024, indicating the conditions under which the market values the company's equity below its book value (undervalued).

Moving on to independent variables, Intellectual Capital (X1) measured by the Value-Added Intellectual Coefficient (VAICTM) shows an average value of 10.3063 with a fairly high standard deviation of 9.6982. This high standard deviation reflects a significant efficiency gap between companies in managing their intellectual assets. The highest intellectual capital management efficiency was shown by PT Dian Swastatika Sentosa Tbk (DSSA) in 2023 with a VAICTM value of 62.2100, while the lowest value of 0.3200 was recorded by PT Alfa Energi Investama Tbk (FIRE) in 2022. Furthermore, the Corporate Governance (X2) variable proxied through the proportion of the Board of Independent Commissioners has an average value of 0.4484. This indicates that in general the sample company has complied with the regulations of at least 30% of independent commissioners. The highest proportion of 1.0000 (100%) was owned by PT Golden Eagle Energy Tbk (SMMT) in 2021, while the lowest proportion of 0.2000 was found by PT IMC Pelita Logistik Tbk (PSSI) in the same year.

Finally, the Profitability (Z) variable which acts as a moderation variable and is proxied with Return on Assets (ROA) recorded an average value of 0.1608 with a standard deviation of 0.1636. This positive average shows the ability of mining sector companies in general to generate profits from assets under management, despite sharp fluctuations in performance. The highest profitability of 0.6200 was achieved by PT Golden Energy Mines Tbk (GEMS) in 2022 which was driven by the momentum of rising global coal commodity prices, while the lowest profitability in the form of a loss of -0.2600 was experienced by PT Alfa Energi Investama Tbk

(FIRE) in 2022. This descriptive data confirms the characteristics of the mining industry which is high risk - high return and is greatly influenced by the commodity price cycle.

Multiple Regression Model Test

Chow Test

The initial stage in determining the most appropriate panel data regression model estimation technique is to conduct the Chow Test or often referred to as the Redundant Fixed Effects Test. This test specifically aims to compare the validity between the use of the Common Effect Model (CEM) versus the Fixed Effect Model (FEM) in estimating panel data. The basis for statistical decision-making in this test refers to the probability values of Cross-section F and Cross-section Chi-square. If the resulting probability value is less than the significance level α 0.05, then the null hypothesis (H0) that states that the Common Effect model is better must be rejected, which means that the Fixed Effect model is more appropriate to use. (Hutagalung, 2022)

Table 4. Chow Test Results

Effects Test	Statistic	D.F.	Prob.
Cross-section F	14.235446	(23,69)	0.0000
Cross-section Chi-square	167.842155	23	0.0000

Source: Secondary data processed with *Eviews* 12 (2025)

Based on the results of data processing presented in the table above, the statistical value of Cross-section F is recorded at 14.235446 with a probability level of 0.0000. The consistency of the results is also shown by the statistical value of the Cross-section Chi-square of 167.842155 which also yields a probability value of 0.0000. Given that the two probability values are well below the significance threshold of 0.05 ($0.0000 < 0.05$), the statistical decision taken is to reject the null hypothesis (H0) and accept the alternative hypothesis (Ha).

These results indicate that there is a significant heterogeneity or difference in individual characteristics (specific effects) between the mining companies that are the research sample, which cannot be well captured by the Common Effect model. Therefore, the Fixed Effect Model (FEM) model is stated to be superior and feasible compared to the Common Effect Model (CEM). Because of the selection of the Fixed Effect model, the analysis stage needs to be continued by conducting the Hausman Test to determine the best model between the Fixed Effect Model (FEM) or the Random Effect Model (REM).

Hausman Test

This test is specifically designed to evaluate the consistency of estimators by directly comparing between the Fixed Effect Model (FEM) and the Random Effect Model (REM). The decision-making principle in the Hausman Test is based on the statistical probability value of the Chi-Square. The hypotheses tested are as follows:

- a) If Prob. > 0.05 then H0 is accepted or the Random Effect Model (REM) is the correct model.
- b) If Prob. < 0.05 then Ha is accepted or the Fixed Effect Model (FEM) is the right model.

Table 5. Hausman Test

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	1.131777	3	0.0004

Source: Secondary data processed with *Eviews* 12 (2025)

Based on the results of the statistical output in the table above, the Chi-Square Statistic value is 1.131777 with a very significant probability value (Prob.), which is 0.0004. Referring to the criteria of statistical significance, the probability value is much smaller compared to 0.05 ($0.0004 < 0.05$). Thus, the statistical decision taken is to reject the Zero Hypothesis (H0) and accept the Alternative Hypothesis (Ha).

The results of the Hausman Test provide strong empirical evidence that the Fixed Effect Model (FEM) is the most efficient and consistent estimator to be used in this study compared to the Random Effect Model. This is in line with the results of the previous Chow Test which also featured the Fixed Effect Model.

Therefore, based on a series of model tests (Chow Test, and Hausman Test), the next panel data regression analysis for hypothesis testing will use the Fixed Effect Model (FEM) approach. This model is considered the most able to capture the heterogeneity of characteristics between mining companies that are the research sample.

Hypothesis Test

T Test

After selecting the estimation model and the classical assumption test, the next step is to test the hypothesis through the Statistical Test t. This test aims to find out how far the influence of one independent variable individually in explaining the variation of the dependent variable. In this study, the t-test was used to measure the significance of the influence of Intellectual Capital (X₁ (Ghozali, 2018)) and Corporate Governance (X₂) on Company Value (Y).

The basis for statistical decision-making was carried out by comparing the probability value (Prob.) of each independent variable with a significance level of α of 0.05. If the probability value is less than 0.05, then the independent variable has a significant effect on the dependent variable. Conversely, if the probability value is greater than 0.05, then there is no significant effect.

Table 6. T Test Results

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	2.772407	0.831930	3.332501	0.0014
X1	0.003318	0.028590	0.116041	0.9080
X2	-0.792753	1.826648	-0.433993	0.6656

Source: Secondary data processed with *Eviews* 12 (2025)

Based on the results of the t-test as presented in the table above, the regression equation can be obtained as follows:

$$Y = 2.772407 + 0.003318 (X1) - 0.792753 (X2)$$

Description:

Y : Company Value

X1 : Intellectual Mode

X2 : Corporate Governance

From the regression equation, it can be interpreted as follows:

1. The α constant value is 2.772407 which means that if the independent variables, namely Intellectual Capital and Corporate Governance, are considered constant or have zero value, then the Company Value that occurs is 2.772407.
2. The regression coefficient for the Intellectual Capital variable (X1) is 0.003318 which indicates that if the Intellectual Capital variable increases by one unit, then the Y variable (Company Value) will increase by 0.003318, assuming the other variables are considered fixed.
3. The regression coefficient for the Corporate Governance variable (X2) is -0.792753 which indicates that if the Corporate Governance variable increases by one unit, then the Y variable (Company Value) will decrease by -0.792753, assuming the other variables are considered fixed.

Based on the table above, it can be concluded as follows:

1. Variable X1 has a t-Statistic value of 0.116041 with a Probability value (Significance) of 0.9080 (>0.05), so it can be concluded that the variable X1, namely Intellectual Capital, has no effect on the variable Y, namely Company Value, which means that the first Hypothesis (H1) is rejected.

The results of this study are in line with the research conducted by those who explain that intellectual capital has no effect on the value of the company. This is because investors in Indonesia do not really look at intellectual capital because the market or investors only see one of the three components of intellectual capital, namely VACA (Prastiyo & Riduwan (2024) capital employed) as their consideration in placing value for the company

2. Variable X2 has a t-Statistic value of -0.433993 with a Probability (Significance) value of 0.6656 (>0.05), so it can be concluded that the variable X2, namely Corporate Governance, has no effect on variable Y, namely Company Value, which means that the second Hypothesis (H2) is rejected. The results of this study are in line with the research conducted by those who stated that Darniaty et al. (2023) Corporate Governance has a negative effect on company value, this can happen because the implementation of Corporate Governance in companies is still not optimal according to the principles of Corporate Governance. In other words, Corporate Governance in the company is applied only as a form of formality in fulfilling the company's obligations

Simultaneous F Test

After examining the influence of the variables individually, the next crucial stage is to conduct the Statistical Test F. This test does not only aim to see the effect together, but serves as the main indicator of Goodness of Fit to validate whether the regression model built is really feasible and has a strong statistical foundation in explaining the phenomenon of Corporate Value in the mining sector.

Table 7. Simultaneous F Test Results

Root MSE	1.319185	R-squared	0.829510
Mean dependent var	2.368309	Adjusted R-squared	0.765267
S.D. dependent var	3.211660	S.E. of regression	1.556025
Akaike info criterion	3.954405	Sum squared resid	167.0638
Schwarz criterion	4.675628	Log likelihood	162.8114
Hannan-Quinn criter.	4.245935	F-statistic	12.91212
Durbin-Watson stat	1.433550	Prob(F-statistic)	0.000000

Source: Secondary data processed with *Eviews* 12 (2025)

Based on the results of the Fixed Effect Model estimate in the table above, this research model managed to record an F-statistic value of 12.91212 with a very convincing probability of significance (Prob F-statistic), which is 0.000000. Given that the probability value is well below the significance threshold of 0.05 ($0.0000 < 0.05$), statistically the decision taken is to reject the null hypothesis. This proves that simultaneously (aggregate), the variables of Intellectual Capital and Corporate Governance have a significant contribution to the formation of Corporate Value.

The results of this study are in line with the research conducted by those who show that Intellectual Capital and Emha & Djawoto (2018) Corporate Governance have a positive and significant influence on the value of a company. This can happen when the company has high intellectual capital and is supported by the implementation of good Corporate Governance, the market will judge the company to have more stable and sustainable prospects. The implementation encourages increased investor confidence, decreased investment risk, and increased market valuation of companies. Therefore, the simultaneous merger of Corporate Governance and Intellectual Capital has a positive impact on the company's value, as they together form a strong foundation for long-term value creation.

These findings provide important confirmation that the model proposed in this study is declared FIT or feasible. The results of this F test are also a bridge to explain the findings of the previous t-test; Although partially (individually) independent variables appear to have no significant traction, when these variables are integrated into a single model configuration along with the company's unique characteristics (fixed effects), they are able to synergize to explain the variation in Company Value very well. Thus, this regression model can be relied upon as an analytical instrument to predict the behavior of a company's values during the observation period.

Coefficient Determination Test

Coefficient of Determination (R²) testing was performed to measure how far the model can explain the variation of dependent variables. The value of the determination coefficient reflects the percentage contribution of the influence of the independent variables together on the dependent variables. Given that this study uses panel data regression with Fixed Effect Model estimation, a more precise and conservative interpretation uses the Adjusted R-squared value, because this value has been adjusted to the number of independent variables and sample size to avoid statistical inflation bias.

Based on the output results of the table above, the Adjusted R-squared value of 0.765267 was obtained. This value can be interpreted as amounting to 76.53% of the variation in the fluctuation of Company Value (Y) in the mining sector can be explained very well by the variation of independent variables (Intellectual Capital and Corporate Governance) as well as company-specific effects (fixed effects) contained in the model. This high determination rate shows that the regression model built has a very strong explanatory ability (robust).

Meanwhile, the remaining 23.47% (100% - 76.53%) were explained by other variables or fundamental factors outside the research model (error term). These external factors can be in the form of government policies related to coal exports, global energy price sentiment, or macroeconomic conditions such as inflation and interest rates. This high Adjusted R-squared value also confirms the results of the previous F-Test, that although partially independent variables appear weak, as a unified model system, they are very effective in predicting the behavior of a company's value.

Discussion of Research Results

The Influence of Intellectual Capital on Company Value

Based on the results of the first hypothesis test (H1) that has been carried out using the t-statistical test, a regression coefficient value of 0.0033 with a significance probability level of 0.9080 was obtained. Given that the probability value is much greater than the significance level of 0.05 ($0.9080 > 0.05$), the first hypothesis is rejected. This means that partially, Intellectual Capital proxied with the Value-Added Intellectual Coefficient (VAIC™) is proven to have no significant effect on the Company Value of coal mining sector companies listed on the Indonesia Stock Exchange for the 2021–2024 period.

These empirical findings indicate that the high efficiency of added value created by companies through the management of intellectual capital (including Human Capital and Structural Capital) has not been the main consideration for investors in making investment decisions reflected in stock prices (Tobin's Q). This insignificance can be explained through the natural characteristics of the mining industry which is capital-intensive and resource-based. In the extractive industry, investors tend to focus more on tangible assets such as mineral reserves, land concession licenses, and production heavy equipment capacity, rather than intangible assets such as employee capabilities or organizational systems. In addition, the observation period of this study (2021–2024) coincides with the post-pandemic commodity boom phenomenon and the global energy crisis, where coal commodity prices experienced a significant spike.

In market conditions driven by external commodity price sentiment (market driven), the increase in company value is more influenced by windfall profits due to the increase in product selling prices, so that internal efficiency reflected by intellectual capital becomes a less dominant or neglected factor by the market in the short term. The results of this study are in line with the findings of a study conducted on coal mining companies in Indonesia, where they found that intellectual capital has no direct effect on the value of the company because the competitive advantage in this sector is more determined by the ownership of natural resources. Similar results were also found by those who researched mining companies on the IDX for the 2021-2023 period, which concluded that intellectual capital has not been the main driver of company valuation because the Indonesian market still does not fully appreciate intangible assets in the energy sector. Pahlevi & Anwar (2023) Summarna (2025)

According to mining companies in Indonesia, they still classify resources used for marketing as costs rather than capital, and their value is relatively small when compared to other components of intellectual capital. In addition, it is said that some investors only pay attention to the basic ratio in making investment decisions, so that the increase or decrease in the value of intellectual capital cannot be used as a basis in determining the increase or decrease in the value of the company. Goddess & Goddess (2020) Firdaus et al. (2024)

The Influence of Corporate Governance on Company Value

The second hypothesis test (H2) aims to prove the influence of Corporate Governance proxied through the proportion of the Board of Independent Commissioners to the Company's Value. Based on the results of the t-statistical test, the Corporate Governance variable showed a negative coefficient value of -0.7927 with a significance probability level of 0.6656. Since this probability value is far beyond the tolerance limit of 0.05 ($0.6656 > 0.05$), the second hypothesis is rejected. This statistical decision provides empirical evidence that the existence of an Independent Board of Commissioners in the structure of a mining company does not have a significant effect on the Company's Value. These findings indicate that for market participants in the mining sector, the role of independent commissioners in overseeing management and ensuring accountability has not been optimally run.

These results are in line with research conducted by those who say that an independent board of commissioners does not always have an effect on the increase in the value of a company. According to & Fadila & Rahmiyatun (2024) Gusriandari et al. (2022) and São Paulo Tirta & Fitria (2024) said that possibly, the portion of independent commissioners on the board is not yet strong enough to dominate and direct the company's strategic policies. In addition, the board of directors also does not have a significant influence on the company's value. A large number of board members can lead to inefficiencies in decision-making.

The market allegedly assesses that the existence of independent commissioners is only limited to the company's efforts to comply with formal regulations set by the Financial Services Authority (OJK), which is a minimum of 30% of the number of members of the board of commissioners and is not based on strategic needs to increase supervision. As a result, the role of independent commissioners is often stuck in mere formalities (rubber stamps) and has not been effective in carrying out monitoring functions to mitigate real agency conflicts. In

addition, the characteristics of the mining industry that have high operational complexity often cause information asymmetry between management (insider) and independent commissioners (outsiders). This is in line with research conducted by those who say that independent commissioners have no effect on the value of the company, because the addition of members is possible only to meet existing regulations. Bakhtiar et al. (2021)

The inability of independent commissioners to understand the technical intricacies of mine operations in depth makes the supervisory function not optimal, so that it does not have an impact on fundamental performance that can boost the company's value. Moreover, in the 2021–2024 period, investors' attention is more focused on global commodity price volatility. In bullish market conditions due to rising coal prices, investors tend to ignore the internal governance aspect because the company's profits are driven more by external factors (market prices) than by the effectiveness of the board of commissioners' supervision.

The Simultaneous Influence of Intellectual Capital and Corporate Governance on Company Value

Based on the results of the statistical test F (Simultaneous Test), an F-calculation value of 12.9121 was obtained with a significance probability level of 0.0000. This probability value is well below the significance level of 0.05 ($0.0000 < 0.05$) provides a strong empirical basis for accepting the third hypothesis (H3). This proves that simultaneously or together, the variables of Intellectual Capital (X1) and Corporate Governance (X2) have a significant effect on the Company Value (Y) of mining sector companies listed on the Indonesia Stock Exchange for the 2021–2024 period.

Simultaneous significance amid this partial insignificance is a phenomenon that can be explained through the perspective of comprehensive evaluation. Investors in the capital market tend not to judge companies based on only one partial aspect such as only looking at employee efficiency (Intellectual Capital) or only looking at who the commissioner is (Corporate Governance).

Instead, investors make a holistic assessment by combining the two pieces of information. Intellectual Capital plays the role of knowledge that is transferred to generate high asset value to increase the value of the company, while (Budiarso, 2014) Corporate Governance supervises or monitors and controls management performance and ensures management accountability based on the regulatory framework. The concept of Corporate Governance is proposed to achieve the company's goals without having to be involved in conflicts with shareholders. So that a conducive situation will be created that can benefit various parties such as managers and investors. Basically, high intellectual capital will be able to improve financial performance and will be even better when the company meets the principles of (Yanni, 2013) Corporate Governance so that investors can appreciate and not ignore the company. (Saraha et al., 2022)

The Influence of Intellectual Capital on Company Value with Profitability Moderation

The fourth hypothesis test (H4) was conducted to examine the role of Profitability as a moderation variable in the relationship between Intellectual Capital and Company Value. Based on the results of the Moderated Regression Analysis (MRA) test on the interaction variable

X1Z, a negative directional coefficient value of -0.1907 was obtained with a significance probability level of 0.2707. Given that the probability value is greater than the significance level of 0.05 ($0.2707 > 0.05$), the fourth hypothesis is rejected. This result empirically proves that Profitability cannot moderate (either strengthen or weaken) the relationship between Intellectual Capital and Corporate Value in the mining sector.

The results of this study are in line with research conducted by profitability does not play a positive and also significant role in mediating the influence of intellectual capital on company value (Tobin's Q) because profitability does not mediate all components of intellectual capital in influencing company value, but only mediates the human capital component (VAHU). Natsir & Wake Up (2021)

The Influence of Corporate Governance on Company Value with Profitability Moderation

The fifth hypothesis test (H5) aims to find out whether the Profitability variable can moderate the relationship between Corporate Governance and Corporate Value. Based on the results of the regression test with the interaction variable (X2Z), a coefficient value of -13.629 was obtained with a significance probability level of 0.3056. Given that the probability value is far above the significance level of 0.05 ($0.3056 > 0.05$), the fifth hypothesis is rejected. These results provide empirical evidence that Profitability has not been proven to moderate the influence of Corporate Governance on Company Value. In other words, the high and low corporate profit does not strengthen or weaken the role of the Board of Independent Commissioners in influencing investors' perception of the company's value.

The results of this study are in line with the findings that Fadila & Rahmiyatun (2024) corporate governance and profitability do not show a significant influence on company value. This condition can be influenced by the complexity of the relationship between the two variables, the difference in the level of implementation of corporate governance in each company, and the dominance of external factors such as instability in market conditions. In addition, the company's value also tends to be more influenced by operational factors and other business strategies that are considered to determine the performance and market perception of the company.

CONCLUSION

The analysis reveals that Intellectual Capital, measured by the Value Added Intellectual Coefficient (VAIC™), and Corporate Governance, proxied by the proportion of independent commissioners, exert no significant individual effects on the firm value of mining sector companies listed on the Indonesia Stock Exchange from 2021–2024, suggesting that investors in this sector undervalue intellectual asset efficiency and the supervisory role of independent boards. However, these factors together significantly influence firm value, underscoring their combined relevance to investors. Profitability fails to moderate either relationship, indicating that profit levels do not alter these dynamics in the mining industry. For future research, scholars could explore moderating roles of alternative factors, such as commodity price volatility or environmental, social, and governance (ESG) disclosures, in diverse sectors or extended periods to uncover contextual variations in these relationships.

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