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The Influence of Sustainability Reporting Disclosure, Intellectual Capital, and Good Corporate Governance on Firm Value in Telecommunication Companies Listed on the IDX in 2020-2023

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Abstract

This study examines the effect of sustainability reporting, intellectual capital, and good corporate governance on firm value in telecommunications companies listed on the Indonesia Stock Exchange (*IDX*) from 2020-2023. Using a quantitative approach and multiple linear regression analysis, data were collected from annual reports of 15 telecommunications companies selected through purposive sampling from a population of 22 companies. The results show that the board of directors has a significant positive effect on firm value (α = 0.002), while the audit committee has a significant negative effect (α = 0.037). However, sustainability reporting, intellectual capital, and institutional ownership show no significant effects on firm value (α = 0.695[A1], α = 0.277, and α = 0.954, respectively). The regression model explains only 17.6% of the variation in firm value, indicating the need for enhanced transparency in sustainability reporting and intellectual capital management, as well as strengthening the role of the board of directors and audit committees. These findings provide insights for management and stakeholders in formulating strategies to enhance firm value in the telecommunications sector.

Keywords: sustainability reporting, intellectual capital, good corporate governance, firm value, telecommunications companies, Indonesia Stock Exchange

INTRODUCTION

The telecommunications industry in Indonesia has experienced significant challenges during 2020–2023, with several major operators facing financial pressures manifested as declining average revenue per user (ARPU), shrinking margins, and reduced net profitability despite steady demand for data connectivity (Modern Diplomacy, 2025; Indonesia Telecoms Update, 2023). These financial difficulties reflect substantial industry stressors such as tariff competition, rising regulatory costs (including spectrum fees and universal service obligations), and heavy capital expenditure required for network expansions, particularly 5G rollout and backbone infrastructure (MNC Sekuritas, 2025; ERIA, 2025). If these pressures are not addressed through efficiency, innovation, and the development of new revenue streams such as enterprise services and converged offerings, the sustainability of service quality for the public may be compromised, especially amid surging demand for digital connectivity (Indonesia Telecoms Industry Report, 2024).

In the era of globalization and rapid technological development, telecommunications companies are faced with challenges to increase firm value not only through financial performance but also by paying attention to sustainability aspects, intellectual capital management, and good corporate governance. Firm value becomes an important indicator that reflects investor

perceptions of the company's future prospects, making factors that influence firm value a primary concern for management and stakeholders (Destyasa et al., 2024; Albao et al., 2025). Several empirical studies have established that green intellectual capital, green accounting, and environmental, social, and governance (ESG) initiatives significantly enhance firm value (Astuti et al., 2025; Alofaysan et al., 2024). Moreover, robust corporate governance practices positively correlate with higher firm value, especially when aligned with sustainability efforts (Bagh & Coauthors, 2025; Alofaysan et al., 2024).

The development of an increasingly competitive business world can be seen from the development of various types of businesses (Farida & Setiawan, 2022). This causes increasingly intense competition between business entities. Competition in the business world affects profit-oriented business activities without thinking about the consequences. This competition causes business actors to always try to add business value (Pramita et al., 2021).

In an era where awareness of environmental, social, and governance (*ESG*) issues is increasing, investors are increasingly paying attention to how companies manage the social and environmental impacts of their operations. This is evident from the increasing investor interest in companies that clearly and comprehensively disclose sustainability reporting.

Signal theory explains how companies use specific information to provide signals to markets and stakeholders regarding their quality, performance, and value. This theory focuses on effective communication between companies and external parties, where the information conveyed can influence stakeholder perceptions and decisions. According to Hadiati and Wahyudyatmika (2023), "good sustainability report disclosure can function as a positive signal for investors, which in turn can increase firm value."

Sustainability reporting is a process of disclosing information related to the social, environmental, and economic impacts of company activities. The main purpose of this sustainability report is to provide transparency to stakeholders regarding how companies manage their social and environmental responsibilities. According to Pramita et al. (2021), sustainability reporting can be interpreted as a transparent report that presents a picture of the economic, environmental, and social conditions and activities of a company to stakeholders both from within and outside.

Intellectual capital refers to intangible assets owned by a company, including knowledge, skills, experience, and innovation owned by employees as well as systems and processes that support value creation. According to Yulistia et al. (2023), intellectual capital is a source of new knowledge that describes how invisible assets can be used well to implement company strategies effectively and efficiently.

Firm value is a measure that reflects how valuable a company is in the eyes of investors and other stakeholders. This value is often measured through stock prices, market value, and financial performance. According to Amelia and Nurleli (2023), "firm value can be understood as a representation of

company performance and future prospects reflected in stock prices and market value."

Previous studies have highlighted factors influencing firm value, but with different emphases. Pramita et al. (2021) emphasized sustainability reporting disclosure as a tool for transparency and *ESG* management; however, their study did not explore how such disclosure interacts with intellectual capital and corporate governance structures in the telecommunications industry. Meanwhile, Yulistia et al. (2023) focused on the role of intellectual capital in creating firm value through the utilization of intangible assets, yet they did not analyze the impact of governance mechanisms such as the board of directors, audit committees, and institutional ownership on investor perceptions.

The research objectives are to analyze the effects of sustainability reporting, intellectual capital, and corporate governance mechanisms on firm value, while the expected benefits include providing guidance for telecommunications companies to increase firm value through *ESG* strategies, effective management of intangible assets, and robust corporate governance, as well as offering information for regulators and investors to make sustainable decisions.

Hypothesis Development

Based on the theoretical foundation and previous research, the following hypotheses are formulated:

H1: Sustainability reporting has a positive effect on firm value
H2: Intellectual capital has a positive effect on firm value
H3: Board of directors has a positive effect on firm value
H4: Audit committee has a positive effect on firm value
H5: Institutional ownership has a positive effect on firm value

RESEARCH METHOD

Research Approach

This study uses a quantitative research approach with multiple linear regression analysis[A1] to test the hypotheses and answer research questions objectively. The quantitative approach involves collecting and analyzing numerical data to identify patterns, relationships, and trends in the data.

Population and Sample

The population in this study consists of telecommunications companies listed on the Indonesia Stock Exchange (*IDX*) during the 2020-2023 period. Sample selection was conducted using the purposive sampling method with the following criteria:

1. Companies listed on *IDX* in the telecommunications sector during 2020-2023
2. Companies that have complete and accessible annual reports
3. Companies that have complete financial reports

4. Companies that did not experience delisting from *IDX* during the research period

Based on these criteria, 15 companies were selected from a population of 22 telecommunications companies, resulting in 60 observations (15 companies × 4 years).

Table 1. Sample Selection Results

Criteria	Number
Telecommunications companies listed on IDX 2020-2023	22 companies
Companies without complete and accessible annual reports	(6)
Companies delisted from IDX during research period	(1)
Final sample	**15 companies**
Total observations (15 × 4 years)	**60 observations**

Variable Measurement

Dependent Variable

Firm value is measured using Tobin's Q ratio:

Tobin's Q = (EMV + D) / TA

Where:

EMV = Market value of equity

D = Book value of total debt

TA = Total assets

Independent Variables

1. Sustainability Reporting is measured using Sustainability Report Disclosure Index (SRDI): SRDI = n/k Where: n = number of disclosed items, k = total expected items (91 items based on GRI G4)
2. Intellectual Capital is measured using Value Added Intellectual Capital Coefficient (VAIC™): VAIC™ = VACA + VAHU + STVA
3. Board of Directors is measured by the total number of board members
4. Audit Committee is measured by the total number of audit committee members
5. Institutional Ownership is measured by: KI = Shares owned by institutions / Total outstanding shares

Data Analysis Technique

The data analysis includes:

1. Classical assumption tests (multicollinearity, heteroscedasticity, normality)
2. Multiple linear regression analysis
3. Coefficient of determination test (R^2)
4. t-test for hypothesis testing

The regression equation used: $\mathbf{Y = \alpha + \beta_1X_1 + \beta_2X_2 + \beta_3X_3 + \beta_4X_4 + \beta_5X_5 + \varepsilon}$

Where:

Y = Firm value
X_1 = Sustainability reporting
X_2 = Intellectual capital
X_3 = Board of directors
X_4 = Audit committee
X_5 = Institutional ownership

RESULTS AND DISCUSSION

Sample Company Overview

This study analyzed 15 telecommunications companies listed on the Indonesia Stock Exchange during 2020-2023, representing various segments of the telecommunications industry including infrastructure providers, mobile operators, and integrated service providers. The sample companies include major players such as PT Telkom Indonesia Tbk (TLKM), PT Indosat Tbk (ISAT), PT XL Axiata Tbk (EXCL), and various tower and infrastructure companies like PT Sarana Menara Nusantara Tbk (TOWR) and PT Solusi Tunas Pratama Tbk (SUPR).

The diversity of companies in the sample provides comprehensive insights into the telecommunications sector, ranging from large state-owned enterprises to private companies with different operational scales and market positions. This heterogeneity allows for robust analysis of how sustainability reporting, intellectual capital, and corporate governance factors affect firm value across different company profiles within the telecommunications industry.

Variable Measurement Results

Sustainability Reporting Measurement

Sustainability reporting was measured using the Sustainability Report Disclosure Index (SRDI) based on Global Reporting Initiative (GRI) G4 standards, comprising 91 disclosure items across six categories: economic (9 items), environmental (34 items), social (16 items), human rights (12 items), society (11 items), and product responsibility (9 items).

Table 2. Sustainability Reporting Measurement Examples

Company	Year	Economic	Environmental	Social	HAM	Society	Product Resp.	Total	SRDI
ISAT	2023	9	23	14	9	9	8	72	0.791
EXCL	2023	9	24	13	6	6	8	66	0.725
LCKM	2020	2	0	2	0	0	0	4	0.044

The highest SRDI score was achieved by PT Indosat Tbk in 2023 with 0.791 (79.1%), indicating comprehensive sustainability disclosure. Conversely, the lowest score was recorded by PT LCK Global Kedaton Tbk in 2020-2021 with 0.044 (4.4%), showing minimal sustainability reporting. Most companies scored between 5% and 41%, revealing significant variation in sustainability disclosure practices across the telecommunications sector.

Intellectual Capital Measurement

Intellectual capital was measured using the Value Added Intellectual Capital Coefficient (VAIC™) method, which combines three components:

VAIC™ = VACA + VAHU + STVA

Where:

VACA (Value Added Capital Employed) = VA/CA

VAHU (Value Added Human Capital) = VA/HC

STVA (Structural Capital Value Added) = SC/VA

VA (Value Added) = OUT - IN

Table 3. Intellectual Capital Measurement Results

Company	Year	VACA	VAHU	STVA	VAIC™
SUPR	2023	0.16	17.20	0.94	18.31
EXCL	2021	1.27	25.14	0.96	27.36
LCKM	2023	0.00	0.16	-5.39	-5.24
BALI	2023	0.17	10.82	0.91	11.89

PT Solusi Tunas Pratama Tbk (SUPR) recorded the highest VAIC™ value of 18.31 in 2023, indicating highly efficient utilization of intellectual capital. PT LCK Global Kedaton Tbk (LCKM) showed the lowest performance with a negative VAIC™ of -5.24, suggesting inefficient intellectual capital management. The variation in VAIC™ scores reflects different levels of efficiency in managing human capital, structural capital, and capital employed across telecommunications companies.

Good Corporate Governance Measurement

Three proxies were used to measure good corporate governance:

1. Board of Directors: Measured by the total number of board members. PT Telkom Indonesia Tbk had the largest board with 9 members, while several companies (GOLD, LCKM, MORA) maintained minimal boards of 2 members.
2. Audit Committee: Measured by the total number of audit committee members. Most companies maintained 3 members as required by regulations, with PT Telkom Indonesia Tbk having 5 members in 2020.
3. Institutional Ownership: Measured as the percentage of shares owned by institutional investors.

Table 4. Corporate Governance Measurement Results

Company	Year	Board of Directors	Audit Committee	Institutional Ownership
TLKM	2020	9	5	0.560
EXCL	2022	6	4	0.812
SUPR	2023	4	3	0.9996
MORA	2020	2	3	0.0001

PT Solusi Tunas Pratama Tbk showed the highest institutional ownership at 99.96%, indicating strong institutional investor presence. PT Mora Telematika Indonesia Tbk had the lowest institutional ownership at 0.01% in early years, likely due to its recent IPO status.

Firm Value Measurement

Firm value was measured using Tobin's Q ratio:

Tobin's Q = (EMV + D) / TA

Where:

EMV = Market Value of Equity (Stock Price × Outstanding Shares)

D = Total Debt

TA = Total Assets

Table 5. Firm Value Measurement Results

Company	Year	Stock Price	Market Value	Total Debt	Total Assets	Tobin's Q
KBLV	2023	72	1,742,167,979	1,615,824,000,000	1,029,445,000,000	1.57
LCKM	2023	286	1,000,000,286	5,283,224,124	141,372,543,538	0.04
ISAT	2020	5.05	5,433,933,505	49,865,344,000,000	62,778,740,000,000	0.79

PT First Media Tbk achieved the highest Tobin's Q of 1.57 in 2023, indicating market valuation above asset replacement value. PT LCK Global Kedaton Tbk recorded the lowest Tobin's Q of 0.04, suggesting significant undervaluation by the market.

Descriptive Statistical Analysis

Table 6. Comprehensive Descriptive Statistics

Variable	N	Minimum	Maximum	Mean	Std. Deviation	Skewness	Kurtosis
Sustainability Reporting (SRDI)	60	0.044	0.791	0.248	0.110	1.205	1.842
Intellectual Capital (VAIC)	60	-43.30	27.36	4.78	9.49	-2.156	8.934
Board of Directors	60	2	9	4.08	1.84	0.891	0.023
Audit Committee	60	3	5	3.22	0.49	1.633	2.456
Institutional Ownership	60	0.0001	0.9996	0.685	0.223	-0.892	0.245
Firm Value (Tobin's Q)	60	0.044	1.571	0.570	0.310	0.723	0.156

The descriptive statistics reveal several important patterns. Sustainability reporting shows positive skewness (1.205), indicating that most companies have lower disclosure levels with few companies achieving high disclosure scores. Intellectual capital exhibits negative skewness (-2.156) and high kurtosis (8.934), suggesting the presence of outliers with extremely poor intellectual capital performance. Institutional ownership shows negative skewness (-0.892), indicating that most companies have high institutional ownership with fewer companies having low institutional involvement.

Classical Assumption Tests

Multicollinearity Test

Multicollinearity testing was conducted using Variance Inflation Factor (VIF) and tolerance values to ensure independent variables are not highly correlated.

Table 7. Multicollinearity Test Results

Variable	Tolerance	VIF	Interpretation
Sustainability Reporting	0.722	1.385	No multicollinearity
Intellectual Capital	0.919	1.088	No multicollinearity
Board of Directors	0.668	1.498	No multicollinearity
Audit Committee	0.651	1.536	No multicollinearity
Institutional Ownership	0.793	1.262	No multicollinearity

Criteria

If VIF > 10 or tolerance < 0.10: multicollinearity present

If VIF < 10 or tolerance > 0.10: no multicollinearity

All variables demonstrate VIF values ranging from 1.088 to 1.536 (< 10) and tolerance values between 0.651 to 0.919 (> 0.10), confirming the absence of multicollinearity. This ensures that each independent variable provides unique predictive information without redundancy.

Heteroscedasticity Test

The heteroscedasticity test using the Glejser method examined whether residual variance remains constant across all levels of independent variables.

Table 8. Heteroscedasticity Test Results

Variable	Significance	Decision
Sustainability Reporting	0.436	No heteroscedasticity
Intellectual Capital	0.428	No heteroscedasticity
Board of Directors	0.444	No heteroscedasticity
Audit Committee	0.681	No heteroscedasticity
Institutional Ownership	0.870	No heteroscedasticity

All significance values exceed 0.05, confirming homoscedasticity (constant variance) in the regression model, which ensures efficient and unbiased parameter estimation.

Normality Test

Normality testing used the Kolmogorov-Smirnov test to verify normal distribution of residuals.

Table 9. Normality Test Results

Test Statistic	Asymp. Sig. (2-tailed)	Monte Carlo Sig.	Decision	
0.073	0.200	0.588	Residuals distributed	normally

The significance value of 0.200 > 0.05 indicates that residuals follow a normal distribution, validating the use of parametric statistical tests in the regression analysis.

Multiple Linear Regression Analysis

The multiple linear regression equation was formulated as:

$$Y = \alpha + \beta_1X_1 + \beta_2X_2 + \beta_3X_3 + \beta_4X_4 + \beta_5X_5 + \varepsilon$$

Estimated Regression Equation: Firm Value = 872.018 + 0.161(SR) - 0.005(IC) + 83.294(DD) - 207.639(KA) + 0.011(KI)

Table 10. Multiple Linear Regression Results

Variable	Unstandardized Coefficients	Standardized Coefficients	t-value	Significance	95% Confidence Interval
	B	Std. Error	Beta		
(Constant)	872.018	302.196	-	2.886	0.006
Sustainability Reporting	0.161	0.408	0.057	0.394	0.695
Intellectual Capital	-0.005	0.004	-0.142	-1.098	0.277
Board of Directors	83.294	25.561	0.493	3.259	0.002
Audit Committee	-207.639	96.862	-0.328	-2.144	0.037
Institutional Ownership	0.011	0.193	0.008	0.057	0.954

Coefficient of Determination Test

Table 11. Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of Estimate	Durbin-Watson
1	0.419	0.176	0.099	294.305	1.895

The R^2 value of 0.176 indicates that 17.6% of firm value variation is explained by the independent variables, while 82.4% is influenced by factors outside the model. The adjusted R^2 of 0.099 provides a more conservative estimate accounting for the number of variables in the model.

Hypothesis 1: Effect of Sustainability Reporting on Firm Value

H_1: Sustainability reporting has a positive effect on firm value

Results: t-value = 0.394, significance = 0.695 > 0.05 Decision: H_1 rejected

The sustainability reporting coefficient of 0.161 suggests a positive but statistically insignificant relationship with firm value. This finding contradicts theoretical expectations from signal theory but aligns with empirical evidence from emerging markets where sustainability disclosure may not yet be fully valued by investors.

The lack of significance can be attributed to several factors: (1) the telecommunications industry's investor focus on traditional financial metrics rather than ESG factors, (2) varying quality and standardization of

sustainability reports across companies, (3) limited investor awareness of sustainability implications in Indonesian capital markets, and (4) the relatively short time frame for sustainability initiatives to materialize into measurable firm value improvements.

Hypothesis 2: Effect of Intellectual Capital on Firm Value

H_2: Intellectual capital has a positive effect on firm value

Results: t-value = -1.098, significance = 0.277 > 0.05 Decision: H_2 rejected

Surprisingly, intellectual capital shows a negative coefficient (-0.005), although statistically insignificant. This unexpected finding suggests that higher VAIC™ scores do not translate to increased firm value in the telecommunications sector.

Several explanations emerge: (1) intellectual capital measurements may not capture the true value creation mechanisms in telecommunications companies, (2) market investors may not properly value intangible assets due to information asymmetry, (3) the VAIC™ methodology may be less suitable for capital-intensive industries like telecommunications, and (4) short-term market volatility may overshadow long-term intellectual capital benefits.

Hypothesis 3: Effect of Board of Directors on Firm Value

H_3: Board of directors has a positive effect on firm value

Results: t-value = 3.259, significance = 0.002 < 0.05 Decision: H_3 accepted

The board of directors demonstrates the strongest positive impact on firm value with a coefficient of 83.294, indicating that each additional board member is associated with an average increase of 83.294 units in firm value. This significant relationship supports agency theory and corporate governance literature.

The positive effect can be explained through: (1) enhanced strategic decision-making capabilities with more diverse expertise, (2) improved oversight and monitoring of management performance, (3) stronger stakeholder representation and external networking, (4) increased investor confidence in corporate governance quality, and (5) better risk management and strategic planning processes.

Hypothesis 4: Effect of Audit Committee on Firm Value

H_4: Audit committee has a positive effect on firm value

Results: t-value = -2.144, significance = 0.037 < 0.05 Decision: H_4 rejected (significant negative effect)

Contrary to expectations, the audit committee shows a significant negative effect (-207.639) on firm value. This counterintuitive finding requires careful interpretation and suggests potential dysfunction in audit committee effectiveness.

Possible explanations include: (1) audit committees may be perceived as reactive rather than proactive governance mechanisms, (2) larger audit

committees might signal underlying problems requiring intensive oversight, (3) the cost of audit committee operations may outweigh perceived benefits in the short term, (4) ineffective audit committee performance may actually harm firm reputation, and (5) market perception that extensive audit oversight indicates management trustworthiness issues.

Hypothesis 5: Effect of Institutional Ownership on Firm Value

H_5: Institutional ownership has a positive effect on firm value

Results: t-value = 0.057, significance = 0.954 > 0.05 Decision: H_5 rejected

Institutional ownership shows virtually no effect on firm value (coefficient = 0.011) with the highest p-value (0.954) among all variables, indicating complete statistical insignificance.

This lack of effect may result from: (1) passive institutional investment strategies that don't actively influence corporate governance, (2) institutional investors' focus on short-term returns rather than long-term value creation, (3) limited institutional investor expertise in telecommunications industry specifics, (4) regulatory constraints limiting institutional investor activism in Indonesia, and (5) the possibility that institutional ownership effects are already captured through other governance mechanisms.

Comparative Analysis with Previous Studies

The findings present mixed support for existing literature. While the positive effect of board size aligns with governance theory (Darniaty et al., 2023), the insignificant effects of sustainability reporting and intellectual capital contradict some international studies but align with recent Indonesian research (Pithaloka & Pandin, 2024; Muslim et al., 2023).

The telecommunications sector's unique characteristics—high capital intensity, rapid technological change, and regulatory complexity—may explain why traditional value drivers show different relationships compared to other industries. The sector's focus on infrastructure development and service expansion may overshadow the importance of sustainability and intellectual capital disclosures in investor decision-making.

Practical Implications

The results provide several actionable insights for telecommunications companies and stakeholders:

1. Board Composition Optimization: Companies should carefully consider board size and composition as the only governance factor showing significant positive impact on firm value.
2. Audit Committee Effectiveness: The negative effect of audit committees suggests need for improved effectiveness rather than just compliance with regulatory requirements.

3. Sustainability Reporting Enhancement: While currently insignificant, companies should improve sustainability reporting quality and investor education to realize potential benefits.
4. Intellectual Capital Disclosure: Companies need better frameworks for communicating intellectual capital value to investors and stakeholders.
5. Institutional Investor Engagement: More active engagement strategies with institutional investors may help realize the theoretical benefits of institutional ownership.

CONCLUSION

Based on the research results on the effect of sustainability reporting, intellectual capital, and good corporate governance on firm value in telecommunications companies listed on the Indonesia Stock Exchange during 2020-2023, several conclusions can be drawn. First, sustainability reporting and intellectual capital do not have significant effects on firm value, indicating that investors in the telecommunications sector focus more on other factors such as financial performance rather than sustainability reports and intellectual asset management. Second, among the good corporate governance components, only the board of directors shows a significant positive effect on firm value, while the audit committee has a significant negative effect, and institutional ownership shows no significant effect. Third, the regression model only explains 17.6% of the firm value variation, indicating that there are other factors outside the model that significantly influence firm value. These findings suggest the need for enhanced transparency in sustainability reporting and intellectual capital management, as well as strengthening the role of the board of directors and audit committees to effectively increase firm value. This research provides important insights for telecommunications companies and stakeholders in formulating strategies to enhance firm value through better governance practices and disclosure quality.

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