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The Influence of Intellectual Capital, Growth Opportunity, and Profitability on Firm Value: Evidence from Telecommunications Sub-Sector Companies Listed on the Indonesia Stock Exchange (IDX) During 2020–2024

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Abstract: This study examines the influence of intellectual capital, growth opportunity, and profitability on firm value among telecommunications sub-sector companies listed on the Indonesia Stock Exchange over the 2020–2024 period. The research adopts a quantitative approach with a descriptive orientation, drawing on secondary data sourced from audited financial statements. Sample selection was carried out through purposive sampling, and hypotheses were tested using panel data regression analysis processed via EViews software. Firm value was operationalized using Tobin's Q, intellectual capital was measured through the Value Added Intellectual Coefficient (VAIC™), growth opportunity was proxied by asset growth, and profitability was assessed using Return on Assets (ROA). Partially, no significant effect, while growth opportunity has a significant negative effect, suggesting investors are concerned about investment risk and financing burdens associated with growth. Companies are encouraged to improve resource management efficiency and profitability to strengthen investor confidence and firm value.

Keywords: *Intellectual Capital, Growth Opportunity, Profitability, Firm Value, Telecommunications Sub-Sector.*

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INTRODUCTION

The primary objective of a company is to create and sustain firm value, which plays a central role in enhancing shareholder wealth and delivering broader economic benefits to society through the optimal utilization of available resources (Gardner et al., 2012). Companies that manage their resources efficiently and effectively are not merely oriented toward short-term profit generation, but are also committed to the continuous and sustainable enhancement of firm value. In this context, firm value serves as a key market signal, reflecting investor perceptions of both current performance and future growth prospects (Fajriah et al., 2022).

From an investor's perspective, an increase in firm value is interpreted as a positive signal regarding the company's operational performance, thereby encouraging more favorable investment decisions. When a company's market value exceeds its book value, investors demonstrate a greater willingness to pay a premium for its shares, signaling confidence in the company's long-term prospects (Cahyani Pangestuti et al., 2022). This

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dynamic is well explained by Signaling Theory proposed by Spence (1973), which describes how interactions occur between two parties under conditions of information asymmetry. Companies that transparently disclose financial information help reduce this asymmetry, build investor trust, and send positive signals about their future performance, ultimately contributing to an increase in firm value (Putri Tampubolon & Suzan, 2024).

Connelly et al. (2011) further assert that signaling theory posits that companies transmit signals to external stakeholders in order to mitigate information asymmetry, and that such signals are most effective when they are clearly observable, costly to produce, and linked to qualities that cannot be directly verified. Accordingly, the credible and transparent communication of financial information through reports and managerial policies plays a vital role in shaping market perceptions of firm value. Complementing this perspective, the Resource-Based View (RBV) theory developed by Barney (1991) argues that sustainable competitive advantage is achievable when firms effectively possess and leverage unique internal resources. As noted by Madhani (2010), both tangible resources such as physical and financial assets, and intangible resources such as knowledge, brand, and reputation, are critical determinants of competitive advantage, which in turn directly contributes to enhanced firm value.

The telecommunications sub-sector in Indonesia during the 2020–2024 period exhibited complex dynamics with various challenges that directly impacted firm value. The rapid advancement of digital technology, rising demand for data services, and intensifying competition among telecommunications companies have collectively shaped industry conditions in recent years (Redaksi, 2024). These developments have compelled companies to continuously refine their operational performance and business strategies to maintain competitiveness and attract investor interest in the capital market. However, improvements in company performance do not always translate proportionally into higher firm value. This was evidenced by PT Telkom Indonesia (Persero) Tbk., which experienced significant stock price pressure due to a massive sell-off by foreign investors, resulting in approximately Rp2.15 trillion in capital outflows and an approximately 11% decline in share price within a single week, driven not by deteriorating fundamentals but by unmet market expectations (Redaksi, 2024).

Fluctuations in firm value across the telecommunications sub-sector are further corroborated by empirical data from the 2020–2024 period. PT Telkom Indonesia (TLKM) recorded a decline in firm value from 1.82 in 2023 to 1.35 in 2024, while PT Link Net Tbk. (LINK) fell from 1.64 in 2021 to 0.89 in 2024. The most significant decline was observed at PT Jasnita Telekomindo Tbk. (JAST), whose firm value dropped sharply from 2.55 in 2021 to 0.92 in 2024. Similarly, PT Centratama Telekomunikasi Indonesia Tbk. (CENT), PT Gihon Telekomunikasi Indonesia Tbk. (GHON), and PT Sarana Menara Nusantara Tbk. (TOWR) all demonstrated a consistent downward trend in firm value throughout 2021–2024, reflecting weakening investor confidence in the face of broader industry pressures. Additionally, Indonesia's internet network infrastructure quality continues to lag behind several Southeast Asian peers, further undermining market perceptions of the sector's long-term prospects (Sumbar, 2023). Firm value serves as the foundation for business sustainability, as it enables the generation of maximum profits, attracts investor interest, and drives investment growth (Hapsari et al., 2025).

Intellectual capital, as an intangible asset, now plays an increasingly vital role in the knowledge-based economy era. Its contribution to enhancing firm value is highly significant. Companies that are able to optimally manage and leverage intellectual capital can create innovative products and services, improve operational process efficiency, and

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build sustainable competitive advantage (Saraswati et al., 2024). Against this backdrop, the management of intellectual capital, growth opportunity, and profitability emerges as a key determinant in strengthening firm value within Indonesia's telecommunications sub-sector. Intellectual capital, as an intangible asset, plays a significant role in creating economic value and competitive advantage (Ardianto & Rivandi, 2018; Nur Aulia & Sugeng Hariyanto, 2020). Growth opportunity signals to investors the company's potential to realize economically valuable investments in future periods (Suzan & Supriyadiputri, 2023), while profitability reflects management's effectiveness in utilizing company assets to generate optimal financial performance, thereby attracting shareholder interest and reinforcing market trust (Sihombing et al., 2024; Cahyani Pangestuti et al., 2022).

However, prior empirical studies have produced inconsistent findings across these three variables, constituting the central research gap that motivates the present study. With respect to intellectual capital, several studies confirm a significant positive effect on firm value (Ardianto & Rivandi, 2018; Saraswati et al., 2024), yet others report no significant relationship (Nur Aulia & Sugeng Hariyanto, 2020), suggesting that the value-relevance of intellectual capital may be contingent on sectoral and contextual factors not yet fully explored. Similarly, the evidence on growth opportunity remains divided: while Suzan & Supriyadiputri (2023) document a positive and significant influence on firm value, contrasting studies find either an insignificant or even negative effect, indicating that asset growth does not uniformly translate into perceived market value across different firm settings. The relationship between profitability and firm value is likewise contested; although Sihombing et al. (2024) and Cahyani Pangestuti et al. (2022) report a positive significant effect of ROA on Tobin's Q, other findings suggest that profitability alone is insufficient to explain firm value variations, particularly in capital-intensive and technology-driven industries.

Given these unresolved empirical tensions, this study investigates the influence of intellectual capital, growth opportunity, and profitability on firm value in telecommunications sub-sector companies listed on the Indonesia Stock Exchange for the period 2020–2024. Firm value is proxied using Tobin's Q, intellectual capital is measured through the Value Added Intellectual Coefficient (VAIC™), growth opportunity is proxied by asset growth, and profitability is measured using Return on Assets (ROA). By focusing on the telecommunications sub-sector a knowledge-intensive industry in which intangible resources and innovation capacity are strategically decisive this study seeks to provide contextually grounded evidence that reconciles existing contradictions in the literature. The findings are expected to contribute both theoretically and practically to the understanding of value-driving factors in technology-based sectors, and to serve as a reference for investors and future researchers.

Signaling Theory was first introduced by Michael Spence (1973) and explains how companies communicate information to investors to reduce information asymmetry between two parties. In the context of firm value, information disclosed by companies particularly through financial reports serves as a signal regarding the company's condition and future prospects. Positive signals tend to elevate market perception of firm value, while negative signals diminish investor confidence and reflect lower firm value. For a signal to be credible, it must be costly to falsify; otherwise, it loses its reliability. Consequently, companies that consistently deliver credible and transparent signals are better positioned to attract investor trust and strengthen the market's positive perception of their value (Suzan & Ramadhani, 2024).

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Resource-Based View (RBV), developed by Wernerfelt (1984) and significantly refined by Barney (1991), argues that a firm's sustainable competitive advantage derives not merely from external factors but primarily from its ability to effectively manage unique internal resources. A resource can generate sustainable competitive advantage only when it is valuable, rare, inimitable, and non-substitutable criteria commonly referred to as the VRIN framework. This perspective explains why firms operating within the same industry may exhibit different levels of performance, as each firm differs in how it manages, develops, and maximizes its internal resources. Companies supported by competent management and core-competency-driven strategies tend to achieve superior performance, as such advantages enable a deeper understanding of customer needs and contribute to overall organizational growth (Dasuki et al., 2021).

Firm value reflects investors' overall assessment of a company's success and is fundamentally oriented toward maximizing shareholder wealth through the appreciation of share prices. A higher market share price indicates a higher firm value, which in turn attracts greater investor interest and supports business sustainability. As firm value increases, it signals to investors that current performance is sustainable into future periods, thereby enhancing shareholder prosperity. The primary objective of a company, according to the theory of the firm, is to maximize its value, and this is achieved through sound financial performance, strong growth prospects, and consistent delivery of returns to shareholders (Setianingtiyas et al., 2022).

In this study, hypotheses are constructed to examine the effect of the independent variables comprising intellectual capital, growth opportunity, and profitability on the dependent variable of firm value as measured by Tobin's Q. The formulation of these hypotheses aims to empirically confirm the consistency between Signaling Theory and the Resource-Based View (RBV) and the empirical evidence drawn from prior research.

Based on the theoretical framework and review of previous studies, the hypotheses proposed in this study are as follows:

H_1: Intellectual Capital has a significant positive effect on Tobin's Q-Based Firm Value in Telecommunications Sub-Sector Companies listed on the Indonesia Stock Exchange for the period 2020–2024.

H_2: Growth Opportunity has a significant positive effect on Tobin's Q-Based Firm Value in Telecommunications Sub-Sector Companies listed on the Indonesia Stock Exchange for the period 2020–2024.

H_3: Profitability has a significant positive effect on Tobin's Q-Based Firm Value in Telecommunications Sub-Sector Companies listed on the Indonesia Stock Exchange for the period 2020–2024.

H_4: Intellectual Capital, Growth Opportunity, and Profitability simultaneously have a significant effect on Tobin's Q-Based Firm Value in Telecommunications Sub-Sector Companies listed on the Indonesia Stock Exchange for the period 2020–2024..

RESEARCH METHODS

This study employs a quantitative research approach to examine the influence of intellectual capital, growth opportunity, and profitability on firm value in telecommunications sub-sector companies listed on the Indonesia Stock Exchange (IDX) for the period 2020–2024.. The research is descriptive in nature, aiming to portray the actual conditions of the object under study without any manipulation or intervention. The study adopts a panel data design that combines cross-sectional and time-series dimensions, as data were collected from multiple companies across a five-year

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observation period. This combination allows for simultaneous assessment of inter-company differences and temporal changes, providing a more comprehensive analytical perspective (Indrasetianingsih et al., 2020). The unit of analysis is at the group level, comprising a set of telecommunications companies, and the researcher's involvement is minimal since all data are derived from publicly available secondary sources, consistent with a non-contrived research setting.

The population examined in this study encompasses 22 companies within the telecommunications sub-sector that were listed on the Indonesia Stock Exchange throughout the 2020–2024 observation period. In determining the research sample, the purposive sampling method was employed, whereby sample selection is guided by predetermined criteria that align with the specific objectives of the study(Sugiyono, 2023). The criteria applied were: (1) companies categorized under the telecommunications sub-sector that were consistently listed on the IDX throughout 2020–2024, and (2) companies that consistently published annual reports during the same period. Data were sourced from audited financial statements and annual reports obtained through the IDX official website and each company's corporate website. Secondary data were chosen because all research variables including intellectual capital, growth opportunity, profitability, and firm value can be measured entirely from officially published information, making the data collection process more efficient and reliable (Sugiyono, 2023). Data collection techniques included documentation, which involved gathering financial report data to calculate Tobin's Q, VAIC™, asset growth, and ROA, as well as a library study to strengthen the theoretical foundation and support the development of the conceptual framework and hypotheses.

Data analysis was conducted using panel data regression processed through EViews software. Prior to regression estimation, descriptive statistical analysis was performed to systematically characterize each research variable (Sugiyono, 2023). Panel data regression, which integrates time-series and cross-sectional dimensions, was employed to evaluate both the simultaneous and partial effects of the independent variables on firm value (Indrasetianingsih et al., 2020). Firm value serves as the dependent variable, proxied by Tobin's Q, while the independent variables comprise intellectual capital measured by the Value Added Intellectual Coefficient (VAIC™), growth opportunity proxied by asset growth, and profitability measured by Return on Assets (ROA). The selection of these variables reflects their strategic relevance to value creation, innovation capacity, and resource governance within the telecommunications sector.

RESULTS AND DISCUSSION

Table 1. Descriptive Statistical Analysis Results

	Firm Value	Intellectual Capital	Growth Opportunity	profitability
Mean	1,716326	9,344955	-0,088385	0,016724
Median	1,359339	5,162878	0,041214	0,020850
Maximum	10,43175	164,5063	0,923911	0,122000
Minimum	0,158034	-41,39130	-7,999899	-0,276100
Std. Dev.	1,324344	19,72833	1,027584	0,069512
Observations	80	80	80	80

Table 1 reports the descriptive statistics for all research variables — firm value (Tobin's Q), intellectual capital (VAIC™), growth opportunity (asset growth), and profitability (ROA) — derived from 80 observations across 16 telecommunications sub-

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sector companies listed on the IDX over the 2020–2024 period. Firm value recorded a mean of 1.716 and a median of 1.359, with a standard deviation of 1.324, indicating moderate variability and a right-skewed distribution. The range spanning from 0.158 to 10.432 reflects considerable dispersion across sampled companies. Intellectual capital yielded a mean of 9.345 and a median of 5.163, with a wide range from −41.391 to 164.506 and a standard deviation of 19.728, suggesting substantial heterogeneity in the extent to which firms effectively leverage their knowledge-based resources.

Growth opportunity recorded a mean of −0.088 and a median of 0.041, suggesting that while some companies achieved positive asset growth, the overall average was negative across the observation period. The maximum value of 0.924 and minimum of −7.999, accompanied by a standard deviation of 1.028, indicate wide variation in growth prospects among telecommunications companies, implying that certain firms experienced substantial asset contraction while others managed to expand. This pattern suggests that the telecommunications sub-sector in Indonesia faced uneven growth dynamics during 2020–2024, likely influenced by differing levels of capital expenditure, infrastructure investment, and competitive positioning among firms. The negative mean further reflects broader industry challenges, including pricing pressures and the high cost of network modernization required to support digital transformation.

Profitability, measured by ROA, recorded a mean of 0.017 and a median of 0.021, indicating that most companies in the sample operated at relatively low profit margins. The maximum ROA of 0.122 and minimum of −0.276 reveal that while some companies generated consistent returns on their assets, others incurred significant losses during the study period, underscoring the financial vulnerability of certain players within the sub-sector. The standard deviation of 0.070 is comparatively smaller than those of the other variables, suggesting that profitability data are relatively more homogeneous across firms. Overall, the descriptive results indicate that the telecommunications sub-sector exhibited considerable cross-sectional heterogeneity across all key variables, highlighting the diverse financial conditions and resource management capabilities that characterize this industry during the observed period.

Chow Test

The Chow Test was performed to determine the preferred model between the Common Effect Model and the Fixed Effect Model, by assessing whether significant individual differences exist across cross-sectional units. The Fixed Effect Model is selected when the probability value falls below the 0.05 significance threshold.

Table 2. Chow Test Results

Redundant Fixed Effects Tests			
Effects Test	Statistic	d.f.	Prob.
Cross-section F	3,616062	(15,61)	0,0002
Cross-section Chi-square	50,892093	15	0

The Chow Test results yielded a cross-section probability value of 0.0000, which is below the 0.05 significance threshold. Consequently, the null hypothesis is rejected, and the Fixed Effect Model is determined to be more appropriate than the Common Effect Model, indicating the presence of significant individual heterogeneity across cross-sectional units that the model must account for.

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Hausman Test

The Hausman Test was subsequently conducted to determine the more appropriate model between the Fixed Effect Model and the Random Effect Model. This test evaluates whether individual effects are correlated with the independent variables, thereby informing the consistency and efficiency of the estimator. A probability value exceeding 0.05 indicates the preferability of the Random Effect Model.

Table 3. Hausman Test Results

Correlated Random Effects - Hausman Test			
Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section Random	0,119316	3	0,9894

The Hausman Test yielded a probability value of 0.9894, well above the 0.05 threshold, leading to acceptance of the null hypothesis and selection of the Random Effect Model (REM).

Lagrange Multiplier Test

To further validate this selection, the Lagrange Multiplier (LM) Test using the Breusch-Pagan method was subsequently conducted to determine whether the REM outperforms the Common Effect Model, whereby a probability value below 0.05 would confirm the appropriateness of the Random Effect Model.

Table 4. Lagrange Multiplier Test Results

Langrange Multiplier Tests For Random Effects						
Test	**Cross-section**	**Prob.**	**Time**	**Prob.**	**Both**	**Prob.**
Breusch-Pagan	18,22539	0	1,824588	0,1768	20,04998	0
Honda	4,26912	0	-1,350773	0,9116	2,063583	0,0195
King-Wu	4,26912	0	-1,350773	0,9116	0,758613	0,224
Standardized Honda	4,692306	0	-1,159124	0,8768	-1,06796	0,8572
Standardized King-Wu	4,692306	0	-1,159124	0,8768	-2,018297	0,9782
Gourieroux et al.					18,22539	0

The Breusch-Pagan Lagrange Multiplier Test returned a cross-section probability value of 0.0000, which is smaller than the 0.05 significance level, leading to rejection of the null hypothesis. This confirms that the Random Effect Model is more appropriate than the Common Effect Model. Taking into account the consistent results of both the Hausman Test and the Lagrange Multiplier Test, the Random Effect Model was selected as the final estimation model in this study, as it is considered more efficient and aligned with the assumption that individual effects are uncorrelated with the independent variables.

Classical Assumption Tests

Multicollinearity Test

The multicollinearity test was conducted to detect whether strong linear relationships exist among the independent variables in the regression model. The presence of multicollinearity can destabilize coefficient estimates and complicate the interpretation of each variable's individual contribution. In this study, multicollinearity was assessed by examining the inter-variable correlation matrix, where a correlation value below 0.8 is considered indicative of no multicollinearity.

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Table 5. Multicollinearity Test Results

	X1	X2	X3
X1	1,000000	0,085700	0,078586
X2	0,085700	1,000000	0,133778
X3	0,078586	0,133778	1,000000

The results presented in Table 5 show that the correlation coefficients among all pairs of independent variables are well below the 0.8 threshold: X1 and X2 recorded a correlation of 0.0857, X1 and X3 of 0.0786, and X2 and X3 of 0.1338. These low correlation values confirm the absence of multicollinearity, indicating that each independent variable independently explains the dependent variable without interference from strong linear associations among predictors. The regression model therefore satisfies the classical assumption related to multicollinearity.

Heteroscedasticity Test

The heteroscedasticity test was performed to determine whether the variance of the residuals in the regression model remains constant across all observations. A good regression model should exhibit homoscedasticity, meaning uniform residual variance. This study applied the White test, which regresses squared residuals against the independent variables, their squared forms, and their interaction terms. A probability value greater than 0.05 indicates the absence of heteroscedasticity.

Table 6. Heteroscedasticity Test Results

Heteroskedasticity Test: White **Null hypothesis: Homoskedasticity**			
F-statistic	0.563001	Prob. F(9,70)	0.8226
Obs*R-squared	5.399983	Prob. Chi-Square(9)	0.7981
Scaled explained SS	14.37557	Prob. Chi-Square(9)	0.1096

The White test results yielded an F-statistic probability of 0.8226 and a Chi-Square probability of 0.7981, both of which exceed the 0.05 significance level. These findings confirm that the null hypothesis of homoscedasticity is accepted, meaning the regression model is free from heteroscedasticity. The residual variance is therefore consistent across observations, and the model produces unbiased and efficient estimates suitable for further analysis.

Panel Data Regression Equation

Based on the model selection process, the Random Effect Model was determined to be the most appropriate specification for this study. The panel data regression equation was estimated accordingly to capture the relationships between the independent variables intellectual capital, growth opportunity, and profitability and the dependent variable, firm value.

Table 7. Panel Data Regression Results (Random Effect Model)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0,359932	0,08647	4,16252	0,0001
X1	-0,00265	0,002458	-1,07976	0,2837
X2	-0,26107	0,045476	-5,74085	0
X3	1,445796	0,877029	1,648516	0,1034

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The panel data regression yielded the following estimated equation: LNY = 0.359932 − 0.002654X1 − 0.261071X2 + 1.445796X3 + ε. The constant of 0.3599 represents the baseline firm value when all independent variables are held at zero. Intellectual capital (X1) carries a coefficient of −0.002654, indicating a marginal negative association with firm value. Growth opportunity (X2) exhibits a coefficient of −0.261071, implying that a one-unit increase in asset growth is associated with a 0.2611-unit decline in firm value, ceteris paribus. Conversely, profitability (X3) demonstrates a positive coefficient of 1.445796, suggesting that a one-unit increase in ROA corresponds to a 1.4458-unit improvement in firm value, all else equal.

Hypothesis Testing

Simultaneous Test (F-Test)

The F-test was performed to evaluate the simultaneous effect of the independent variables intellectual capital, growth opportunity, and profitability on firm value. The null hypothesis is rejected when the probability value falls below the 0.05 significance threshold, indicating joint statistical significance.

Table 8. F-Test Table

R-squared	0.323943	Mean dependent var	0.200806
Adjusted R-squared	0.297257	S.D. dependent var	0.459235
S.E. of regression	0.384975	Sum squared resid	11.26366
F-statistic	12.13886	Durbin-Watson stat	1.432488
Prob(F-statistic)	0.000001		

The F-test results show a prob(F-statistic) value of 0.000001, which is far below the 0.05 significance level. Accordingly, the null hypothesis is rejected and the alternative hypothesis is accepted, confirming that intellectual capital, growth opportunity, and profitability jointly and simultaneously have a significant effect on firm value in telecommunications sub-sector companies listed on the IDX for the period 2020–2024.

Coefficient of Determination (R^2)

The coefficient of determination test was performed to measure the extent to which the independent variables collectively explain the variation in firm value. A higher R^2 value indicates greater explanatory power of the model, while a value approaching zero suggests limited explanatory capacity.

Table 9. R^2 Table

R-squared	0.323943	Mean dependent var	0.200806
Adjusted R-squared	0.297257	S.D. dependent var	0.459235
S.E. of regression	0.384975	Sum squared resid	11.26366
F-statistic	12.13886	Durbin-Watson stat	1.432488
Prob(F-statistic)	0.000001		

The Adjusted R-squared value obtained is 0.2973, or approximately 29.72%. This indicates that intellectual capital, growth opportunity, and profitability together account for 29.72% of the variation in firm value, while the remaining 70.28% is attributable to other factors outside the model. Although the explanatory power is moderate, the model remains statistically significant and provides meaningful insights into the determinants of firm value in the telecommunications sub-sector.

Partial Test (t-Test)

The t-test was carried out to evaluate the individual effect of each independent variable on firm value. A probability value below 0.05 indicates that the variable has a

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statistically significant partial effect on the dependent variable, while a value exceeding 0.05 indicates no significant partial effect.

Table 10. t-Test Table

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.359932	0.086470	4.162520	0.0001
X1	-0.002654	0.002458	-1.079762	0.2837
X2	-0.261071	0.045476	-5.740853	0.0000
X3	1.445796	0.877029	1.648516	

The partial test results reveal that intellectual capital (X1) obtained a probability value of 0.2837, which exceeds 0.05, indicating that intellectual capital does not have a significant partial effect on firm value. Growth opportunity (X2) recorded a probability value of 0.0000, which is below 0.05, confirming that growth opportunity has a statistically significant partial effect on firm value. Profitability (X3) yielded a probability value of 0.1034, which also exceeds 0.05, suggesting that profitability does not exert a significant partial effect on firm value. These findings indicate that among the three independent variables, only growth opportunity is a statistically significant individual determinant of firm value in the telecommunications sub-sector during the study period.

The Effect of Intellectual Capital on Firm Value

The partial test results indicate that intellectual capital yielded a probability value of 0.2837, exceeding the 0.05 significance level, leading to the acceptance of the null hypothesis. This finding confirms that intellectual capital does not exert a significant partial effect on firm value in telecommunications sub-sector companies listed on the IDX during the 2020–2024 period. Although the average VAIC™ value across the sampled companies was relatively high at 9.345, this level of intellectual capital was insufficient to meaningfully elevate the average firm value, which stood at only 1.716. This suggests that investors in the telecommunications sub-sector have not yet regarded intellectual capital as a primary criterion in their investment valuation process.

The insignificant effect of intellectual capital on firm value can be attributed to several factors. First, intellectual capital is an intangible asset whose economic benefits tend to materialize over the long term, meaning that its value is not immediately captured or reflected in market prices. Second, the descriptive statistics reveal that intellectual capital exhibited a standard deviation of 19.728, which substantially exceeds its mean of 9.345, indicating a high degree of data variability across companies. This heterogeneity implies that the influence of intellectual capital on firm value is inconsistent across the sample. Furthermore, the minimum VAIC™ value of −41.391 suggests that certain companies have not yet been able to manage their intellectual resources optimally, further weakening the overall relationship between intellectual capital and firm value.

From a theoretical standpoint, these results are not fully consistent with the Resource-Based View (RBV) theory, which posits that strategic resources including intellectual capital can serve as a source of sustainable competitive advantage and contribute to enhanced firm value (Barney, 1991). Under RBV, companies that effectively manage knowledge, innovation, and human capital are expected to achieve superior performance and higher market valuation. However, the findings of this study suggest that intellectual capital management within the telecommunications sub-sector has not yet reached the level required to generate a competitive edge that is perceptible to investors. Similarly, the results do not fully support Signaling Theory, which argues that the disclosure of intellectual capital information can function as a positive signal to the market regarding a company's future prospects. In this study, intellectual capital

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information appears insufficient to send a credible signal that prompts investors to revise their valuation of these companies upward.

The findings of this study are consistent with prior research by Putri (2022), Putri Tampubolon and Suzan (2024), Suzan and Ramadhani (2024), and Suzan and Supriyadiputri (2023), all of which found that intellectual capital does not significantly affect firm value, with investors tending to prioritize tangible financial performance over intangible assets. However, these results diverge from the findings of Cahyani Pangestuti et al. (2022) and Kadek et al. (2021), who reported a positive and significant effect of intellectual capital on firm value, attributing this to the role of knowledge management and innovation in building investor confidence. The discrepancy across studies may be explained by differences in industry sector, research period, sample characteristics, and the specific proxies used to measure intellectual capital.

The Effect of Growth Opportunity on Firm Value

The partial test results show that growth opportunity recorded a probability value of 0.0000, which is below the 0.05 significance threshold, with a regression coefficient of −0.261071. Consequently, the null hypothesis is rejected and the alternative hypothesis is accepted, confirming that growth opportunity has a significant negative partial effect on firm value in telecommunications sub-sector companies. This finding implies that an increase in growth opportunity is paradoxically associated with a decline in firm value, indicating that investors do not universally perceive high growth prospects as a positive signal. Rather, investors appear to interpret elevated growth opportunity as a potential source of financial risk, particularly when it is accompanied by substantial funding requirements and capital expenditure commitments.

The negative relationship between growth opportunity and firm value can be explained by the financial dynamics inherent in the telecommunications industry. Companies with high growth opportunity typically require large amounts of external financing to support infrastructure expansion, network upgrades, and digital service development. When such financing relies heavily on debt, it increases the company's financial leverage and exposure to default risk, which can erode investor confidence and suppress firm valuation. The descriptive statistics further support this interpretation, as growth opportunity recorded a mean of −0.088 and a minimum of −7.999, indicating that a considerable portion of the sampled companies experienced negative asset growth during the study period, which may have amplified investors' concerns about the sub-sector's growth sustainability.

These findings align with Signaling Theory, which holds that information communicated by companies serves as signals that guide investor decision-making (Spence, 1973; Connelly et al., 2011). In this context, high growth opportunity transmits a negative signal to the market, as investors associate it with elevated funding demands, uncertainty over future returns, and the inherent risks of large-scale technological investment. Within the telecommunications sub-sector specifically, growth opportunities are often accompanied by significant technology investment costs, infrastructure development expenditures, and intense competitive pressures. These conditions mean that higher growth potential does not necessarily translate into improved profitability in the short term, prompting the market to respond negatively through reduced firm valuations.

This study's findings are consistent with the research of Irnawati et al. (2022), who similarly found that growth opportunity has a significant negative effect on firm value, explaining that companies with high growth potential require substantial funding that

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amplifies perceived risk among investors. However, the results contradict the findings of Suzan and Supriyadiputri (2023), who reported a positive and significant relationship between growth opportunity and firm value. These contrasting outcomes may stem from differences in the industry sector examined, the financial condition of the sampled companies, the research time period, and the varying ways in which investors respond to growth signals across different market contexts.

The Effect of Profitability on Firm Value

The partial test results indicate that profitability obtained a probability value of 0.1034, which exceeds the 0.05 significance level, with a regression coefficient of 1.445796. Accordingly, the null hypothesis is accepted, confirming that profitability does not have a significant partial effect on firm value in telecommunications sub-sector companies during the study period. Despite carrying a positive coefficient, the effect is statistically insignificant, suggesting that variations in profitability have not been sufficiently strong to produce measurable changes in investor valuation of these companies. This finding implies that the market has not fully responded to changes in companies' earnings-generating capacity as a signal of enhanced prospects.

The limited effect of profitability on firm value in this context can be attributed to several underlying conditions specific to the telecommunications sub-sector. The descriptive statistics show that the average ROA across the sample was only 0.017, with a minimum of −0.276, indicating that many companies operated at low or even negative profitability levels. Such constrained earnings performance may not be sufficient to meaningfully build investor confidence or justify higher market valuations. Moreover, even when companies generated positive profits, investors may have discounted their significance given the sector's structural characteristics, including high capital expenditure requirements for technology upgrades and network infrastructure, which reduce the free cash flow available for distribution to shareholders.

From a theoretical perspective, these findings are not fully aligned with Signaling Theory, which predicts that high profitability serves as a positive signal to investors about a company's future performance and growth capacity, thereby driving up firm value (Spence, 1973). In theory, companies that demonstrate strong earnings generation should attract greater investor interest and command higher market valuations. However, in this study, profitability has not functioned as a sufficiently strong market signal, suggesting that investors in the telecommunications sub-sector assess firm value through a broader set of criteria beyond profitability alone. Factors such as industry stability, competitive dynamics, regulatory environment, and long-term investment sustainability appear to carry greater weight in shaping market perceptions of firm value within this sector.

The findings of this study are in line with the research conducted by Reschiwati et al. (2020) and Suzan and Ramadhani (2024), both of which found that profitability does not significantly affect firm value, arguing that investors consider multiple dimensions of firm performance including investment risk, business continuity, and future prospects rather than focusing solely on profitability metrics. Conversely, this study's results diverge from those of Alifian and Susilo (2024) and Cahyani Pangestuti et al. (2022), who reported a significant positive effect of profitability on firm value, asserting that higher earnings capacity strengthens investor trust and elevates market valuation. The differences across these studies may reflect variations in industry sector, research period, economic conditions, and the specific financial characteristics of the companies included in each sample.

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CONCLUSION AND RECOMMENDATIONS

This study examined the influence of intellectual capital, growth opportunity, and profitability on firm value in telecommunications sub-sector companies listed on the Indonesia Stock Exchange (IDX) for the period 2020–2024. Descriptive analysis reveals that intellectual capital fluctuated considerably with uneven management across firms, growth opportunity was diverse with several companies recording low asset growth, and overall profitability remained relatively low. Firm value proxied by Tobin's Q further indicated that many companies had not yet succeeded in generating strong positive market perceptions, reflecting broader challenges facing the sub-sector amid rapid digital transformation and intensifying competition.

The simultaneous test confirms that intellectual capital, growth opportunity, and profitability jointly exert a significant influence on firm value in the telecommunications sub-sector during the observation period. This finding underscores the importance of managing these three dimensions in an integrated manner, as their collective effect shapes overall investor perception and market valuation. Companies are therefore encouraged to simultaneously optimize knowledge-based resources, growth strategy, and financial performance rather than focusing on any single variable in isolation.

Partially, intellectual capital does not significantly affect firm value in the telecommunications sub-sector. Although the average VAIC™ value was relatively high, the market did not respond proportionally to variations in intellectual capital. This suggests that investors have not yet fully incorporated intellectual capital as a primary valuation criterion, likely because intangible asset benefits tend to materialize over longer time horizons and remain less immediately visible in financial disclosures.

Growth opportunity was found to have a significant negative partial effect on firm value, with a regression coefficient of −0.261071. This result reflects investor concerns that high asset growth in the telecommunications industry is typically accompanied by substantial funding requirements and elevated financial risk. As companies pursuing aggressive expansion often rely on debt financing for infrastructure and technology investment, investors tend to respond negatively to high growth opportunity signals, perceiving the associated costs and uncertainties as outweighing potential long-term benefits.

Profitability did not demonstrate a significant partial effect on firm value despite carrying a positive regression coefficient of 1.445796. The low average ROA across the sample suggests that earnings performance has not been sufficient to meaningfully strengthen investor confidence. This implies that investors evaluate telecommunications firms through a broader framework encompassing industry competitiveness, capital expenditure intensity, and long-term sustainability, rather than relying solely on profitability metrics. These findings offer practical implications for management, investors, and future researchers exploring value determinants in technology-based industries.

This study is subject to several limitations that should be acknowledged. First, the sample is restricted to telecommunications sub-sector companies listed on the Indonesia Stock Exchange for the period 2020–2024, which constrains the generalizability of the findings to other industrial sectors. The relatively narrow sectoral and temporal scope means that the results may not fully capture the dynamics of firm value determinants across broader market contexts. Second, this study employs only three independent variables intellectual capital, growth opportunity, and profitability leaving open the possibility that other variables influencing firm value remain unexamined. The

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explanatory power of the model may therefore be limited, as factors such as capital structure, firm size, corporate governance, or dividend policy were not incorporated into the analysis.

Future researchers are encouraged to address these limitations by expanding the scope of investigation in two key directions. With respect to variable selection, subsequent studies are advised to incorporate additional variables such as capital structure, firm size, good corporate governance, or dividend policy, in order to provide a more comprehensive understanding of the factors that drive firm value. With respect to research coverage, future studies should consider extending the research object to other industrial sectors and adopting a longer observation period, so that the findings can offer a broader, more consistent, and more generalizable picture of the relationship between these variables and firm value across different economic environments.

The findings of this study carry several practical implications for companies operating in the telecommunications sub-sector. Companies are advised to enhance the effectiveness of their intellectual capital management through human resource development, technological innovation, and the strengthening of organizational systems, so as to build sustainable competitive advantages that are reflected in higher firm value. In addition, companies should exercise greater prudence in asset expansion and development, ensuring that growth opportunities pursued translate into positive contributions to firm value without generating excessive financial or operational risk. Furthermore, companies are encouraged to improve operational efficiency and asset utilization so that profitability can be sustainably increased, thereby reinforcing investor confidence in the company's long-term prospects.

For investors, the findings suggest that investment decisions should not be based solely on a company's growth rate. Instead, investors are advised to adopt a more holistic assessment framework that takes into account the company's fundamental financial condition, inherent business risks, and its demonstrated capacity to manage resources effectively and generate consistent returns. A multidimensional evaluation approach will enable investors to make more informed and strategically sound decisions, particularly in capital-intensive and knowledge-driven sectors such as telecommunications.

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