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The Effect of Intangible Assets on Firm Value in Information Technology Companies Listed on the Indonesia Stock Exchange (2022–2025)

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Abstract

This study examines the effect of intangible assets on firm value in Information Technology (IT) companies listed on the Indonesia Stock Exchange during 2022–2025. Drawing on the Resource-Based View (RBV), intangible assets are considered strategic resources capable of generating sustainable competitive advantages and enhancing market valuation. The study employs a quantitative explanatory approach using panel data from 17 IT companies, resulting in 68 firm-year observations. Firm value is measured using Tobin's Q, while intangible assets are measured as the ratio of total intangible assets to total assets. Control variables include firm size, leverage, board independence, and lagged Tobin's Q. Panel data regression with a Fixed Effect Model is applied. The results indicate that intangible assets do not have a statistically significant effect on firm value (β = -2.689; p = 0.236). Sub-group analysis further reveals no stronger impact of intangible assets among intangible-intensive firms compared with non-intangible-intensive firms. However, firm size and lagged firm value significantly affect firm value. These findings suggest that the Indonesian capital market may not fully recognize reported intangible assets as value-creating resources in the IT sector, particularly during the post-pandemic technology downturn and "Tech Winter" period. The study contributes to the literature on intangible assets in emerging markets and provides insights for managers, investors, and policymakers regarding the strategic management and disclosure of intangible resources.

Keywords: Intangible Assets, Firm Value, Tobin's Q, Information Technology, Resource-Based View, Intangible Intensive, Indonesia Stock Exchange

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INTRODUCTION

Data from the World Intellectual Property Organization (WIPO) in 2022 confirms the growing dominance of intangible assets in the modern economy, with the value of global intangible assets reaching USD 74 trillion in 2021 (WIPO, 2022). Within just two years, intangible assets worldwide have grown by more than 25%. This rapid growth trend indicates a paradigm shift from an economy built on physical (tangible) assets to one built on knowledge, ideas, and intellectual property. This demonstrates that the dominance of intangible assets in the current global economy demands a deep understanding of what is categorized as intangible assets and why these non-physical assets have become the main determinants of business success.

In the midst of this global growth, Indonesia faces serious structural challenges in the form of a low proportion of intangible assets reported by companies. An empirical study conducted by the International Valuation Standards Council (IVSC) and the National University of Singapore (NUS) in 2024 revealed that the ratio of Recognised Intangible Assets (RIA) to firm value in Indonesia is relatively stagnant and low compared to neighboring countries such as Malaysia and Thailand during the 2005-2022 period (IVSC, 2025). This low capitalization of intangible assets is not merely an accounting problem but a signal that the competitiveness of Indonesia's knowledge-based industry is lagging. This gap has the potential to hinder national technology companies from competing at the regional level, where innovation and intellectual property are the main determinants of competitive advantage.

In the current knowledge-based economy, intangible assets such as goodwill, research and development (R&D), patents, software, brands, licenses, and trademarks are resources that will bring future economic benefits to a company (Intara & Suwansin, 2024). They are believed to be the main drivers of sustainable value and competitive advantage (Petković et al., 2020). Various previous studies have shown mixed results regarding the effect of intangible assets on firm value. Research by Piekkola et al. (2025), Milenović et al. (2024), He et al. (2024), Intara & Suwansin (2024), and Ni et al. (2020) found that various components of intangible assets such as technology investment, intellectual capital, and R&D have a positive and significant effect on firm value. However, other studies by Ionita & Dinu (2021) found that R&D and patents do not have a significant effect on firm value in the Romanian context. Similarly, research in Indonesia by Wira et al. (2025) reported that the effect of intangible assets is not significant in the energy sector, while Subaida & Sari (2021) concluded that intangible assets have no direct effect on firm value.

Unlike the great macroeconomic potential, Indonesia's Information Technology (IT) sector faced severe challenges during the 2022-2025 period due to a global phenomenon

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known as Tech Winter. Post-pandemic, there was a massive correction in global capital markets that hit technology-based startups. In Indonesia, venture capital funding fell by more than 50% in 2023 compared to its peak in 2022, accompanied by massive efficiency measures (layoffs) and declining public valuations (Dewi, 2023; Febriana & Gunawan, 2024; Meilina & Yuliawati, 2025). This Tech Winter condition has made investors highly selective, shifting focus from aggressive growth orientation towards short-term profitability, making it difficult for IT companies to obtain funding for R&D, which is the main foundation of intangible assets (Ishaqi, 2024). Therefore, understanding how intangible assets can maintain firm value amidst this funding winter has become a crucial research question, as it is fundamentally different from normal economic periods.

This study aims to investigate how intangible assets can drive an increase in firm value. The focus of this research is directed at IT sector companies listed on the Indonesia Stock Exchange, considering that this sector is a key factor in digital economic growth. Based on the explanation above, this study formulates two research questions: 1) Do intangible assets affect the value of IT companies listed on the Indonesia Stock Exchange? and 2) Is there a difference in the effect of intangible assets on firm value between companies with high intangible asset intensity (intangible-intensive) and companies with low intangible asset intensity (non-intensive) in the IT sector listed on the Indonesia Stock Exchange? Accordingly, the study proposes two hypotheses: H1: Intangible assets have a positive effect on the value of Information Technology (IT) firms; and H2: The effect of intangible assets on firm value is stronger for intangible-intensive IT firms compared to non-intensive IT firms.

THEORETICAL REVIEW

The Resource-Based View (RBV) theory, formally introduced by Wernerfelt (1984) in his article entitled "A Resource-Based View of the Firm," explains a managerial perspective that emphasizes the importance of recognizing and utilizing strategic resources so that a company can achieve and maintain sustainable competitive advantage. RBV views the company as a collection of unique resources, both tangible and intangible, that can be used to create and maintain a superior competitive position (Barney, 2001).

In the knowledge-based economy era, firm value is no longer determined solely by physical and financial assets but increasingly depends on intellectual property, technology, and organizational capabilities that are intangible in nature. RBV offers a strategic perspective that analyzes companies from the side of their resources, not from the side of the products produced. Wernerfelt (1984) defines resources as tangible and intangible assets inherent in companies, such as brand names, technological knowledge, licenses, software, and capital. Sustainable competitive advantage and superior company

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performance in the long term are not determined by the company's position in the product market but by the ownership and management of valuable, rare, difficult to imitate, and non-substitutable (VRIN) resources.

The core concept of RBV lies in the identification and management of strategic resources. These resources include not only physical and financial assets but, more significantly, intangible assets embedded in processes, systems, and people within the organization. Resources are said to be valuable if they allow the company to exploit opportunities or neutralize threats, rare if not possessed by many competitors, inimitable if difficult to imitate due to unique historical conditions, causal ambiguity, or social complexity, and non-substitutable if they cannot be replaced by other equivalent resources. Fulfillment of these criteria creates a "barrier to imitation" that protects the company's economic profits.

In this study, RBV theory is used to help analyze how intangible assets such as software, licenses, and brand rights can drive increases in firm value. From an RBV perspective, software represents unique technical capabilities and organizational knowledge. Its value is seen in its ability to improve efficiency, create specific features, or build user ecosystems. Software is rare and difficult to imitate, making it a source of long-term competitive advantage if the company is able to utilize it through appropriate business models, good customer service, and effective marketing strategies. Likewise, a portfolio of strong licenses and brands serves as a signal of credibility and quality, reducing information asymmetry between management and investors (Dosso & Vezzani, 2020), thereby lowering perceived risk and the cost of equity capital, ultimately increasing firm valuation (Srivastava et al., 1998).

METHOD

Research Design

The study employed a quantitative explanatory approach using a cross-sectional survey design (adapted to panel data for this study). The independent variable was intangible assets, while the dependent variable was firm value.

Setting and Study Population

The population comprised all Information Technology (IT) sector companies listed on the Indonesia Stock Exchange (IDX) during the 2022-2025 period. The selection of this period considered data completeness after the full adoption of IFRS-based financial reporting standards in Indonesia and to capture the latest trends, including the Tech Winter phenomenon.

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Sampling Technique Procedure

A purposive sampling technique was used to select the study sample based on specific criteria to ensure data suitability and feasibility. The criteria were: 1) IT sector companies listed on the IDX before the 2022-2025 period, and 2) companies that have complete annual financial reports (balance sheet, income statement, notes to financial statements) available to the public and audited during 2022-2025. From an initial population of 47 companies, 17 companies met the criteria, yielding 68 firm-year observations (17 companies × 4 years).

Instruments

Two validated questionnaires were used for data collection:

Tobin's Q ratio used to measure firm value, the dependent variable. Tobin's Q was calculated by comparing the market value of the company (market capitalization plus net debt) to the replacement value of its assets, which was proxied by the book value of total assets (Chung & Pruitt, 1994). This ratio is future-oriented and better reflects market expectations of future cash flow potential compared to historical accounting measures. A Tobin's Q value greater than one indicates that the market places a premium on the firm's value, often associated with the presence of unique resources, competitive advantage, and valuable intangible assets. This study also included lag Tobin's Q (TQt-1) as a control variable to capture the persistence effect of firm value from the previous period, following the approach of Abbas and Isiaka (2021) and Ioana (2024).

Intangible assets ratio used to measure the independent variable. Intangible assets are non-monetary assets that can be identified without physical substance, providing economic rights and competitive advantage to a company (Intara & Suwansin, 2024). To test the effect of intangible assets on firm value, this study measured the intensity of intangible asset ownership by comparing the total value of intangible assets to the total assets of the company. The ratio was calculated using the formula: Intangible Ratio = Total Intangible Assets divided by Total Assets. This ratio reflects the extent to which the company's asset structure is dominated by non-physical resources. It is important to note that this study measured intangible assets using aggregate values as reported in the statement of financial position.

Intangible intensity used as a moderating variable. Intangible intensity refers to the extent to which a company depends on non-physical assets compared to its total resources. Following the approach of Intara and Suwansin (2024), this study used a sub-group analysis approach where companies were classified into Intangible-Intensive Profile (IIP) and Non-Intangible-Intensive Profile (Non-IIP). The classification was performed by dividing the

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sample based on the median of the total intangible assets to total assets ratio for each year of observation (year-by-year median split). Companies with a ratio at or above the annual median were assigned a code of one, indicating intangible-intensive, while companies with a ratio below the annual median were assigned a code of zero, indicating non-intensive.

Additionally, three control variables were included in the instruments. Firm size was measured as the natural logarithm of total assets, as larger firms typically enjoy economies of scale and have broader access to capital markets and external funding sources. Leverage was measured using the debt-to-equity ratio, which compares total debt to total equity, reflecting the company's reliance on external debt financing and its financial risk profile. Board independence was measured as the proportion of independent commissioners to the total board of commissioners, reflecting the quality of the company's internal monitoring mechanism. The authors' Cronbach's α for these financial ratio-based instruments is not applicable as they are objective measures from audited financial statements; however, the validity of the data is ensured by the use of audited financial reports published by the Indonesia Stock Exchange.

Data Collection

Secondary data were collected from the official website of the Indonesia Stock Exchange (www.idx.co.id) and the official websites of the sampled companies. The data collected included annual financial reports (balance sheets, income statements, statements of financial position, and notes to financial statements) and annual reports (for corporate governance information) for the 2022-2025 period. The data were downloaded, compiled, and calculated according to the variable operational definitions.

Data Analysis

Data were analyzed using Eviews 12 software. Panel data regression analysis was employed. The analytical process consisted of: 1) descriptive statistics to provide an overview of the data, 2) model specification tests (Chow test to compare POLS vs. FEM; Hausman test to compare FEM vs. REM) to select the most appropriate panel data model, 3) classical assumption tests (normality, multicollinearity, heteroscedasticity, autocorrelation), and 4) hypothesis testing (t-test for partial effect, F-test for simultaneous effect, and coefficient of determination/R^2). The hypothesis was accepted at $p < 0.05$ level of significance.

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RESULTS

Table 1: Descriptive Statistics of Study Variables

	TQ	IA	SIZE	DER	INDEPEND..	TQT1
Mean	0.542033	0.07569	27.57030	0.352050	0.460784	0.650910
Median	0.266638	0.016271	27.70088	0.242859	0.500000	0.535842
Maximum	4.278140	0.451331	31.73812	5.496089	0.666667	3.573288
Minimum	-1.694651	0.000313	22.33940	-16.19477	0.333333	-1.694651
Std. Dev.	1.391337	0.115212	2.116648	2.260125	0.130561	1.353063
Skewnes	0.804321	1.934766	-0.088913	-5.577679	0.435037	0.492469
Kurtosis	3.109443	5.866543	2.717656	44.12862	1.699970	2.607668
Jarque-Bera	7.365833	65.70598	0.315463	5145.350	6.933467	3.184745
Probability	0.025150	0.000000	0.854079	0.000000	0.031219	0.203442
Sum	36.85822	5.070672	1874.780	23.93940	31.33333	44.26191
Sum Sq. Dev.	129.6998	0.889350	300.1734	342.2471	1.142092	122.6623
Observations	68	68	68	68	68	68

Table 1 presents the mean Tobin's Q value of 0.542033 indicates that, on average, the market value of IT companies in the sample is below the book value of their assets (undervalued). The mean intangible assets ratio is very low at 7.57%, with a minimum value of 0.03%, indicating that recognized intangible assets constitute a very small proportion of total assets. The mean leverage ratio of 0.352 suggests that, on average, IT companies have debt of about 35% of their equity, which is relatively healthy and conservative.

Model Specification and Classical Assumption Tests

The Chow test (F-statistic = 3.090125, p = 0.0014) and Hausman test results (Chi-Square = 31.371455, p = 0.0000) indicated that the Fixed Effect Model (FEM) was the most appropriate model for this study. Classical assumption tests revealed no multicollinearity (all VIF values < 10), no heteroscedasticity (BPG test p > 0.05), and no autocorrelation (Durbin-Watson = 1.9389, within dU < DW < 4-dU). Although the normality test showed non-normal distribution (Jarque-Bera p = 0.0368), previous research by Schielzeth et al. (2020) confirms that linear regression models are robust to violations of distributional assumptions, especially for fixed effects estimation.

Testing the hypothesis.

Testing H1: Effect of Intangible Assets on Firm Value

The first hypothesis was tested using panel data regression with the Fixed Effect Model on the full sample of 68 observations. The results are presented in Tables 2.

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Table 2: Panel Data Regression Results (Fixed Effect Model)

Dependent Variable: TQ
Method: Panel Least Squares
Date: 05/22/26 Time: 18:44
Sample: 2022 2025
Periods included: 4
Cross-sections included: 17
Total panel (balanced) observations: 68

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-23.74308	9.096285	-2.610195	0.0122
IA	-2.689347	2.241868	-1.199601	0.2364
SIZE	0.874092	0.326684	2.675654	0.0103
DER	0.098729	0.060537	1.630895	0.1097
INDEPENDENCE	0.207308	0.881936	0.235060	0.8152
TQT1	0.393902	0.118061	3.336432	0.0017

Effects Specification

Cross-section fixed (dummy variables)

R-squared	0.850196	Mean dependent var	0.542033
Adjusted R-squared	0.781807	S.D. dependent var	1.391337
S.E. of regression	0.649910	Akaike info criterion	2.232226
Sum squared resid	19.42961	Schwarz criterion	2.950302
Log likelihood	-53.89569	Hannan-Quinn criter.	2.516750
F-statistic	12.43176	Durbin-Watson stat	1.938879
Prob(F-statistic)	0.000000		

The results revealed that intangible assets (IA) did not significantly affect firm value (Coefficient = -2.689347, t-statistic = -1.199601, p = 0.2364 > 0.05). Therefore, **H1 is not supported**. Among the control variables, Firm Size (SIZE) and lagged Tobin's Q (TQT1) showed significant positive effects (p < 0.05 and p < 0.01, respectively).

Testing H2: Comparison between Intangible-Intensive (IIP) and Non-Intensive (Non-IIP) Firms

To test whether there is a difference in the effect of intangible assets on firm value between high-intensity and low-intensity groups, the sample was split into two sub-groups based on the annual median of the IA ratio (year-by-year median split). Table 3 presents the regression results for each group using the Fixed Effect Model.

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Table 3: Sub-Group Analysis Results for IIP and Non-IIP Firms

Variable	Non-Intangible Intensive Profile Firms (Non-IIP) Observations = 32	Intangible Intensive Profile Firms (IIP) Observations = 36
C	-29.42551 [-1.113383]	-23.024113*[-1954854]
IA	39.11952 [0.405158]	-3.980446 [-1.147577]
SIZE	1.098111 [1.220751]	0.830302*[1.905196]
DER	0.288761***[8.930669]	0.142571 [0.555595]
INDEPENDENCE	-3.667018*[-2.065647]	3.027786**[2.338123]
TQT1	0.014189 [0.074387]	0.454351**[2.626371]
R-squared	0.976335	0.831668
Adjusted R-squared	0.951092	0.689915
F-statistic	38.67800	5.867019
Prob(F-statistic)	0.000000	0.000211

*Notes: ***p<0.01; **p<0.05; *p<0.10. The numbers in square brackets are t-statistics.

For the IIP (intangible-intensive) group, the IA variable has a probability value of 0.2654 ($p > 0.05$), indicating no significant effect on firm value. For the Non-IIP (non-intensive) group, the IA variable has a probability value of 0.6931 ($p > 0.05$), also indicating no significant effect. Since IA is insignificant in both groups, there is no statistically significant difference in the effect of intangible assets on firm value between the two groups. Therefore, **H2 is not supported**.

DISCUSSION

The hypothesis that intangible assets will significantly predict firm value among IT companies in Indonesia was not supported. This finding is consistent with previous studies in Indonesia by Subaida & Sari (2021) and Wira et al. (2025) but contradicts studies in more developed markets such as Thailand (Intara & Suwansin, 2024) and the NYSE (Milenović et al., 2024). The lack of significant effect can be attributed to several key factors.

First, the proportion of recognized intangible assets in Indonesian IT companies is very low. The descriptive statistics show a mean IA ratio of only 7.57% with a minimum of 0.03%. This figure is far below the 15-20% typically found in global technology companies (Research, 2023). When a component constitutes less than 8% of total corporate resources and approaches zero in some observations, investors are unlikely to react meaningfully to that information. Second, the conservative accounting standards in Indonesia (PSAK 19, which adopts IFRS) prevent the capitalization of internally generated intangible assets such as R&D, customer databases, and brand equity. According to PSAK 19 (revised 2015), all costs in the research phase must be expensed, and capitalization in the development phase

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is only permitted if six strict criteria are met simultaneously (IAI, 2021; PwC US, 2026). Consequently, many innovation assets never appear on the balance sheet (off-balance sheet), making reported intangible assets small and uninformative to investors.

Third, the Tech Winter period (2022-2025) significantly influenced investor preferences. During this period, there was a massive correction in global capital markets, and investors exhibited high risk aversion, shifting focus from aggressive growth stocks towards short-term profitability. This is reflected in the mean Tobin's Q of 0.542, indicating that collectively, investors value IT companies on the IDX as undervalued. The market still views IT companies not as growth engines but as high-risk entities, so their innovation assets are not appreciated. The significant positive effect of lagged Tobin's Q (TQT1) further supports this, indicating that investors react more to past stock price trends (momentum) than to current fundamental information about intellectual property. This herding behavior and dependence on historical returns suggest that the Indonesian capital market for the IT sector is still dominated by speculative retail investors rather than institutional investors conducting in-depth fundamental analysis of innovation assets.

The hypothesis that there is a difference in the effect of intangible assets on firm value between intangible-intensive and non-intensive firms was also not supported. The sub-group analysis revealed that IA is insignificant in both the IIP and Non-IIP groups. This finding aligns with Jo et al. (2024), who reported that although coefficients for intangible assets in high-intensity groups tend to be higher than in low-intensity groups, these results are not statistically significant, so the difference in effect between the two groups is not empirically proven.

On the IIP group, the negative coefficient (although insignificant) suggests a pattern that the higher the proportion of intangible assets in intensive firms' asset structure, the more it tends to decrease firm value during the Tech Winter. This may be because companies with high intangible assets must record annual amortization expenses (for intangible assets with limited useful lives) or conduct impairment tests. These non-cash charges reduce net income, which during a Tech Winter becomes a primary concern for risk-averse investors, putting negative pressure on stock prices. From the RBV perspective, although intangible assets are rare and difficult to imitate, in a liquidity crisis situation such as the 2022-2025 period, the main weakness of intangible assets is that they cannot be used as collateral for bank loans because their resale value is illiquid. Companies with high intangible intensity may experience difficulty accessing debt financing when interest rates are high, thereby hampering expansion and innovation. In the Indonesian context, the low mean Tobin's Q (0.542) confirms that the market is not yet ready to provide a premium for technology

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companies, whether intangible-intensive or non-intensive, because the IT sector is still considered high risk (Astuti et al., 2024; Subaida & Sari, 2021).

CONCLUSION

This study investigates the effect of intangible assets on firm value among Information Technology companies listed on the Indonesia Stock Exchange during the 2022-2025, as well as the moderating role of intangible asset intensity. The results confirmed that intangible assets do not have a significant effect on firm value. The results also confirmed that there is no significant difference in this effect between intangible-intensive and non-intensive firms.

The study concludes that intangible assets, as reported in financial statements, are not yet strong enough to influence investor perceptions of firm value in Indonesia's IT sector. The very low proportion of recognized intangible assets (mean 7.57%), coupled with conservative accounting standards (PSAK 19/IFRS) that prevent the capitalization of internally generated innovation assets, and the adverse climate of the Tech Winter period that made investors highly risk-averse, all contribute to the lack of investor appreciation for intangible assets in this market.

Recommendations

The study put forth the following recommendations:

First, for investors are advised not to focus solely on the value of intangible assets recorded on the balance sheet when evaluating IT companies. Instead, they should also consider the company's growth prospects, management quality, and technological innovation generated by the company to improve accuracy in assessing the long-term business potential of technology-based companies. Second, for corporate managers, company managers are advised to increase transparency and the quality of intangible asset disclosure in financial statements and annual reports, as well as integrate intangible asset management strategies into the business model sustainably so that intangible assets can be maximized to increase firm value and performance. Third, for future researchers, subsequent research is advised to use more detailed proxies for intangible assets, such as separating goodwill from R&D, as this study only used aggregated intangible asset values due to data limitations. Future researchers are also advised to use mixed methods, not only quantitative but also qualitative, through in-depth interviews with stock analysts, investment managers, and venture capitalists to explore why they pay little attention to intangible assets in investment decision-making in the technology sector. Additionally, future research should expand the sample size by extending the observation period or

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adding other intangible-based sectors to enrich the still-limited literature in developing countries like Indonesia.

Fourth, for regulators and policymakers, the Indonesian Institute of Accountants (IAI) is advised to review the conservative PSAK 19 (revised 2015). Currently, all research phase costs must be expensed, while capitalization of the development phase requires six strict criteria. The IAI needs to consider relaxing these rules so that technology companies' research costs can be more easily recognized as assets, not merely as expenses. Furthermore, the Financial Services Authority (OJK) is advised to immediately develop technical regulations governing the assessment and collateralization of intellectual property rights (patents, copyrights, trademarks) as credit guarantees, as intangible assets are currently not recognized as collateral by financial institutions..

Limitations and suggestions for further study

This study has several limitations worth addressing in future research. First, the study used secondary data from financial statements, which may be subject to reporting biases and conservative accounting treatments (PSAK 19/IFRS) that do not reflect the true economic value of internally generated intangible assets, and the use of only the IT sector with a limited observation period (2022-2025) of only 4 years yielding 68 observations hinders the generalization of results, as the Tech Winter period is unique and may not represent normal economic conditions. Second, the study focused on the aggregate value of intangible assets (including goodwill) and did not account for other potential predictors of firm value such as corporate social responsibility, ownership structure, or macroeconomic conditions. Third, the study used a median split approach for sub-group analysis, which may have reduced statistical power due to smaller sample sizes in each group. Therefore, future research should consider using multiple methods of data collection including interviews with investors and company management to triangulate findings, should include more sectors and extend the time period to enhance generalizability, should benefit from the inclusion of disaggregated intangible components (goodwill, patents, R&D, software) and other moderating variables, and could explore alternative approaches such as Moderated Regression Analysis (MRA) or using different grouping criteria to test the moderating effect of intangible asset intensity.

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REFERENCES

Abbas, U., & Isiaka, A. (2021). Dynamic modelling of the relationship between financial leverage and firm value of selected firms quoted on the Nigerian Stock Exchange. *Research in Business & Social Science*, 10(3), 259-275.

Astuti, E., Yusdita, E. E., Riana, A., Stevani, J., & Febriani, K. N. (2024). Relevansi Nilai Akuntansi Aset Tidak Berwujud Pada Era Digital. *Refleksi: Jurnal Riset Dan Pendidikan*, 3(1), 22-29.

Barney, J. B. (2001). Resource-based theories of competitive advantage: A ten-year retrospective on the resource-based view. *Journal of Management*, 27(6), 643-650.

Chung, H. K., & Pruitt, W. S. (1994). A simple approximation of Tobin's q. *Financial Management*, 23(3), 70-74.

Dewi, I. R. (2023). Investasi ke Startup RI Anjlok Walau Duit Investor Berlimpah. CNBC Indonesia.

Dosso, M., & Vezzani, A. (2020). Firm market valuation and intellectual property assets. *Industry and Innovation*, 27(7), 705-729.

Febriana, L., & Gunawan, H. (2024). Fenomena Tech Winter Bikin Pendanaan Startup Indonesia Turun. Tribunnews.

He, B., Mostrom, L. I., & Sufi, A. (2024). Investing in Customer Capital. *Journal of Finance*, 167-186.

IAI (Ikatan Akuntan Indonesia). (2021). *Pelaporan Korporat 2021*.

Intara, P., & Suwansin, N. (2024). Intangible assets, firm value, and performance: does intangible-intensive matter? *Cogent Economics and Finance*, 12(1).

Ioana, A. V. (2024). The Determinants of Firm Value: A Panel Data Approach on the S&P 500 Companies. *Journal of Economics*, 71, 625-640.

Ionita, C., & Dinu, E. (2021). The effect of intangible assets on sustainable growth and firm value. *Kybernetes*, 50(10), 2823-2849.

Ishaqi, A. M. Al. (2024). Pendanaan Modal Ventura Anjlok 10,6%, Asosiasi Singgung Dampak Tech Winter. Bisnis.com.

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IVSC (International Valuation Standards Council). (2025). *Intangible Assets in ASEAN Capital Markets*.

Jo, A. A., Nugroho, V. C., Harapan, U. P., & Jo, A. A. (2024). The Impact of Intangible Assets on Firm Value and Performance: Evidence from Asia-Pacific Information Technology Companies 2013-2023 Period. *Journal of Business & Management*, 12(3), 1455-1487.

Meilina, K., & Yuliawati. (2025). Komdigi Catat Tantangan Startup RI, dari Pendanaan Seret hingga Minim Inovasi. Katadata.

Milenović, J., Bonić, L., & Krstić, B. (2024). Impact of Intellectual Capital Efficiency on Profitability: The Case of Information Technology Companies on the NYSE. *Economic Themes*, 62(3), 389-412.

Ni, Y., Cheng, Y. R., & Huang, P. (2020). Do intellectual capitals matter to firm value enhancement? Evidences from Taiwan. *Journal of Intellectual Capital*, 22(4), 725-743.

Petković, M., Krstić, B., & Rađenović, T. (2020). Accounting-based valuation methods of intangible assets: Theoretical overview. *Ekonomika*, 66(1), 1-12.

Piekkola, H., Bloch, C., Rybalka, M., & Redek, T. (2025). Intangibles From Intangible Capital Work: Their Valuation and Technological Change. *Review of Income and Wealth*, 71(2), 1-21.

PwC US. (2026). *IFRS and US GAAP: Similarities and differences guide*.

Research, G. (2023). Intangibles/Sales%. GMT Research.

Savitri, E. (2016). *Konservatisme Akuntansi: Konsep dan Pengukuran*. Penerbit Peneleh.

Schielzeth, H., et al. (2020). Robustness of linear mixed-effects models to violations of distributional assumptions. *Methods in Ecology and Evolution*, 2020, 1141-1152.

Srivastava, R. K., Shervani, T. A., & Fahey, L. (1998). Market-based assets and shareholder value: A framework for analysis. *Journal of Marketing*, 62(1), 2-18.

Subaida, I., & Sari, L. P. (2021). Intangible Assets, Research & Development Intensity, and Firm Value. In *Proceedings of the 7th Regional Accounting Conference (KRA 2020)* (pp. 9-15). Atlantis Press.

Wernerfelt, B. (1984). A resource-based view of the firm. *Strategic Management Journal*, 5(2), 171-180.

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Wira, V., Lukviarman, N., Rahim, R., & Yonnedi, E. (2025). Exploring the influence of intangible resources on firm value across major Indonesian industrial sectors: An RBV perspective. *Uncertain Supply Chain Management*, 13(3), 507-524.

WIPO (World Intellectual Property Organization). (2022). *Global Innovation Index 2022*.

WIPO (World Intellectual Property Organization). (2023). *Global Innovation Index 2023*.

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