

Intangible Asset to Improve Firm Value: The Moderating Role of Managerial Ability

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ABSTRACT

This study examines the relationship between intangible assets and firm value moderated by the role of managerial ability. The study used 498 companies from 2012 to 2022 on the Indonesia Stock Exchange. Data was processed using unbalanced panel regression, using Eviews application version 13. The study's results stated that intangible assets have a negative relationship with firm value. Second, managerial ability can positively moderate the relationship between intangible assets and firm value. When managers are able to provide communication and provide good management of intangible assets, it will provide positive value and will be able to increase the contribution of company value. This research implies that the role of managers in managing intangible assets is very important to achieve company value. These results also provide reinforcing evidence on RBV theory that managerial ability is a unique resource capable of creating value and providing a competitive advantage.

Keywords: Intangible assets, managerial ability, firm value, resources-based view

1. Introduction

According to Siegrist et al. (2020) the company's financial management attempts to optimize the Company's worth. Technology advancements have an impact on the business in reallocating resources to optimize the company's value simultaneously (Mendes et al., 2023). The value of the company is derived from the value creation achieved using resources that are owned by the company by relevant stakeholders. The business anticipates that this accomplishment will contribute to employees' ability to generate long-term value (Macias and Pirinsky, 2015).

The environment is constantly changing, causing companies to continuously assess the sustainability of the Company (Wen et al., 2020). Improving sustainability is achieved by increasing the productivity of skilled human resources to achieve competitive advantage and sustainable success in the market (Inam Bhutta et al., 2021a). Tran & Vo (2020) state that achieving sustainable success requires creative human resources.

Managers are informed about market trends and shifts to adapt to changing conditions (Shen et al., 2020). Managers foster a culture of adaptability and encourage open communication, collaboration, and innovation. So, competencies based on skills and knowledge are essential for managers (Fifita et al., 2020). Better managers

take the initiative to change how their companies operate in response to their environment and develop creative ways to increase their resources to thrive in the long term (Inam Bhutta et al., 2021a). Unique resources will achieve a competitive advantage, especially in the era of a knowledge-based economy (Arte and Larimo, 2022). Resources-Based View theory reveals Knowledge resources as potential sources of competitive advantage (Barney, 2001; Barney et al., 2021).

However, it can be challenging for businesses to determine the worth of intangible assets. It is not possible to value intangible assets in a way that increases their firm value (Rosati and Faria, 2019). So, the Company needs to ensure investment in intangible assets (Rodgers et al., 2020). Intangible assets (IA) are non-monetary assets that can be identified without physical form (Widnyana et al., 2020) and are listed in the company's financial statements (IFRS-based PSAK). The way to identify intangible assets can follow two criteria, namely resources that can be separated, namely by sale, transfer, license, leased or exchanged, and resources arising from contractual rights or other legal rights, namely by taking the stated contract value (Rodgers et al., 2020). Difficult measurement of intangible assets causes the

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recognition of financial reporting to be incompatible with the value of assets (Lee and Foong, 2023).

The ability of managers to establish usage strategies is required to estimate the worth of these intangible assets. The performance of the company can be diversified by managerial skill. According to Lee & Foong's research (2023), manager skill has a big impact on whether the value link between diversity and company is favorable or negative. This condition enables managerial skill to influence how intangible assets relate to the company's worth.

Technological changes cause managers to have innovative abilities to increase the firm value. The solution provided in this study is to ensure managers' ability to improve asset utilization to ensure innovation and asset development are carried out in the company to achieve competitive advantage (Hermundsdottir and Aspelund, 2021). In addition, managers mitigate risks and redesign strategies that can cope with changes in the value of intangible assets to achieve the value of the Company (Tiberius et al., 2020). This study tries to link managerial capabilities in integrating intangible assets to increase the value of the Company. So, this study aims to investigate the relationship of intangible assets to company value moderated by managerial ability.

The study of the Resource-Based View (RBV) theory, which guides the selection of managerial talent concerning intangible assets and firm value, is covered in Part 2. The study's hypothesis is also discussed in this section. The third section covers research techniques, including data samples, variable definitions, and research models. The results are examined in Part 4 using descriptive analysis. The results are covered in depth in Part 5. The research findings are presented in Part 6.

2. Literature Review

2.1 Resource-Based View Theory

A company can use strategic resources defined by a resource-based view (RBV) to gain a sustainable competitive advantage. To find assets, capabilities, and competencies that can give a company a competitive advantage, RBV directs managerial attention to the organization's internal resources. Understanding how the resources and capacities of firms can interact is essential to understanding the empirical implications of this theory. Evaluating the practical consequences of a resource-based view improves business performance (Ardila et al., 2018; Barney et al., 2021).

The main force behind achieving corporate competitiveness and performance is the RBV theory-based concentration on corporate resources. When assessing competitive advantage, this theory makes the following assumptions: (1) firms within an industry (or group) may differ in the strategic resources they control; and (2) company resources may not migrate ideally across firms, meaning heterogeneity might exist for a long period. The firm's resource-based approach looks at how these two hypotheses affect the ongoing examination of sources of competitive advantage (Barney, 1991). (1) Hiring

experienced managers with the correct positions in the organization is one way to develop a competitive advantage and prevent competitors from copying their resources. Managers must conduct thorough and systematic research to produce innovations and performance that drive the long-term success of their organizations. (2) complicated social phenomena, such as interactions between managers in organizations, corporate culture, and brand reputation with clients and suppliers (Porter, 1991a). Phenomena show that there is little or no causal uncertainty regarding the relationship between the resources of these organizations and their competitive advantage. For example, the efficiency and effectiveness of a company can be improved by an organizational culture with specific characteristics or by managers who have good relationships with each other.

2.2 Intangible Asset and Firm Value

All resources with no physical existence but a major impact on the profitability and long-term health of the business are considered intangible assets (IAs). IA includes intellectual property, knowledge, information, and experience (Durand & Milberg, 2020; Milala et al., 2021). In this sense, IA turns into a crucial asset for long-term competitive advantage that drives the company's market performance (Ionita & Dinu, 2021; Tahat et al., 2018).

Intangible assets (IAs) are all assets that do not have a physical form but have a significant impact on the profitability and long-term viability of the company. IA includes intellectual property, knowledge, information, and experience (Durand & Milberg, 2020; Milala et al., 2021). Research (Ionita & Dinu, 2021; Tahat et al., 2018), say that in this way, IA becomes a crucial resource for a long-term competitive advantage that drives the company's market performance.

Due to the dynamic environment's increasing demand for competitive advantage, strategic resources cannot last indefinitely and must be refreshed. Managers need to have the ability to update and create resources, claims (Chen, 2019; Lee & Kwon, 2020). To produce and preserve competitive advantage by improving corporate performance, particularly in the internal environment. As a result, investing in intangible assets is a popular strategy for firms of all sizes, regions, and industrial sectors operating in highly competitive markets.

Investment in intangible assets will promote long-term, sustainable business growth, as evidenced by the company's enhanced performance. According to Mohammed & Ani (2020), the correct intangible assets are the foundation of corporate value generation and a key factor in business success. As a result of their high risk, high uncertainty, corporate specialization, and lack of competition between the use and intensity of human resources, it also claims that intangible assets cannot be exchanged.

Numerous perspectives have been used to study this topic. Intangible assets and corporate value have a significant relationship, according to research conducted in Turkey between 2005 and

2013 by Ocaik & Findik (2019). This study reveals how economic competence, computerized information and databases, and company value are affected when the entire value of intangible assets is divided into three subcomponents. This conclusion is supported by other experts who assert that intangible assets have a significant relationship to firm value.

However, other studies provide different results, as revealed by Iazzolino & Laise (2013), which state intangible assets do not have a significant effect on firm value. Research conducted by Chin et al. (2006) defines patents as intangible assets, giving a negative value to the value chain in manufacturing companies. The same results have also been done by Shane & Klock (1997), who also use patents and research and development costs as a measurement of intangible assets against company value measured by Tobin's Q. The results found that from quotation data on patents and research costs, contain relevant information about the market valuation of intangible assets (Tanggamani et al., 2022). Based on these findings, this study formulates the H1 hypothesis that intangible assets significantly and positively affect firm value.

2.3 Managerial Ability and Firm Value

According to Demerjian et al. (2011), managerial ability (MA) is the knowledge, skills, and experience managers possess to create excess revenue value for the company. This ability maintained by managers can maximize the efficiency of the resources used to produce future performance and affect the value of the company (Holcomb et al., 2009; Lin et al., 2022; Park & Byun, 2021).

With the aid of their professional and academic expertise, good managers assure the optimal usage of limited corporate resources in a difficult environment. They also employ their knowledge and expertise to achieve long-term growth. Previous research has demonstrated how managerial skills have a substantial impact on business decisions and results. For instance, having more capable managers enhances internal control and the standard of company reporting (Jebran and Chen, 2022).

Previous studies have emphasized that one of the most important organizational characteristics that determines an organization's performance is managerial aptitude. High-skilled managers are thought to be extremely knowledgeable about the business sector, familiar with products, able to make superior decisions to those of other managers, capable of managing their staff effectively, and well-versed in emerging trends and technologies (Demerjian et al., 2011; Jebran & Chen, 2022). These studies (Coudounaris et al., 2020; Jebran & Chen, 2022; Soedarmono et al., 2019) also demonstrate that firms with high manager capabilities typically exhibit greater levels of innovation, make highly efficient investment decisions, demonstrate better organizational performance, and achieve higher-quality earnings reporting.

Research on managerial capabilities on company value also provides mixed results. Research Andreou et al. (2017) conducted

research at the time of the global crisis in 2008. The results stated that high managerial capabilities can help reduce the problem of lack of investment during periods of crisis and increase the company's value. Park et al. (2016) also carried out the same results, who stated that managers can positively increase market share growth and company value. Different results in the study (Park & Byun (2022) noted that managerial ability and company value are negatively and significantly related. This study explains that managerial ability is a variable that decreases company value because managers with superior ability will pursue personal benefits, so they will not maximize shareholder profits (company value decreases). So it is proposed that the H2 hypothesis, managerial ability positively affects Firm Value.

2.4 The Moderating Role of Managerial Ability

Managerial ability plays a role in helping to influence the achievement of company value. Managers' abilities can strengthen and weaken a company's value based on the ever-changing technological environment. The management manager will direct the company through the strategy applied. Intangible assets are assets that will be used as an influence on current technological developments. The intangible asset component requires excellent handling for the firm value to be maintained. This handling requires excellent manager skills. If this handling is not done correctly, managerial ability will weaken the achievement of company value.

Based on previous research, managerial ability can be a catalyst for utilizing the company's intangible assets to achieve firm value. Innovative managers can better develop new strategies supported by intangible assets (Najafi-Tavani et al., 2018). Some things that managers can do are implementation strategy and innovation (Garousi Mokhtarzadeh et al., 2020; Rodgers et al., 2020), achieving operational efficiency, ability in asset development, implementing risk management practices (Lin et al., 2022), ability to respond to environmental changes (Hadjielias et al., 2021), and assuring sustainable business (Hadjielias et al., 2021; Piñeiro-Chousa et al., 2020).

The management will weaken the use of intangible assets to increase the value of the company if they are not owned and used by the manager. According to Glyptis et al. (2021), Pereira et al. (2021), and Lopes & Carvalho (2021) the incapacity of managers to establish strategies for attaining company value is the key factor that weakens the most. On the basis of this, it can be demonstrated that managerial skill can weaken the link between intangible assets and the company's worth. As a result, the H3 management ability hypothesis is developed to balance out intangible assets and business value

3. Methodology

It is requested not to use any of footnotes. In this study, a quantitative technique is used to evaluate how intangible assets, managerial skill, and firm value relate in Indonesia. Over eleven years, from 2012 to 2022, studies have been conducted. The consistency and predictability of research results

can be established during a ten-year investigation. In addition, this time frame is based on the assumption that Indonesian businesses have implemented several innovations and proven management's prowess in improving business performance, in addition to paying attention to company growth, company age, and company liquidity. The sample used was 498 business companies in Indonesia.

The company's value is how the study's dependent variable is measured. The worth of a company is determined using Tobin's q, which describes the gap between the market value and book value of an asset with potential for future growth. (W. Park & Byun, 2022).

$$\text{Tobins } Q_{it} = \frac{(\text{Market capitalization} + \text{Liabilities})}{\text{Total asset}}$$

The representativeness of intangible assets (RIA) method is used to calculate the value of intangible assets. This technique is a component of the Luthy (1998) method, which seeks to determine how much of a company's total assets are represented by intangible assets. This is an accounting view of financial statements from metaphysical calculations of the enterprise.

$$RIA = \frac{\text{Total Aset Tidak Berwujud}}{\text{Total Aset}}$$

The moderator variable of this study is managerial ability. Managerial aptitude (MAN) is used in this study to measure independent variables. The MA-Score, a measure of management talent created by (Demerjian et al., 2013), estimates how effectively managers utilize a company's resources. All businesses need resources, including human resources, capital, and state-of-the-art equipment. A superior manager will produce a higher output level from a given input than an inferior manager.

According to the methodology used by (Demerjian et al., 2013), data envelopment analysis (DEA) is used to compare sales generated by individual firms based on inputs used by firms, such as cost of goods sold, administrative expenses, net PPE, net operating rent, net worth of R&D, Goodwill purchased, and other intangible assets. Here's the formula for measuring managerial ability.

$$\text{Firm efficiency} = \frac{\text{Sales}}{\text{CoGS} + \text{SG\&A} + \text{PPE} + \text{OpsLease} + \text{R\&D} + \text{Goodwill} + \text{other Intangible}}$$

This study used four control variables: SIZE, AGE (company age), GROWTH (company growth), and LIQ (liquidity level). According to company size (SIZE), larger organizations typically perform better overall, primarily attributed to their financial success (Abou-foul et al., 2021). Larger businesses have the resources to support performance improvement methods. As a result of their company's superior performance, competitive advantage, and efficiency scale, larger businesses also often display more market power. In this study, the natural logarithm of a company's total assets is used to determine how large the company is.

$$SIZE = \text{Ln}(\text{Total Aset})$$

Company Age (AGE) was the second control variable. Due to the company's expertise and years of progress, its performance and reputation increase as the market benefits from its strength (Chakroun et al., 2020). The logarithm of the number of years since the company was founded

is used to calculate the age of the company (Chakroun et al., 2020; Srivastava, 2015).

$$AGE = \text{Ln}(\text{Firm Age})$$

Company growth (GROWTH) is the third control variable. An organization's performance and reputation will change as it grows. High growth usually results in better company performance. Companies use sales growth to measure their growth.

$$GRO = \frac{\text{Growth}_t - \text{Growth}_{t-1}}{\text{Growth}_{t-1}}$$

The fourth control variable is liquidity (LIQ). Liquidity indicates the ability to repay short-term debts. When the Company can fulfill this obligation, the company has good performance and reputation. The liquidity measurement used is the current ratio.

$$\text{Likuid} = \frac{\text{Total current asset}}{\text{Total current liabilities}}$$

In this work, panel data regression is used for data analysis. Analysis using panel data has several advantages: providing more data, increasing the degree of freeness, reducing collinearity between explanatory variables, and making efficient econometric estimates. Second, it offers essential details for researchers that time sequence data and data between places cannot offer. Panel data also benefit from providing more information, more variables, less collinearity between observed variables, and more degrees of freedom and effectiveness.

This article focuses on data analysis and establishing relationships between the variables selected for the study. Data analysis was performed using E-views 13.0 Software. The current study used a regression analysis model for the data panel. The data panel has two main regression models: the fixed and random effects (REM) models. In FEM, intercepts are assumed to differ for each individual, suggesting that each may have some features. In REM, however, intercepts are assumed to be identical for all individuals, meaning they are drawn from larger populations with fixed averages (Gujarati, 2004).

An econometric model with multiple regression analysis for hypothesis testing is the analysis technique employed. The influence of intangible asset factors on business value, as mediated by management competence, is examined using multiple regression analysis. The multiple regression econometric model consists of two test models as follows.

Model 1

$$FV_{it} = \beta_0 + \beta_1 IA + \beta_2 MAN + \beta_3 SIZE + \beta_4 AGE + \beta_5 GROWTH + \beta_6 LIQ + \varepsilon$$

Model 2

$$FV_{it} = \beta_0 + \beta_1 IA + \beta_2 MAN + \beta_3 (IA * MAN) + \beta_4 SIZE + \beta_5 AGE + \beta_6 GROWTH + \beta_7 LIQ + \varepsilon$$

Model 1 provides testing of independent variables alongside independent variables (IA and MAN) against the firm value. While Model 2 provides independent variable (IA) testing of FV moderated by MAN variables. Hypothesis testing is used to test the suitability of theoretical concepts with the results of regression processing by basing on the regression coefficient and the significance level of each variable of firm value. Hypothesis testing can be done simultaneously (F test) and

partial testing (t-test) by comparing on a 5% probability scale.

According to Makhbul & Sheikh Khairuddin (2014), hypothesis testing for mediation models emphasizes postulated causal chains in which one variable affects the second variable, impacting the third variable. Researchers first conduct classical assumption tests and model selection tests before conducting hypothesis tests. Ensuring the research model is suitable for future testing is the goal

4. Discussion

4.1 Descriptive Statistics

The gathered information is examined using the appropriate descriptive statistics. In terms of mean, median, standard deviation, skewness, kurtosis, and minimum-to-maximum values of variables, the descriptive statistical tool aids in the description of the data. As indicated in Table 1, the relationship between Tobin's Q coefficient, intangible assets, managerial skill, and firm value has been investigated using Karl Pearson's correlation coefficient.

Table 1. Descriptive Statistics For brevity, the results of three decimal point

	Mean	Median	Max	Min	Std. Dev.
TOBINS_Q	1.650	1.174	7.853	0.161	1.507
IA	10.552	5.712	47.027	0.000	11.671
MAN	0.638	0.646	1.117	0.001	0.243
SIZE	29.478	29.484	32.759	26.575	1.370
GROWTH	0.097	0.072	1.777	-0.702	0.287
AGE	16.646	17.645	44.422	0.030	11.012
LIQ	2.302	1.908	6.544	0.212	1.465

4.2 Correlation analysis

The Karl–Pearson correlation coefficient measures the linear relationship between two variables. The correlation matrix shows that Tobin's Q strongly correlates with managerial variables of ability, intangible assets, and liquidity. Likewise, the managerial ability relationship has a strong correlation with the variables of intangible assets, company size, and liquidity. Intangible assets correlate with size and liquidity. The Company's size correlates with the Company's age, and the Company's age correlates with liquidity.

Table 2. Pearson correlation analysis

Correlation Probability	TOBINS_Q	MAN	IA	SIZE	GROWTH	UMUR	LIQ
TOBINS_Q	1						
MAN	0.141 0.002***	1					
IA	0.114 0.011***	-0.108	1				
SIZE	0.041 0.362	-0.325	0.176	1			

GROWTH	0.045	0.031	0.044	-0.015	1		
	0.321	0.488	0.325	0.731	-----		
AGE	0.005	0.036	0.041	0.168	-0.094	1	
	0.913	0.422	0.358	0.000**	0.037	-----	
LIQ	0.225	0.130	0.096	0.015	-0.009	0.175	1
	0.000***	0.004***	0.033***	0.742	0.834	0.000**	-----

** , ***Significance levels of 5% and 1%, respectively

4.3 Regression analysis

Using managerial skill as the moderator, panel data regression tests were utilized to investigate the relationship between intangible assets and firm value. Regression tests are performed when the model has met the best model and has met classical assumptions. So, it is assumed that the model to be analyzed has been BLUE (Best, Linear, Unbiased, Estimator).

Testing this research model goes through three stages of testing the research model. Model 1 is to test intangible assets and managerial ability against firm value. Model 2 examines intangible assets, managerial ability, and control variables over firm value. Model 3 examines the interaction of intangible assets and managerial ability against firm value. Regression testing of panel data is shown in Table 3.

Table 3. Testing the relationship between managerial skill and intangible assets and firm value.

Variable	Y=Tobins Q								
	Model 1			Model 2			Model 3		
	Coef	t-Stat	Prob.	Coef	t-Stat	Prob.	Coef	t-Stat	Prob.
Independent									
IA	0.012	1.904	0.058***	0.013	2.008	0.045***	-0.052	-2.983	0.003***
Moderator									
MAN	1.154	3.822	0.000***	0.906	2.926	0.004***	-0.196	-0.425	0.671
Interaction									
IA*MAN							0.116	4.444	0.000
Control									
SIZE				-0.094	-1.387	0.166	-0.143	-1.407	0.160
AGE				-0.011	-1.173	0.241	-0.014	-0.695	0.487
GRO				0.326	1.732	0.084	0.255	1.262	0.208
JKUID				0.092	1.868	0.062	-0.017	-0.292	0.771
F				0.034		0.054			0.628
Adjusted R-Square				0.031		0.042			0.521
F-statistic				8.837		4.633			5.863
Adjusted F-statistic				0.000		0.000			0.000

This table reports the estimation results of panel data regression. Interaction of intangible assets and managerial capability on firm value.

* , ** , ***Significance levels of 10%, 5% and 1%, respectively

The test results in Table 3 show a regression test between the independent variable (IA) and the independent variable (firm value) measured by Tobin's Q. The test results show that the three table models formed are valid, with a statistically proven significance value of 0.000 (confidence level of 95%).

Testing model 1, the test results show that intangible assets and managerial ability directly affect firm value at the level of 5%. Model 2 performs testing by including control variables in the direct testing of intangible assets against firm value. Model 2 test results show the same results as model 1. Model 3 compares the impact of management skill and intangible assets on

business value. The findings show a strong correlation between managerial skill and the interplay of intangible assets in raising the company's worth. Model 3 demonstrates the fact that intangible assets have a detrimental impact on business value.

The intangible testing of assets against firm value moderated by managerial ability is discussed based on three hypotheses. Based on the findings, hypothesis 1 states that intangible assets have a considerable and favorable impact on business value. It is accepted that this is true. The findings of this investigation concur with earlier studies (Abebe Zelalem and Ali Abebe, 2022; Gamayuni, 2015), ownership of unique resources, such as knowledge, can distinguish competitive companies that can contribute to the company's value in the long run. Intangible assets can include brands, goodwill, intellectual property, and other capable non-physical assets as long-term assets that increase in value over time.

Hypothesis 2 is based on research on managerial ability positively affecting Firm Value. This result aligns with previous research (Lee & Foong, 2023), which states that managers can achieve company success through productivity, decision-making ability, and performance (Park & Byun, 2022). (Park and Byun, 2022) In terms of funding, managers can facilitate the Company in increasing financing to increase the company's value and manage assets efficiently.

The results of the hypothesis 3 testing indicate that management ability can strengthen the inverse association between assets and business value. This is evident from the results of various earlier research, which show that innovative managers may help the company grow its value (Inam Bhutta et al., 2021b). Other research also reveals that managers can decide on investment policies for intangible assets to strengthen the Company's value creation in the long run. Management of intangible assets by managers will result in better productivity (Cheung et al., 2017; Xu et al., 2022). However, several funds are spent by the company for investment in intangible assets, both in the form of research and development costs, patent fees, and other intellectual property rights (Jayabalan et al., 2021; Singh et al., 2022). When the investment decision is right in utilizing intangible assets in the Company, it will increase company value.

Other implications of managerial ability strengthening company value can be seen from optimizing asset utilization, innovation, asset development, risk management, and strategic flexibility (Camisón et al., 2022; Milala et al., 2021). Optimization of asset utilization involves effective marketing strategies to utilize intangible assets in the form of brand investment in product innovation to maintain competitive advantage (Garousi Mokhtarzadeh et al., 2020; Rodgers et al., 2020).

The development of innovation and development is strongly influenced by the ability of managers (Hermundsdottir and Aspelund, 2021). Managers who have an excellent understanding encourage the implementation of product development (Bello-Pintado and Bianchi, 2020). Through new developments (Capurro et al., 2021; Jayabalan et al., 2021), brand expansion (Chang

et al., 2018), and asset improvement. This activity determines the company's value in a multinational position, strengthened by the utilization and consideration of expansion in related businesses.

Considerations in utilizing intangible assets will give birth to risk mitigation policies carried out by managers (Lin et al., 2022). This ability will help managers ensure that the company will not lose relationships and networking in creating value (Chollet and Sandwidi, 2018). Rapidly changing environmental conditions require managers who can adapt. Technological developments provide developments in the value of intangible assets. So, managers' strategic flexibility and ability to respond to asset value changes. Managers can redesign strategies to take advantage of environmental changes affecting intangible assets to achieve the value of the Company.

5. Conclusion

This The rapid advancement of technology supports the resource-based view hypothesis, which is developed as a result of this research. The distinctive resources that the company owns help to raise the company's value. The moderation analysis is used in this study to analyze the managerial ability variables in the relationship between intangible assets and firm value. The findings revealed that 1) intangible assets and managerial ability directly affect firm value favorably and 2) intangible assets and managerial ability interact favorably with regard to the company's worth.

According to this study, public enterprises in Indonesia produce data that suggests management skill can effectively modulate the indirect relationship between assets and firm value. Managerial ability can strengthen the company's value by managing its intangible assets—the power of managers who must adapt to rapid technological changes. Creative and innovative managerial ability can provide new strategies and developments in delivering breakthroughs for the Company. Managers can implement strategy and innovations, achieve operational efficiency, develop assets, implement risk management practices, respond to environmental changes, and ensure sustainable business.

The limitation of this study is that it still uses intangible assets and managerial ability as unique resources owned by the Company that affect firm value. Further research can add other variables included in the Company's amazing resources.

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References

- Abebe Zelalem, B., Ali Abebe, A., 2022. Does intangible assets affect the financial performance and policy of commercial banks' in the emerging market? PLoS One

- 17, e0272018.
<https://doi.org/10.1371/journal.pone.0272018>
- Abou-foul, M., Ruiz-Alba, J.L., Soares, A., 2021. The impact of digitalization and servitization on the financial performance of a firm: an empirical analysis. *Prod. Plan. Control* 32, 975–989.
<https://doi.org/10.1080/09537287.2020.1780508>
- Andreou, P.C., Karasamani, I., Louca, C., Ehrlich, D., 2017. The impact of managerial ability on crisis-period corporate investment. *J. Bus. Res.* 79, 107–122.
<https://doi.org/10.1016/j.jbusres.2017.05.022>
- Ardila, L.N., Saputra, D.A., Adiati, A.K., Sutopo, B., 2018. Asset productivity, profitability, and firm value: Can state-owned companies outperform non-state-owned companies? *Int. J. Bus. Soc.* 19, 639–650.
- Arte, P., Larimo, J., 2022. Moderating influence of product diversification on the international diversification-performance relationship: A meta-analysis. *J. Bus. Res.* 139, 1408–1423.
<https://doi.org/10.1016/j.jbusres.2021.10.037>
- Barney, J., 1991. Firm Resources and Sustained Competitive Advantage. *J. Manage.*
<https://doi.org/10.1177/014920639101700108>
- Barney, J.B., 2001. Resource-Based Theories of Competitive Advantage: A Ten-Year Retrospective on The Resource-Based View. *J. Manage.* 27, 643–650.
<https://doi.org/10.1177/014920630102700602>
- Barney, J.B., Ketchen, D.J., Wright, M., 2021. Resource-Based Theory and the Value Creation Framework. *J. Manage.* 47, 1936–1955.
<https://doi.org/10.1177/01492063211021655>
- Bello-Pintado, A., Bianchi, C., 2020. Workforce education diversity, work organization and innovation propensity. *Eur. J. Innov. Manag.* 24, 756–776.
<https://doi.org/10.1108/EJIM-10-2019-0300>
- Camisón, C., Clemente, J.A., Camisón-Haba, S., 2022. Asset tangibility, information asymmetries and intangibles as determinants of family firms leverage, *Review of Managerial Science*. Springer Berlin Heidelberg.
<https://doi.org/10.1007/s11846-022-00522-y>
- Capurro, R., Fiorentino, R., Garzella, S., Giudici, A., 2021. Big data analytics in innovation processes: which forms of dynamic capabilities should be developed and how to embrace digitization? *Eur. J. Innov. Manag.* 25, 273–294.
<https://doi.org/10.1108/EJIM-05-2021-0256>
- Chakroun, S., Salhi, B., Ben Amar, A., Jarboui, A., 2020. The impact of ISO 26000 social responsibility standard adoption on firm financial performance: Evidence from France. *Manag. Res. Rev.* 43, 545–571.
<https://doi.org/10.1108/MRR-02-2019-0054>
- Chang, Y., Wang, X., Arnett, D.B., 2018. Enhancing firm performance: The role of brand orientation in business-to-business marketing. *Ind. Mark. Manag.* 72, 17–25.
<https://doi.org/10.1016/j.indmarman.2018.01.031>
- Chen, C.J., 2019. Developing a model for supply chain agility and innovativeness to enhance firms' competitive advantage. *Manag. Decis.* 57, 1511–1534.
<https://doi.org/10.1108/MD-12-2017-1236>
- Cheung, K.T.S., Naidu, D., Navissi, F., Ranjeeni, K., 2017. Valuing talent: Do CEOs' ability and discretion unambiguously increase firm performance. *J. Corp. Financ.* 42, 15–35.
<https://doi.org/10.1016/j.jcorpfin.2016.11.006>
- Chin, C.L., Lee, P., Chi, H.Y., Anandarajan, A., 2006. Patent citation, R&D spillover, and Tobin's Q: Evidence from Taiwan semiconductor industry. *Rev. Quant. Financ. Account.* 26, 67–84.
<https://doi.org/10.1007/s11156-006-7034-1>
- Chollet, P., Sandwidi, B.W., 2018. CSR engagement and financial risk: A virtuous circle? International evidence. *Glob. Financ. J.* 38, 65–81.
<https://doi.org/10.1016/j.gfj.2018.03.004>
- Coudounaris, D.N., Orero-Blat, M., Rodríguez-García, M., 2020. Three decades of subsidiary exits: Parent firm financial performance and moderators. *J. Bus. Res.* 110, 408–422.
<https://doi.org/10.1016/j.jbusres.2020.01.024>
- Demerjian, P., Lev, B., McVay, S., 2011. Quantifying Managerial Ability: A New Measure and Validity Tests. *Manage. Sci.* 58, 1229–1248.
<https://doi.org/10.2139/ssrn.1266974>
- Demerjian, P.R., Lev, B., Lewis, M.F., McVay, S.E., 2013. Managerial ability and earnings quality. *Account. Rev.* 88, 463–498.
<https://doi.org/10.2308/accr-50318>
- Demerjian, P.R., Lev, B.I., McVay, S.E., 2011. Quantifying Managerial Ability: A New Measure and Validity Tests. *SSRN Electron. J.*
<https://doi.org/10.2139/ssrn.1266974>
- Durand, C., Milberg, W., 2020. Intellectual monopoly in global value chains. *Rev. Int. Polit. Econ.* 27, 404–429.
<https://doi.org/10.1080/09692290.2019.1660703>

- Fifita, 'Ilaisaane M.E., Seo, Y., Ko, E., Conroy, D., Hong, D., 2020. Fashioning organics: Wellbeing, sustainability, and status consumption practices. *J. Bus. Res.* 117, 664–671. <https://doi.org/10.1016/j.jbusres.2019.01.005>
- Gamayuni, R., 2015. The Effect Of Intangible Asset, Financial Performance And Financial Policies On The Firm Value. *Int. J. Sci. Technol. Res.* 4, 1.
- Garousi Mokhtarzadeh, N., Amoozad Mahdiraji, H., Jafarpanah, I., Jafari-Sadeghi, V., Cardinali, S., 2020. Investigating the impact of networking capability on firm innovation performance: using the resource-action-performance framework. *J. Intellect. Cap.* 21, 1009–1034. <https://doi.org/10.1108/JIC-01-2020-0005>
- Glyptis, L., Hadjielias, E., Christofi, M., Kvasova, O., Vrontis, D., 2021. Dynamic familiness capabilities and family business growth: A longitudinal perspective framed within management accounting. *J. Bus. Res.* 127, 346–363. <https://doi.org/10.1016/j.jbusres.2021.01.019>
- Gujarati, D.N., 2004. *Basic Econometrics*, McGraw-Hill Companies. McGraw-Hill Higher Education.
- Hadjielias, E., (Lola) Dada, O., Discua Cruz, A., Zekas, S., Christofi, M., Sakka, G., 2021. How do digital innovation teams function? Understanding the team cognition-process nexus within the context of digital transformation. *J. Bus. Res.* 122, 373–386. <https://doi.org/10.1016/j.jbusres.2020.08.045>
- Hermundsdottir, F., Aspelund, A., 2021. Sustainability innovations and firm competitiveness: A review. *J. Clean. Prod.* 280, 124715. <https://doi.org/10.1016/j.jclepro.2020.124715>
- Holcomb, T.R., Holmes, R.M., Connelly, B.L., 2009. Making The Most of What You Have: Managerial Ability as a Source of Resource Value Creation. *Strateg. Manag. J.* 30, 457–485. <https://doi.org/10.1002/smj>
- Iazzolino, G., Laise, D., 2013. Value added intellectual coefficient (VAIC): A methodological and critical review. *J. Intellect. Cap.* 14, 547–563. <https://doi.org/10.1108/JIC-12-2012-0107>
- Inam Bhutta, A., Sheikh, M.F., Munir, A., Naz, A., Saif, I., 2021a. Managerial Ability and Firm Performance: Evidence from an Emerging Market. *Cogent Bus. Manag.* 8. <https://doi.org/10.1080/23311975.2021.1879449>
- Inam Bhutta, A., Sheikh, M.F., Munir, A., Naz, A., Saif, I., 2021b. Managerial ability and firm performance: Evidence from an emerging market. *Cogent Bus. Manag.* 8. <https://doi.org/10.1080/23311975.2021.1879449>
- Ionita, C., Dinu, E., 2021. The Effect of Intangible Assets on Sustainable Growth and Firm Value – Evidence on Intellectual Capital Investment in Companies Listed on Bucharest Stock Exchange. *Kybernetes* 50, 2823–2849. <https://doi.org/10.1108/K-05-2020-0325>
- Jayabalan, J., Dorasamy, M., Raman, M., 2021. Reshaping higher educational institutions through frugal open innovation. *J. Open Innov. Technol. Mark. Complex.* 7, 145. <https://doi.org/10.3390/joitmc7020145>
- Jebran, K., Chen, S., 2022. Corporate policies and outcomes during the COVID-19 crisis: Does managerial ability matter? *Pacific Basin Financ. J.* 73, 101743. <https://doi.org/10.1016/j.pacfin.2022.101743>
- Lee, C.H., Foong, S.S., 2023. The Value of Diversification, Managerial Ability and Corporate Governance: Evidence from Malaysian Firms. *Asian J. Bus. Account.* 16, 31–68. <https://doi.org/10.22452/ajba.vol16no1.2>
- Lee, N., Kwon, K.H., 2020. Revenue recognition on percentage of completion basis and firm value. *Int. J. Bus. Soc.* 21, 25–41.
- Lin, F.Y., Guan, L., Ho, C.L., Wang, T.S., 2022. Examining the D&O insurance effect on managerial ability. *Financ. Res. Lett.* 46, 102297. <https://doi.org/10.1016/j.frl.2021.102297>
- Lopes, F.C., Carvalho, L., 2021. Intangible assets and business performance in Latin America. *RAUSP Manag. J.* 56, 408–424. <https://doi.org/10.1108/RAUSP-02-2020-0024>
- Macias, A., Pirinsky, C., 2015. Employees and the market for corporate control. *J. Corp. Financ.* 31, 33–53. <https://doi.org/10.1016/j.jcorpfin.2015.01.014>
- Makhbul, Z.M., Sheikh Khairuddin, S.M.H.H., 2014. The effect of occupational stressors on health and individual productivity: Assessments via sobel test. *J. Ekon. Malaysia* 48, 117–131. <https://doi.org/10.17576/jem-2014-4801-10>
- Mendes, T., Braga, V., Correia, A., Silva, C., 2023. Linking corporate social responsibility, cooperation and innovation: the triple bottom line perspective. *Innov. Manag. Rev.* 20, 244–280. <https://doi.org/10.1108/INMR-03-2021-0039>
- Milala, S.I., Ariffin, K.M., Kasim, R., Yassin, A.M., Ishak, M.H., Kasim, N., 2021. Intangible Asset a Key Driver for Company's Performance: An Overview. *Proc. Int. Conf. Ind. Eng. Oper. Manag.* 2555–2565.

- Mohammed, Z.O., Ani, M.K. Al, 2020. The effect of intangible assets, financial performance and financial policies on the firm value: Evidence from omani industrial sector. *Contemp. Econ.* 14, 379–391. <https://doi.org/10.5709/ce.1897-9254.411>
- Najafi-Tavani, S., Najafi-Tavani, Z., Naudé, P., Oghazi, P., Zeynaloo, E., 2018. How collaborative innovation networks affect new product performance: Product innovation capability, process innovation capability, and absorptive capacity. *Ind. Mark. Manag.* 73, 193–205. <https://doi.org/10.1016/j.indmarman.2018.02.009>
- Ocak, M., Findik, D., 2019. The impact of intangible assets and sub-components of intangible assets on sustainable growth and firm value: Evidence from Turkish listed firms. *Sustain.* 11. <https://doi.org/10.3390/su11195359>
- Park, W., Byun, C.G., 2022. Effect of Managerial Compensation and Ability on the Relationship between Business Strategy and Firm Value: For Small and Medium-Sized Enterprises (SMEs), Sustainability (Switzerland). <https://doi.org/10.3390/su14084689>
- Park, W., Byun, C.G., 2021. Effect of sme's managerial ability and executive compensation on firm value. *Sustain.* 13, 1–16. <https://doi.org/10.3390/su132111828>
- Pereira, V., Budhwar, P., Temouri, Y., Malik, A., Tarba, S., 2021. Investigating Investments in agility strategies in overcoming the global financial crisis - The case of Indian IT/BPO offshoring firms. *J. Int. Manag.* 27, 100738. <https://doi.org/10.1016/j.intman.2020.100738>
- Piñeiro-Chousa, J., López-Cabarcos, M.Á., Romero-Castro, N.M., Pérez-Pico, A.M., 2020. Innovation, entrepreneurship and knowledge in the business scientific field: Mapping the research front. *J. Bus. Res.* 115, 475–485. <https://doi.org/10.1016/j.jbusres.2019.11.045>
- Porter, M.E., 1991. Towards A Dinamic Theory of Strategy. *Strateg. Manag. J.* 12, 95–117.
- Rodgers, W., Degbey, W.Y., Housel, T.J., Arslan, A., 2020. Microfoundations of collaborative networks: The impact of social capital formation and learning on investment risk assessment. *Technol. Forecast. Soc. Change* 161, 120295. <https://doi.org/10.1016/j.techfore.2020.120295>
- Rosati, F., Faria, L.G.D., 2019. Business contribution to the Sustainable Development Agenda: Organizational factors related to early adoption of SDG reporting. *Corp. Soc. Responsib. Environ. Manag.* 26, 588–597. <https://doi.org/10.1002/csr.1705>
- Shane, H., Klock, M., 1997. The relation between patent citations and Tobin's Q in the semiconductor industry. *Rev. Quant. Financ. Account.* 9, 131–146. <https://doi.org/10.1023/A:1008208425044>
- Shen, H., Fu, M., Pan, H., Yu, Z., Chen, Y., 2020. The Impact of the COVID-19 Pandemic on Firm Performance. *Emerg. Mark. Financ. Trade* 56, 2213–2230. <https://doi.org/10.1080/1540496X.2020.1785863>
- Siegrist, M., Bowman, G., Mervine, E., Southam, C., 2020. Embedding environment and sustainability into corporate financial decision-making. *Account. Financ.* 60, 129–147. <https://doi.org/10.1111/acfi.12533>
- Singh, S.K., Del Giudice, M., Tarba, S.Y., De Bernardi, P., 2022. Top Management Team Shared Leadership, Market-Oriented Culture, Innovation Capability, and Firm Performance. *IEEE Trans. Eng. Manag.* 69, 2544–2554. <https://doi.org/10.1109/TEM.2019.2946608>
- Soedarmono, W., Trinugroho, I., Sergi, B.S., 2019. Thresholds in the nexus between financial deepening and firm performance: Evidence from Indonesia. *Glob. Financ. J.* 40, 1–12. <https://doi.org/10.1016/j.gfj.2018.08.001>
- Srivastava, N.K., 2015. Does governance structure have any effect on firm performance during the financial crisis. *J. Strateg. Manag.* 8, 368–383. <https://doi.org/10.1108/jsma-02-2015-0014>
- Tahat, Y.A., Ahmed, A.H., Alhadab, M.M., 2018. The impact of intangibles on firms' financial and market performance: UK evidence. *Rev. Quant. Financ. Account.* 50, 1147–1168. <https://doi.org/10.1007/s11156-017-0657-6>
- Tanggamani, V., Amran, A., Ramayah, T., 2022. CSR Practices Disclosure's Impact on Corporate Financial Performance and Market Performance: Evidence of Malaysian Public Listed Companies. *Int. J. Bus. Soc.* 23, 604–613. <https://doi.org/10.33736/ijbs.4632.2022>
- Tiberius, V., Siglow, C., Sendra-García, J., 2020. Scenarios in business and management: The current stock and research opportunities. *J. Bus. Res.* 121, 235–242. <https://doi.org/10.1016/j.jbusres.2020.08.037>
- Tran, N.P., Vo, D.H., 2020. Human capital efficiency and firm performance across sectors in an emerging market. *Cogent Bus. Manag.* 7. <https://doi.org/10.1080/23311975.2020.1738832>
- Wen, W., Cui, H., Ke, Y., 2020. Directors with foreign experience and corporate tax

avoidance. *J. Corp. Financ.* 62, 101624.
<https://doi.org/10.1016/j.jcorpfin.2020.101624>

Widnyana, I.W., Wiksuana, I.G.B., Artini, L.G.S., Sedana, I.B.P., 2020. Influence of financial architecture, intangible assets on financial performance and corporate value in the Indonesian capital market. *Int. J. Product. Perform. Manag.* 70, 1837–1864.
<https://doi.org/10.1108/IJPPM-06-2019-0307>

Xu, Q., Fernando, G.D., Schneible, R.A., 2022. Age diversity, firm performance and managerial ability. *Rev. Account. Financ.* 21, 276–298. <https://doi.org/10.1108/RAF-09-2021-0232>