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Exploring the influence of intangible resources on firm value across major Indonesian industrial sectors: An RBV perspective

Variyetmi Wira[a,b], Niki Lukviarman[c], Rida Rahim[d*] and Efa Yonnedi[d]

[a]*Doctoral Student of Management, Universitas Andalas, Indonesia*
[b]*Associate Professor, Lecturer, Department of Business Administration, Politeknik Negeri Padang, Indonesia*
[c]*Prof., Full Professor, Lecturer, Department of Management, Universitas Andalas, Indonesia, Indonesia*
[d]*Dr., Assistant Professor, Lecturer, Department of Management, Universitas Andalas, Indonesia*

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The development of Resources Based-View in 2021 states that the firm's value creation is influenced by unique resources. This research aims to explore the use of intangible resources in three main industrial sectors in Indonesia to create firm value. The research method begins with the mapping of resources that meet valuable, rare, imperfect imitability, and non-substitution, forming a research model. These internal resources are measured using the company's financial ratio. The research data is in the form of secondary data for the period 2012-2022 which is analyzed using the panel data regression method and robustness test. The results found that each industry has different resources to increase the firm value. Internal resources; Intangible assets, firm innovation and managerial ability can create firm value in the basic materials industry. Meanwhile, in the Consumer Noncyclicals industry, only managerial ability affects the firm's value. Meanwhile, intellectual capital is not able to create firm value in Indonesia. The research implies that physical resources are still the main factor in creating a competitive advantage to achieve sustainable corporate value in Indonesia. The theoretical contribution is that there are still other applications of the RBV concept to create firm value.

1. Introduction

One way businesses can hold onto their place in competitive tactics is to fortify their competitive edge (Priem & Butler, 2001) According Barney et al. (2021) creating and sustaining better performance is the definition of competitive advantage. However, it has not been found how a competitive advantage can survive and be sustainable. The continuous competitive advantage balancing model arises when environmental changes affect the balance between mimicry accuracy and responsiveness to rival threats (Sharapov & Ross, 2023). So that the company must be able to make various efforts in the context of creating firm value that is to be achieved because companies that have superior performance will have a high firm value (Makhija, 2003). Firm value research using the RBV concept is growing by examining many variables that are considered to be unique resources of the company. Hsiao (2014) researched the effects of Pure Technical Effectiveness (PTE) and Innovation capital (INC) on company value in Taiwan's Biotech Medical business between 2006 and 2010. The declaration's conclusions are: (1) PTE might improve. PTE significantly modifies the relationship between IC and FV. (3) IC and PTE significantly impact FV. (4) Not only did PTE and stock returns differ significantly in the sub-industry, but so did IC and FV. Other research was conducted by Fan et al. (2019) on public companies in the US during the period 2000-2014. The study's findings demonstrated that, as indicated by Tobin's Q, the board-CEO buddy relationship has a detrimental effect on business value. In 2022, the development of RBV theory in testing firm value was also carried out by Iqbal et al. (2022)

* Corresponding author
E-mail address ridarahim@eb.unand.ac.id (R. Rahim)

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who measured corporate worth against innovation in processes and products. The research used objects in manufacturing companies in the US in the period 2002-2019. The study's findings indicated that process and product innovation had a beneficial effect on company value. Furthermore, research by Rahman and Howlader (2022) in the developing country of Bangladesh, in the same direction as that conducted by Ramirez (2012) in the developed country (Japan), conducted research using R&D variables in testing the value of companies. The study's findings support RBV's argument on business funding allocation for future expansion and innovation.

Previous studies have tested the resources that companies have in each different industry sector and found different results (Hsiao, 2014). The greatest resources that companies have are qualified and skilled human resources (Kusumawijaya & Astuti, 2024). The company's capabilities are an intangible resource that will affect the level of innovation and create efficiencies in the company's operations in the form of technological improvements and innovations (Torres et al., 2024) Furthermore, these intangible resources will provide high competitiveness for the company to increase its competitive advantage and firm value (Barney, 1991; Barney, 2001; Barney et al., 2021). Companies must have internal strength to be able to translate the high development of the industry (Khan et al., 2019). This requires efforts to achieve sustainable firm value creation through strategies that can provide the best position for companies in one industry. The success of the achievement of the company's position is determined by complete, measurable, and controllable measurements (Lukviarman, 2008). So a resource-based view will strengthen the achievement of firm value. The main industrial sectors in Indonesia can be seen from the contribution of each industry to the Gross Domestic Product (GDP), the number of workers absorbed, the value of exports, and the role of its strategy in improving the national economy (Basirulla & Tasnim, 2023; Pavolová et al., 2022). The market worth of a nation's products and services in a specific period is used to compute GDP. Based on this contribution, three main types of industries that have competitive advantages produced by companies are expected to be able to increase the value of the company in the long term (Kwon & Lee, 2024; Xiong et al., 2022). These three industry sectors are Energy, Basic Materials, and Consumer Non-Cyclicals. According to BPS data in 2023, this industrial sector can contribute to GDP by around 8-10%, 11%, and 6-7% respectively with direct and indirect labor absorption rates reaching hundreds of thousands of people in Indonesia. So it is hoped that there will be an increase in the utilization of internal resources owned by each industry to be able to increase the firm's value and contribute to macroeconomic improvement. However, reality shows that the condition of companies in each industry has different resource problems. This result was obtained from the bridging process that has been carried out based on the concept of valuable, rare, imitability, and non-substitution (VRIN) in the RBV theory (Barney, 1991; Barney, 2001). So four main intangible resources that affect the firm's value are obtained, namely intangible assets, intellectual capital, firm innovation, and managerial ability. Intangible assets measured by goodwill give a different form in the industry. Research in developing countries by Mohammed and Ani (2020) discovered that the relationship between business worth and goodwill is positive. However, research by Chin et al. (2006) on the manufacturing industry in Taiwan, found that intangible assets have a negative influence on the value of companies.

The issue of intellectual capital resources owned by companies also has different influences on the firm's value. Intellectual capital includes the capacity of staff members, company-owned networks, and systems to raise the company's worth. Zéghal and Maaloul (2010) research revealed a strong correlation between business value and intellectual capital. Nonetheless, Hermanto et al. (2021) research from 2021 discovered a negligible correlation between business value and intellectual capital, and research by Nimtrakoon (2015) by examining human capital also provided an insignificant relationship with firm value. Employees' ability to create creativity and new ideas will support the implementation of firm innovation. Nonetheless, businesses need to invest in research and development to put it into practice. A firm's capacity for innovation will impact its value differently. There is a noteworthy positive correlation between corporate value and innovation (Ferreras-Méndez et al., 2015; Firdausya et al., 2020; Mulyati et al., 2021; Ocak & Findik, 2019; M. M. Rahman & Howlader, 2022; Venter & Hayidakis, 2021; Yalama, 2013; Zhang & Ouyang, 2021). The issue of resource management and decision-making carried out by managers must consider efficiency in the company. The company's efficiency demonstrates the manager's capacity to oversee the business. A company's managerial aptitude is a unique asset that influences the company's worth. A company's worth is positively impacted by its efficiency (Holcomb et al., 2009; Lin et al., 2022; W. Park & Byun, 2021). However, the study by Park and Byun (2022) produced contradictory findings, indicating that management skills had a detrimental effect on the firm's worth. Differences in the industry context will also provide resource interactions that affect the firm's value. Regulations that limit opportunities to create excellence can jeopardize a company's competitiveness (Moon & Min, 2020). Furthermore, the value of a company measured quantitatively, ideally requires the same measurement on its constituent variables. In contrast to previous studies using RBV which discussed a lot using primary data (Ali et al., 2021; Najafi-Tavani et al., 2018; Tsai & Yang, 2014). This study tries to develop a research model with secondary data. The distinctive resources that contribute to establishing a competitive edge and the business's value in investing in intangible assets, shown quantitatively in the financial statements, form the basis of the firm value research model.

Based on the phenomenon that occurred, this study aims to test internal resources that have a competitive advantage and can create firm value. The company's resources will be analyzed per major industry in Indonesia. One way this research benefits the business is that it may provide a long-term competitive edge by raising firm value. Second, the four factors, acting as proxies, have the potential to impact a company's value differently for each of the three industries, leading to findings that differ from those of earlier studies. This will give the research greater significance and improve the corpus of existing literature. Third, an empirical model to form a firm's value model using a measure of financial ratios. This method can provide

strong research results using secondary data. Fourth, this study used two different models to conduct empirical tests and revealed stronger empirical results with the bust test, which may differ from previous studies.

2. Literature Review

2.1 Resourced-Based View (RBV)

Resource Based View (RBV) emphasizes resource management associated with a competitive advantage and focuses on explaining the profitability and value of the company. This shows that not all resources are sources of competitive advantage, but distinctive and valuable resources that cannot be reproduced by competitors (Barney, 1991; Penrose, Edith Tilton Penrose, 1959; Peteraf, 1993; Wernerfelt, 1984) Companies can create economic value not only because they have the resources they need, but can manage their resources effectively (Penrose, Edith Tilton Penrose, 1959; Peteraf, 1993; Wernerfelt, 1984) Human capital is the manager of the company's resources and makes it a critical sector in creating a competitive advantage (Barney, 1991). According to the RBV theory, concentrating on corporate resources is the primary means of achieving firm value and performance competitiveness. The theory of competitive advantage analysis makes two assumptions: (1) that the strategic resources owned by firms within an industry (or group) may vary from company to company, and (2) that corporate resources do not always flow perfectly across the organization, allowing for the persistence of heterogeneity. The implications of these two hypotheses for examining the source of sustained competitive advantage are tested using the enterprise resource-based model (Barney, 1991). RBV assumes that resources are unique, allowing businesses a competitive edge (Madhani, 2010) Four characteristics—valuable rareness, imperfect imitability, and non-substitutability—are necessary for resources to possess a competitive advantage. These characteristics are collectively referred to as VRIN. The determination of these resources is carried out based on the mapping of the study by aligning with the VRIN assumptions. So four variables were produced that represented the assumption of competitive advantage, namely intangible asset (rare), intellectual capital (valuable), firm innovation (immitability), and managerial ability (Nonsubstitution). These assumptions then result in four intangible resources that the company has which are then referred to as internal resources. The creation of the study's premise was informed by earlier RBV theory-based research on the company's worth. According to the RBV hypothesis, only some resources a business has may offer a competitive advantage to help it perform better and remain competitive in the market.

2.2 Intangible Asset and Firm Values

All resources classified as intangible assets (IA) do not physically exist and are not always held by other businesses. Nonetheless, IA plays a significant role in the company's long-term viability and profitability. Knowledge, information, experience, and intellectual property comprise intellectual assets (IA) (Durand & Milberg, 2020; Milala et al., 2021) Accordingly, IA is a crucial tool for a long-term competitive advantage, which drives the business's success in the marketplace (Ionita & Dinu, 2021; Tahat et al., 2018). When a firm is bought for more than the fair value of the acquired net asset, goodwill is one kind of intangible asset created. Goodwill also reflects the value of the company's image, customer relationships, brand, and other factors that tend not to be directly measured on the balance sheet. Thus, goodwill becomes an intangible asset because its value is not related to the accompanying physical asset (Liu et al., 2021) The capacity of the business to foster goodwill will also add positively to the firm's worth (Matemilola & Ahmad, 2015). Several studies state that intangible assets have a positive and significant influence on the value of companies (Garanina & Pavlova, 2011; Ionita & Dinu, 2021; Mohammed & Ani, 2020) Research by Garanina and Pavlova (2011) in Russia and the UK, states that companies should pay special attention to intangible assets because they can be the main drivers of value creation in the economy of the XXI century and can help create and develop core competencies to generate competitive advantages in the market. These results are reinforced by research by Mohammed and Ani (2020) stating that intangible assets in emerging economies markets have a significant influence on the value of firms. On the other hand, produced contrasting findings in their research, characterizing patents as intangible assets and placing a negative value on Taiwan's manufacturing enterprises' value chain. Similar findings have also been obtained by Shane and Klock (1997), who compare the worth of businesses as determined by Tobins Q to measure intangible assets, including patents and R&D expenses. The study's conclusions revealed that information on the market value of intellectual assets needs to be included in the patents and research expenses statistics. Despite several prior studies regarding the impact of intangible assets on business value and performance, more studies are still needed to understand this link fully. Thus, the following theory is put forth:

H_1: *Intangible Assets have a significant and positive effect on the firm value.*

2.3 Intellectual capital and Firm Values

According to Pulic (1998), three central components make up intellectual capital (IC): relational capital (RC), like supplier and customer connections; structural capital (SC), like software, copyrights, and patents; and human capital (HC), which is the knowledge and abilities of employees. The necessity to quantify this kind of capital is primarily driven by new knowledge-based economic ideas that call for the development of new accounting methods in order to strengthen the shortcomings of traditional accounting methods. In today's global market, an organization's ability to compete is greatly influenced by the amount of information it produces and the caliber of its people resources. First, the amount of knowledge, skills, inventiveness,

and moral principles that staff members bring to the organization's tangible and intangible assets—which may be enhanced by more training and seminars of a similar nature—is known as human capital (HC). Consequently, HC is the most crucial element of IC that provides businesses with a long-term competitive edge (Nadeem et al., 2021). Second, institutionalized knowledge kept in databases, patents, manuals, systems, and processes is structural capital (SC) (Nadeem et al., 2021) An organization with databases and procedures is this capital in the form of technological capital, which comprises patents produced via R&D, trade secrets, technological expertise, and intellectual property. As crucial as the two elements of the IC, which are the relationship between the business and its clients, is relational capital, often referred to as customer capital. The same conclusion was reached in a study on US multinational corporations by Zéghal and Maaloul (2010): there is a positive and substantial association between intellectual capital and company value. The findings indicate that the company's IC favors the high-tech industry stock market's performance. The study's findings also demonstrate that the primary factor influencing the stock market and financial success is the amount of cash utilized, even though the expenses associated with IC investment have a detrimental effect on economic performance. Research from Nimtrakoon (2015) reveals that on the investor side, human capital does not affect the firm value, because investors are more likely to see the growth of the company. Similarly, research by Hermanto et al. (2021) on Indonesian businesses revealed that intellectual capital has little bearing on a company's worth. According to several study findings and observed occurrences in Indonesia, relational, structural, and human capital comprise intellectual capital (Nadeem et al., 2017). These three factors have complementary contributions sides in increasing the firm's value. Since the link between these characteristics and the impact of intellectual capital on a company's value is inconsistent, this study reexamines the relationship using the RBV hypothesis. This study develops the following hypotheses:

H_2: *Intellectual Capital has a significant and positive effect on the firm's value.*

2.4 Firm Innovation and Firm Values

Innovation is one of the company's specific assets that cannot be easily imitated, is not easily replaced, and has value for the sustainable development of the company. Research conducted by (Farooq et al., 2022) emphasizes innovation is a process in which companies find solutions that meet market needs through the search for knowledge. Not all companies have the same innovations in improving company performance depending on the knowledge possessed by the company. Research related to firm innovation is starting to increase, which is associated with improved performance and providing better firm value in the future. Some researchers state that innovation ability is a theoretical framework to improve the results of innovation activities. This helps companies to secure competitiveness and face a rapidly changing market (Jeng & Pak, 2016) Innovation requires sufficient knowledge, to create creativity and new ideas in facilitating the process and increasing the value of products/services. Innovation capabilities concentrate on R&D investments such as capabilities or R&D, and technological capabilities, play a role in research and development capabilities. Some studies on innovation have negative results on company value (Firdausya et al., 2020; Mulyati et al., 2021; Yalama, 2013; Zhang & Ouyang, 2021). Some of the reasons that support it are that the innovations carried out are not relevant to the market or customers, the company is not able to commercialize the innovations that have been produced, and competition in the market that cannot be predicted by the company. Different studies state that firm innovation has a significant positive relationship with firm value (Ferreras-Méndez et al., 2015; Firdausya et al., 2020; Ocak & Findik, 2019; Rahman & Howlader, 2022; Venter & Hayidakis, 2021). According to a study on pharmaceutical businesses in Bangladesh by Rahman and Howlader (2022), there is a significant and positive correlation between R&D expenses and firm value and performance. Because the cost of research and development will provide sustainable organizational confidence in the long term. This claim is supported by research from (Venter & Hayidakis, 2021) researching SMEs in South Africa, the findings show that innovation is crucial to enhancing SMEs' financial success. Innovations carried out by the company require the investment of funds that will affect the company's long-term performance. If you look at previous studies, the results of this variable relationship are still mixed. Therefore, this study develops the following hypothesis:

H_3: *Firm Innovation has a significant and positive effect on the firm's value.*

2.5 Managerial Ability and Firm Value

The knowledge, skills, and experience managers have to produce excess revenue value for the company is known as managerial ability, or MA (Demerjian et al., 2011). These managers' capacity to optimize resource efficiency will impact the firm's worth and yield future performance (Holcomb et al., 2009; Lin et al., 2022; Park & Byun, 2021). Previous research has shown that an organization's management capacity is one of the most critical management traits influencing its performance. High-ability managers are thought to know a great deal about the company, the industry, the product, the ability to make better decisions than other managers, the ability to manage staff effectively, and a wealth of information about upcoming trends and technologies (Demerjian et al., 2011; Jebran & Chen, 2022) According to these studies (Coudounaris et al., 2020; Jebran & Chen, 2022; Soedarmono et al., 2019), strong management abilities are also typically associated with higher levels of innovation, very efficient investment selections, improved organizational performance, and superior profitability reporting by organizations. Research from (Andreou et al., 2017) research amid the 2008 global financial crisis. The study's findings indicated that having strong managerial abilities may lower the underinvestment issue during times of crisis and raise the company's value. Park et al. (2016) did a similar study and found that managers' abilities positively impact market share

growth and company value. Various findings from a study by Park and Byun (2022) indicated a negative relationship between management skills and business value. According to this study, management skill is a factor that lowers a company's worth because managers with higher skill levels prioritize their financial gain over the interests of shareholders, which lowers the value of the business. There are still various findings from previous research, with the phenomenon in Indonesia, showing that managers in companies in Indonesia need to be able to adapt. So that managers have sufficient ability, in adapting and resilience in organizational development (Alebiosu et al., 2022). Changes in various fields such as economy, technology, and society, both at the local and global levels, force managers to be able to adapt. This manager's ability has an impact on the firm's value in the long run. So in this study develop the following hypothesis:

H_4: *Managerial Ability has a significant and positive effect on the firm's value*.

3. Method

The type of research used is an empirical study with a quantitative approach. The data used is the company's annual financial data collected through secondary sources (Sekaran & Bougie, 2016) through the Refinitiv Eikon database (DataStream) and the IDX web (www.idx.co.id). This study uses the population of businesses registered on the Indonesia Stock Exchange (IDX) for the 2012–2022 observation period divided into three primary industry sectors, namely Energy (74 companies), Basic materials (70 companies), and Consumer Non-Cyclicals (150 companies). This study uses unbalanced data selection. Taking unbalanced panel data, research observations may be more representative of the research target to be further processed.

3.1 Operational Definition

The variables used in this study consist of four types, namely: dependent variables in the form of firm values; independent variables include intangible assets, intellectual capital, firm performance, and managerial ability; and control variables include size, leverage, and firm age. The operational definition of the variable and its measurements are presented in Table 1.

Table 1
Variable Operational Definition

Variable		Measurement	References
Firm Values	Tobins Q	Tobins $Q_{it} = \frac{(Market\ capitalization + Liabilities)}{Total\ asset}$	(W. Park & Byun, 2021)
	Price to Book Value (PBV)	$PBV = \frac{Market\ Price}{Book\ Value}$	(Soewarno & Ramadhan, 2020)
Resources Internal	*Intangible asset*	$KOMPGOODWILL = \frac{Nilai\ Goodwill}{\text{Total Asset}}$	(Kedron, 2020)
	Intellectual Capital	MVAIC = HCE+SCE+RCE + CEE	(Dalwai et al., 2021; Ulum et al., 2017)
	Firm Innovation	$Firm\ Innovation\ (INOV) = \frac{\text{R\&D expenditure}}{\text{Sales}}$	(M. Rahman et al., 2018)
	Managerial Ability	$MAN = \frac{\text{Sales}}{\text{CoGS} + \text{SG\&A} + \text{PPE} + \text{Ops Lease} + \text{R\&D} + \text{Goodwill} + \text{other intangible}}$	(Demerjian et al., 2011)
Control Variable	SIZE (*Firm size*)	Logarithm Natural of total asset	(Sharma & Aggarwal, 2021)
	LEV (*Leverage*)	Liabilities/ Equity	(Sharma & Aggarwal, 2021)
	Firm Age (FIRMAGE)	FIRMAGE = ln $(firm\ age)$	(Chakroun et al., 2020)

Source: The researcher's collecting data.

3.2 Selection of the Best Models

The selection of the best model is the first step in panel data testing. These tests are carried out individually for each industry. Testing the best model using the Eviews 13 app. The first step is to select the best model. The selection of the model is carried out in three ways, namely 1) The Common Effect Model (CEM) or Fixed Effect Model (FEM) model is chosen using the Chow Test, and 2) The Fixed Effect Model (FEM) or Random Effect Model (REM) model is chosen using the Hausman Test. 3) To choose between the Random Effect Model (REM) and the Common Effect Model (CEM), the Lagrange Multiplier Test is used.

Based on the results of model selection (Table 2) carried out using three test steps in the panel data, it can be seen that the Chow test for all industries has a probability value of Cross-section Chi-square of 0.000. This value is less than 0.05, so the model chosen is the Fixed Effect Model (FEM). The second test, namely the Hausman Test, obtained probability values for each industry in a row of 0.239, 0.290, 0.210. These three values are greater than 0.05 so the best model is the Random Effect Model (REM). Two tests produce different decisions, so a third test is needed, namely the Lagrange Multiplier Tests for Random Effects (LM Test) test. The results of the LM test for all three industries produce the same probability value of 0.000 (less than 0.005), so the best model decision is REM.

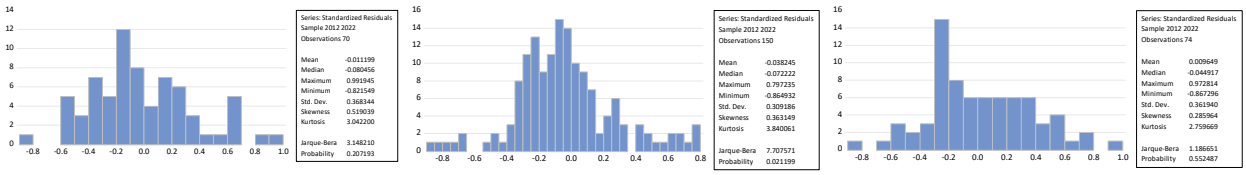
Table 2
Selection of the Best Models for each Industry

Testing	Test	Statistic	Prob	Results
Industri Basic Material				
Uji Chow	"Cross-section F"	7,645	0,000	FEM
	Cross-section Chi-square	87,623	0,000	
Uji Hausman	"Cross-section random"	5,512	0,239	REM
Uji LM"	Breusch-Pagan	25,078	0,000	REM
Industri Consumer Non Cyclicals				
Uji Chow	"Cross-section F"	9,778	0,000	FEM
	Cross-section Chi-square	194,578	0,000	
Uji Hausman	"Cross-section random"	4,973	0,290	REM
Uji LM"	Cross-Breusch-Pagan	90,745	0,000	REM
Industri Energy				
Uji Chow	"Cross-section F"	9,215	0,000	FEM
	Cross-section Chi-square	93,956	0,000	
Uji Hausman	"Cross-section random"	5,859	0,210	REM
Uji LM"	Breusch-Pagan	52,199	0,000	REM

Source: The researcher's collecting data.

3.3 Classic Assumption Testing

After obtaining the best model, it is continued with classical assumption testing. If the model is produced by CEM (Ordinary Least Squares), then two types of classical assumptions are carried out, namely the multicollinearity test (the correlation coefficient value must be less than 0.8) and the heteroscedasticity test (the significance value must be greater than 0.05). If the model chosen is FEM (Least Square Dummy Variable) or REM (General Least Square), then there is no need to perform a classical assumption test. The normality, multicollinearity, and heteroscedasticity tests are the standard assumption tests that are performed. The REM model, which will be used in the classical assumption test, was developed based on the best model selection process outcomes. Multicollinearity, heteroscedasticity, and normality testing are the procedures that must be used. First, the results of the normality test show that the basic materials industry and the energy industry have a normal distribution, while the consumer industry is not normally distributed.



(a) (b) (c)

Fig. 1. Test Normality in Each Industry (a) Basic Material Industry, (b) Consumer Non-Cyclical Industry, (c)Energy Industry

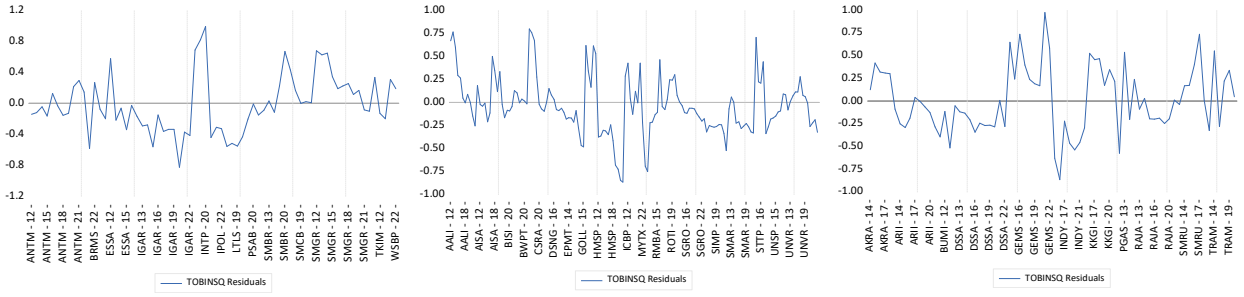
Second, the results of the multicollinearity test show that all the values of the correlation coefficient of KOMPGOODWIL, MVAIC, INOV, and MAN are above 0.85 for all industries, so the variables used in this research model still have multicollinearity.

Table 3
Multicollinearity Test in Every Industry

Variable	KOMPGOODWIL	MVAIC	INOV	MAN
Basic material Industry				
KOMPGOODWIL	1,000	0,051	-0,105	-0,304
MVAIC	0,051	1,000	0,125	-0,174
INOV	-0,105	0,125	1,000	0,095
MAN	-0,304	-0,174	0,095	1,000
consumer non Cyclicals Industry				
KOMPGOODWIL	1,000	0,250	-0,018	-0,243
MVAIC	0,250	1,000	-0,022	-0,339
INOV	-0,018	-0,022	1,000	-0,276
MAN	-0,243	-0,339	-0,276	1,000
Energy Industry				
KOMPGOODWIL	1,000	-0,437	-0,230	-0,227
MVAIC	-0,437	1,000	0,344	0,111
INOV	-0,230	0,344	1,000	-0,274
MAN	-0,227	0,111	-0,274	1,000

Source: The researcher's collecting data.

Third, the heteroscedasticity test shows that the residual graph (blue color) can show that the gurus do not cross the limit (500 and -500), meaning that the residual variants are the same. Therefore, the research model indicates that there are no symptoms of heteroscedasticity or pass the heteroscedasticity test.



(a) (b) (c)

Fig. 2. Heteroscedasticity with Residual Graphs each industry (a) Basic Material Industry, (b) Consumer Non-Cyclical Industry, (c)Energy Industry

Another way to test heteroscedasticity is to test the model with the Glejser test by changing the model with the residual absolute function. The results of the heteroscedasticity test showed that the probability values of all variables were above 0.05. This means that no symptoms of heteroscedasticity occur or pass the heteroscedasticity test for all industries.

Table 4
Heteroscedasticity Testing with Residual ABS

Variable	Coefficient	t-Statistic	Prob.
Basic material Industry			
C	0,268	2,234	0,029
KOMPGOODWIL	-0,591	-0,583	0,562
MVAIC	-0,006	-1,305	0,196
INOV	0,281	1,663	0,101
MAN	0,185	1,323	0,191
Consumer non Cyclicals Industry			
C	0,242	2,770	0,006
KOMPGOODWIL	-0,466	-0,882	0,380
MVAIC	-0,002	-0,976	0,331
INOV	-0,732	-1,658	0,099
MAN	0,103	0,997	0,321
Energy Industry			
C	0,293	2.783	0,007
KOMPGOODWIL	-0,373	-0,719	0,474
MVAIC	-0,001	-0,446	0,657
INOV	-0,368	-0,478	0,635
MAN	0,082	0,667	0,507

Source: The researcher's collecting data.

After conducting a classical assumption test, then a regression test can be carried out to answer the hypothesis that has been determined. The results of the panel data regression test. Regression testing for all three industry models shows a model that fits in explaining the firm's value. This can be seen from the statistical F test value (prob value) of small from 0.05 in the basic stamp duty industry and the consumer non-cyclical industry. However, in the energy industry, the model formed does not show a fit model because the probability value is greater than 0.05. A fit model will be able to make a good contribution from independent variables to the firm's value of 19.3% in the basic materials industry, while the consumer non-cyclical industry only contributes 14.5%. There is still 80.7% to 85.5% of the contribution from other variables that have not been included in the research model. Meanwhile, the energy industry only contributes a very small 10.9% and there is still an 89.1% contribution from other variables that are not included in the research model

3.4 Data Analysis Techniques

The test of the research model was carried out through panel data regression analysis using the Eviews version 13 (Zhang, 2020) application. Then conduct a hypothesis test for each independent variable of the dependent with the t-test and test the research model with the F test. To examine the relationship and influence *of intangible assets*, *intellectual capital*, *firm innovation,* and *managerial ability*, on the value of companies for each industry. Furthermore, to ensure that the model is sturdy, a *Robustness test* is carried out. The capacity to replicate a model under many circumstances without introducing undesired variations in the outcome is known as a robustness test. *This robustness test* is carried out on the existing model, by replacing the measurement of dependent variables (firm value) using *the Price to book value* (PBV) ratio (Nadeem et al.,

2018) The analysis parameter used to evaluate the data interpretation is to use the t-distribution. The model employed in this investigation is reliable if the Robustness test results indicate a significant t-value and align with the hypothesis test findings.

4. Results

4.1 Descriptive Statistics

The descriptive data of the study describes the mean value, maximum value, and minimum value for the three industries, as shown in table 5.

Table 5
Descriptive Statistics

Variable	Mean	Max	Min	Jarque-Bera	Prob.
Basic Material Industry					
TobinsQ	1,060	2,061	0,330	11,062	0,004
KOMPGOODWILL	0,016	0,172	0,000	592,508	0,000
MVAIC	12,690	32,005	3,219	13,536	0,001
INOV	0,052	0,816	0,000	750,576	0,000
MAN	0,569	0,998	0,022	0,913	0,634
FIRMAGE	20,847	44,422	0,510	0,239	0,887
DER	0,845	6,726	0,018	406,047	0,000
SIZE	29,654	32,600	25,671	5,593	0,061
Consumer Non-Cyclical Industry					
TobinsQ	1.100	1.976	0.434	12.741	0.002
KOMPGOODWILL	0.020	0.225	0.000	1240.418	0.000
MVAIC	14.164	47.829	1.876	25.566	0.000
INOV	0.021	0.204	0.000	363.563	0.000
MAN	0.667	1.317	0.147	1.675	0.433
FIRMAGE	18.007	40.997	0.225	6.877	0.032
DER	1.017	7.038	0.002	974.061	0.000
SIZE	29.985	32.151	25.912	13.057	0.001
Energy Industry					
TobinsQ	1,038	2,023	0,197	1,778	0,411
KOMPGOODWILL	0,048	0,236	0,000	21,976	0,000
MVAIC	16,447	45,130	-4,415	2,872	0,238
INOV	0,014	0,214	0,000	1869,770	0,000
MAN	0,589	1,144	0,051	3,618	0,164
FIRMAGE	11.240	30.523	0.488	14.951	0.001
DER	1.024	6.864	0.020	516.776	0.000
SIZE	29.682	32.237	26.897	2.533	0.282

Source: The researcher's collecting data.

The three main industries, namely energy, basic materials, and consumer Non-Cyclicals, are very different business processes. The energy industry sells energy-related products and services such as oil and gas, coal, and renewable energy. The basic materials industry has a business process of selling basic materials such as palm oil, rubber, and metal ores that can be used by other industries. Meanwhile, the consumer industry Non-Cyclicals sells primary products and services needed by the community. However, these three industries have similarities in demand that tend to be stable because they are not affected by economic cycles and these industries both require large investments in infrastructure and production capabilities to achieve economies of scale. Based on the descriptive data reported by the company in its annual financial statements, it can be seen that the Tobins Q value is almost even for each industry with a value close to 1, and the highest value is close to a value of 2. This value shows that the market values the company's assets the same and is at most twice the value of the assets owned. Based on the value of the existing goodwill composition, it tends to be small, on average 1.6% to 4.8% and this value is evenly distributed in each industry. When viewed from the value of intellectual capital owned based on the added value produced, a score of 12 to 16 was obtained and the maximum score was at a score of 47 in the Consumer Non Cyclicals industry. The level of funding allocated for R&D activities is quite small, averaging 1.4% to 2.1%, with the maximum value in the basic materials industry at 32%, while other industries are around 22%. The average level of efficiency carried out by managers in the three industries is 56.9% to 66.7% with the highest score being in the Energy industry at 114.4%. The variation in the data used in the study showed a small probability value of 0.05, so the included data was not normally distributed overall.

4.2 Regression Test

Testing the influence of intangible assets measured by KOMPGOODWIL on the value of companies measured by Tobins Q, on the basic material industry, seen in model 1, obtained a probability value of 0.018 (small from 0.05). This result means that intangible assets have an influence on Tobins Q at a confidence level of 95%. However, this value is inconsistent with model 2 by including a control variable in the model, which shows a probability value of 0.166 (greater than 0.05). This result can be interpreted as directly intangible assets having a significant influence on the firm value. These results support the initial assumption that intangible assets measured by KOMPGOODWIL have a positive relationship and have a significant effect on the firm's value. So the decision in this study is hypothesis 1 accepted in the basic material industry.

In contrast to the test results conducted on the consumer non-cyclical and energy industries, model 1 produces probability values of 0.929 and 0.740 respectively. Likewise, model 2 provides probability test results of 0.772 and 0.887 respectively. Both of these values have a value greater than 0.05, which means that intangible assets in these two industries do not have a significant influence. So the decision in this study is hypothesis 1 rejected in the consumer industry non-cyclicals and the energy industry. The test of *intellectual capital* measured by MVAIC against the value of companies measured by Tobins Q. The results of the test in three industries, both basic materials, consumer non-cyclical, and energy, in model 1, showed probability values of 0.664, 0.510, 0.302 respectively (greater than 0.05). This value is consistent with model 2 which includes control variables in the model, which shows consecutive probability values of 0.655, 0.338, 0.993 (greater than 0.05). These results interpret that MVAIC has no significant influence on Tobins Q. The results of the firm innovation regression test on the value of the company measured by Tobins Q in the basic material industry in model 1, show a probability value of 0.037 (small from 0.05). This result means that INOV has a positive relationship and has a significant effect on Tobins Q at a confidence level of 95%. This value is inconsistent with model 2 which includes control variables in the model, which shows a probability value of 0.168 (greater than 0.05). These results support the initial assumption that *firm innovation* measured by INOV has a positive relationship and has a significant effect on the value of companies measured by Tobins Q. So the decision in this study is hypothesis 3 accepted in the basic material industry. In contrast to the regression test in the consumer non-cyclical industry and the energy industry, the probability value in the INOV test against the firm's value in model 1 is 0.729, 0.513 (greater than 0.05).

Table 6
Internal resources regression testing against the firm's value in each industry

Variable	Industry: Basic material					
	Model 1			Model 2		
	Coef	t-Stat	Prob.	Coef	t-Stat	Prob.
C	0,652	3,550	0,001	23,566	5,500	0,000
KOMPGOODWIL	3,895	2,487	0,016**	-3,092	-1,408	0,166
MVAIC	0,003	0,436	0,664	-0,004	-0,449	0,655
INOV	0,511	2,126	0,037**	0,369	1,401	0,168
MAN	0,514	2,509	0,015**	0,243	1,004	0,321
FIRMAGE				0,058	3,410	0,001***
DER				0,107	2,445	0,018***
SIZE				-0,805	-5,284	0,000***
"R-squared"	0,193			0,840		
Adjusted R-squared	0,144			0,760		
"F-statistic"	3,891			10,495		
Prob(F-statistic)	0,007***			0,000***		
Variable	Industry: consumer Non-Cyclicals					
	Model 1			Model 2		
	Coef	t-Stat	Prob.	Coef	t-Stat	Prob.
C	0,886	6,292	0,000	7,493	5,986	0,000
KOMPGOODWIL	-0,067	-0,089	0,929	-0,215	-0,290	0,772
MVAIC	-0,002	-0,660	0,510	0,003	0,962	0,338
INOV	0,201	0,347	0,729	0,350	0,689	0,492
MAN	0,419	2,478	0,014**	0,138	0,592	0,555
FIRMAGE				-0,025	-4,183	0,000***
DER				0,003	0,205	0,838
SIZE				-0,203	-5,001	0,000***
"R-squared"	0,145			0,816		
Adjusted R-squared	0,019			0,752		
"F-statistic"	17,250			12,916		
Prob(F-statistic)	0,048**			0,000***		
Variable	Energy Industry					
	Model 1			Model 2		
	Coef	t-Stat	Prob.	Coef	t-Stat	Prob.
C	1,103	0,162	0,000	4,198	2,647	0,010
KOMPGOODWIL	-0,250	0,750	0,740	0,115	0,142	0,887
MVAIC	-0,004	0,004	0,302	0,000	-0,008	0,993
INOV	-0,627	0,954	0,513	-0,580	-0,625	0,534
MAN	0,014	0,177	0,938	0,176	0,872	0,386
FIRMAGE				-0,008	-0,760	0,450
DER				0,027	0,805	0,424
SIZE				-0,108	-1,961	0,054*
"R-squared"	0,027			0,109		
Adjusted R-squared	-0,030			0,014		
"F-statistic"	0,471			1,151		
Prob(F-statistic)	0,757			0,343		

Source: The researcher's collecting data.

Consistent with the regression test results in model 2, it also shows a probability value of 0.492, 0.534 (greater than 0.05). This result is different from the initial assumption that *firm innovation* measured by INOV does not have a significant influence on the value of companies measured by Tobins Q. So the decision in this study is hypothesis 3 rejected in the consumer industry non-cyclical and the energy industry. Furthermore, the *managerial ability* test of the firm's value measured by Tobins

Q in the basic materials and consumer cyclical industry shows probability values of 0.015 and 0.014 respectively (less than 0.05) in model 1. According to this finding, MAN significantly and favorably affects Tobins Q. Additionally, this number conflicts with the test findings in model 2, which has control variables in a model with probability values (higher than 0.05) of 0.555 and 0.321, respectively. With a 95% confidence level, our findings suggest that MAN significantly and favorably affects Tobins Q. This finding is consistent with the original hypothesis that there is a positive correlation and a substantial impact between managerial competence as evaluated by MAN and the company value as measured by Tobins Q. Thus, the basic materials and consumer cyclical industries have decided to embrace Hypothesis 4, according to the study's findings. Meanwhile, the regression test of the relationship between MAN and Tobins Q in the energy industry shows a probability value of 0.938 (greater than 0.05). Consistent with the regression test results in model 2, it also shows a probability value of 0.386 (greater than 0.05). This result is different from the initial assumption that *managerial ability* measured by INOV does not have a significant influence on the value of companies measured by Tobins Q. So the decision in this study is hypothesis 3 rejected in the energy industry.

4.3 Robustness Test

This study also conducted a robustness test, by testing existing models with other company value measurements, namely price to book value (PBV). The results of the Robust test are seen in Table 7. The test results on model 1 used a dependent measure with Tobins Q and model 2 used PBV measurement. The Robustness test is intended to test the durability of the research model. We conducted two lines of investigation to confirm resilience, which we believe could compromise our key conclusions. The test results showed the same results when tested using TobinsQ and PBV. The results of testing in the Basic Material industry found the significant influence of intangible assets, firm innovation, and managerial ability on the firm's value. These results are a very strong and consistent relationship. The robustness of the model gives confidence that a strategy that focuses on increasing intangible assets, innovation, and managerial ability will substantially increase the firm's value in the basic materials industry. In the non-cyclical consumer industry, it also provides the same test results when the Firm's value is measured by PBV. The results of the study show that the factor that affects the firm's value is managerial ability in the consumer non-cyclical industry. This result is solid and consistent. Likewise, the same robust testing in the energy industry provides consistent results, where intangible resources in the form of goodwill, intellectual capital, firm innovation, and managerial ability do not affect the firm's value. The use of robust test methods provides additional confidence that these results are robust and reliable for strategic and sustainable decision-making. Based on the results of testing each industry, the type of internal resources possessed has a different influence on the firm's value. So that companies in related industries can pay attention to the type of resources that are appropriate, in setting strategies to create firm value. The results of these tests are consistent for each industry using alternative measurements. The consistency of the results found that the research model used was solid and the results of the study could be generalized according to the findings of the study.

Table 7
Robust Testing of Industrial Basic Materials

Variable	Y=TOBINS Q					
	Model 1			Model 2		
	Coef	t-Stat	Prob.	Coef	t-Stat	Prob.
C	0,652	3,550	0,001	23,566	5,500	0,000
KOMPGOODWIL	3,895	2,487	0,016**	-3,092	-1,408	0,166
MVAIC	0,003	0,436	0,664	-0,004	-0,449	0,655
INOV	0,511	2,126	0,037**	0,369	1,401	0,168
MAN	0,514	2,509	0,015**	0,243	1,004	0,321
FIRMAGE				0,058	3,410	0,001
DER				0,107	2,445	0,018
SIZE				-0,805	-5,284	0,000
"R-squared"	0,193			0,840		
Adjusted R-squared	0,144			0,760		
"F-statistic"	3,891			10,495		
Prob(F-statistic)	0,007			0,000		
Variable	PBV					
	Model 1			Model 2		
	Coef	t-Stat	Prob.	Coef	t-Stat	Prob.
C	0,031	0,859	0,972	92,588	17,155	0,000
KOMPGOODWIL	12,375	7,295	0,095*	-14,259	8,791	0,112
MVAIC	0,013	0,032	0,681	-0,046	0,037	0,214
INOV	2,637	1,062	0,016**	1,219	1,054	0,254
MAN	2,905	0,916	0,002***	0,978	0,967	0,317
FIRMAGE						0,187
DER						0,767
SIZE						-3,209
"R-squared"	0,188			0,887		
Adjusted R-squared	0,138			0,831		
"F-statistic"	3,771			15,763		
Prob(F-statistic)	0,008			0,000		

Source: The researcher's collecting data.
*,**, ***Significance levels of 10%, 5% and 1%, respectively

Table 7 reports the results of the panel data regression estimation for the Robustness Test in the basic materials industry. The test was carried out on intangible assets, intellectual capital, firm innovating, and managerial ability in the face of company value. The value of the company is measured by Tobins Q and PBV. Model 1 shows the testing of intangible assets, intellectual capital, firm innovators, and managerial ability on Tobins Q and PBV. Model 2 shows the testing of intangible assets, intellectual capital, firm innovators and managerial ability, and control variables (firm age, DER, and Size) on Tobins Q and PBV.

Table 8
Robust Testing of Consumer Non-Cyclical Industry

Variable	Y=TOBINS Q					
	Model 1			Model 2		
	Coef	t-Stat	Prob.	Coef	t-Stat	Prob.
C	0,886	6,292	0,000	7,493	5,986	0,000
KOMPGOODWIL	-0,067	-0,089	0,929	-0,215	-0,290	0,772
MVAIC	-0,002	-0,660	0,510	0,003	0,962	0,338
INOV	0,201	0,347	0,729	0,350	0,689	0,492
MAN	0,419	2,478	0,014**	0,138	0,592	0,555
FIRMAGE				-0,025	-4,183	0,000
DER				0,003	0,205	0,838
SIZE				-0,203	-5,001	0,000
R-squared	0,045			0,816		
Adjusted R-squared	0,019			0,752		
F-statistic	1,725			12,916		
Prob(F-statistic)	0,148			0,000		
Variable	PBV					
	Model 1			Model 2		
	Coef	t-Stat	Prob.	Coef	t-Stat	Prob.
C	0,292	1,497	0,846	-0,617	10,505	0,953
KOMPGOODWIL	3,721	7,185	0,605	2,657	7,274	0,715
MVAIC	-0,019	0,031	0,530	-0,012	0,032	0,720
INOV	-0,733	5,228	0,889	-0,733	5,227	0,889
MAN	3,526	1,757	0,047**	3,073	1,875	0,104
FIRMAGE						-0,036
DER						-0,069
SIZE						0,059
R-squared	0,034			0,040		
Adjusted R-squared	0,007			-0,008		
F-statistic	1,258			0,835		
Prob(F-statistic)	0,289			0,560		

Source: The researcher's collecting data.
*,**, ***Signifcance levels of 10%, 5% and 1%, respectively

Table 8 reports the results of the estimated regression of panel data for the Robustness Test in the consumer non-cyclical industry. The test was carried out on intangible assets, intellectual capital, firm innovating, and managerial ability in the face of company value. The value of the company is measured by Tobins Q and PBV. Model 1 shows the testing of intangible assets, intellectual capital, firm innovators, and managerial ability on Tobins Q and PBV. Model 2 shows the testing of intangible assets, intellectual capital, firm innovators and managerial ability, and control variables (firm age, DER, and Size) on Tobins Q and PBV.

Table 9
Robust Testing of the Energy Industry

Variable	Y=TOBINS Q					
	Model 1			Model 2		
	Coef	t-Stat	Prob.	Coef	t-Stat	Prob.
C	1,103	0,162	0,000	4,198	2,647	0,010
KOMPGOODWIL	-0,250	0,750	0,740	0,115	0,142	0,887
MVAIC	-0,004	0,004	0,302	0,000	-0,008	0,993
INOV	-0,627	0,954	0,513	-0,580	-0,625	0,534
MAN	0,014	0,177	0,938	0,176	0,872	0,386
FIRMAGE				-0,008	-0,760	0,450
DER				0,027	0,805	0,424
SIZE				-0,108	-1,961	0,054
R-squared	0,027			0,109		
Adjusted R-squared	-0,030			0,014		
F-statistic	0,471			1,151		
Prob(F-statistic)	0,757			0,343		

Table 9
Robust Testing of the Energy Industry (Continued)

Variable	PBV					
	Model 1			Model 2		
	Coef	t-Stat	Prob.	Coef	t-Stat	Prob.
C	1,156	1,183	0,332	17,678	11,066	0,115
KOMPGOODWIL	-1,103	5,629	0,845	-5,538	5,631	0,329
MVAIC	0,082	0,028	0,104	0,043	0,035	0,226
INOV	-7,588	7,529	0,317	-9,068	6,470	0,166
MAN	1,004	1,332	0,454	2,447	1,405	0,086
FIRMAGE						-0,031
DER						1,233
SIZE						-0,588
"R-squared"	0,122			0,429		
Adjusted R-squared	0,071			0,369		
"F-statistic"	2,396			7,090		
Prob(F-statistic)	0,059			0,000		

Source: The researcher's collecting data.
*,**, ***Signifcance levels of 10%, 5% and 1%, respectively

Table 9 reports the results of the estimated regression of panel data for the Robustness Test in the energy industry. The test was carried out on intangible assets, intellectual capital, firm innovating, and managerial ability in the face of company value. The value of the company is measured by Tobins Q and PBV. Model 1 shows the testing of intangible assets, intellectual capital, firm innovators, and managerial ability on Tobins Q and PBV. Model 2 shows the testing of intangible assets, intellectual capital, firm innovators and managerial ability, and control variables (firm age, DER, and Size) on Tobins Q and PBV.

5. Discussion

5.1 Regression Testing on Intangible Assets Against Firm Value

Various conclusions were drawn from the testing done for the essential stamp industry, consumer non-cyclical, and energy sector. At a 5% confidence level, intangible assets, as determined by goodwill, considerably impact the company's value in the primary materials sector (Hypothesis 1 is accepted). Conversely, intangible assets do not significantly affect a firm's value in the consumer non-cyclical and energy industries (Hypothesis 1 is rejected). Similarly, the test's results on the impact of intangible assets as determined by goodwill on firm value were not statistically significant when the control factors included the company's age, amount of debt, and size. Intangible assets in the form of goodwill owned by companies in the basic materials industry give a good reputation because they gain trust from investors in the stock price as seen from the information contained in the company's financial statements (Kedron, 2020) The existence of long-term contracts in production, such as in mining, provides stable and sustainable income. These results are in line with research conducted by (Mohammed & Ani, 2020). In *the Consumer nonCyclicals* industry where the demand for products is not affected by the economic cycle, the value of the company depends on public trust in the company's brand and reputation. In this context, intangible assets such as patents, copyrights, or advanced technologies may be valuable in other industries but have a more limited impact on the consumer non-cyclical industry. The findings are in line with research (Chin et al., 2006) and (Shane & Klock, 1997) where intangible assets in the form of patents, do not directly affect the firm value, but are influenced by the value chain in the process. This is due to the nature of the products in this industry which are generally basic and routine needs that do not require innovation or advanced features to attract consumers. Additionally, consumers in this sector tend to be more resistant to change and value stability and reliability more than innovation. Thus, although intangible assets are important, in the consumer non-cyclical industry, they do not contribute significantly to the firm's value compared to the aspects of reputation and brand loyalty. Unlike the previous industry, the energy industry in its operations requires natural resource reserves and commodities from the international market, because the number is very limited. So that intangible assets such as patents or advanced technology have a more limited impact on the firm's value. This is due to the energy industry's reliance on real and limited physical resources and fluctuations in global commodity prices, which are more dominant in determining the performance and value of companies compared to intangible assets. The development of renewable energy technology takes a long time to become economical and widely reliable. Therefore, the adoption and implementation of this technology requires not only large investment but also the support of government policies and national energy policies. Without supportive regulations and government incentives, renewable energy technologies cannot compete effectively with established conventional energy sources. Based on testing in three industries, it was concluded that a high goodwill value can be a signal to investors about information on the company's growth strategy and potential synergies to increase the firm's value. This result will be obtained when the industry is affected by high enough demand. When the industry is in noncyclicals, then intangible assets will not affect the value of the company. The practical implications for companies on *goodwill* resources for companies, first, need a more transparent communication strategy with investors in reporting and communicating the value of *goodwill*. Second, it is necessary to manage intangible assets effectively to ensure that potential benefits can be realized in the long term. Third, it is necessary to develop better metrics to measure and report the value of *intangible assets* more accurately.

5.2 Regression Testing on Intellectual Capital Against Firm Value

Intellectual testing of firm value, for the three industries of basic materials, consumer non-cyclical, and energy, equally had an insignificant effect (Hypothesis 2 was rejected). According to the same findings, the three components of intellectual capital—human capital, structural capital, and relational capital—enforce one another to maintain the company's worth (Hermanto et al., 2021; Nadeem et al., 2017; Shane & Klock, 1997) Similarly, the firm value is not significantly impacted when the intellectual capital test uses control factors, such as the company's age, debt load, and size. Intellectual capital likewise has little bearing on the business value in the primary materials sector. This outcome results from the primary goal of boosting production efficiency and economies of scale in the basic materials industry. Knowledge and expertise in the management system environment are considered common and widespread in the industry (Guerrero-Baena et al., 2015) so the competitive advantage of intellectual capital is quite limited. In addition, there is technology in this industry that is well established and standardized in all industries, so it does not provide advantages in the development of intellectual capital. Like the production process of the steel and mining industries, more emphasis is placed on production capacity and operational efficiency than on unique knowledge (Pavolová et al., 2022). Further analysis shows that in the consumer non-cyclical industry, employee knowledge and skills are a common commodity owned by most companies. It indicates that human capital, which is often a crucial component of intellectual capital, offers no discernible competitive advantage in the sector. In addition, the stable industrial structure and relatively unchanged consumer demand reduce the need for continuous innovation and strategic adaptation, which are key elements of intellectual capital. In line with the energy industry, which is highly dependent on physical assets and natural resources, such as oil, gas, and coal mine reserves, and has a crucial role in the Company's operations. The study's conclusions showed that intellectual capital does not affect a company's worth. In terms of business processes, energy and commodity prices are closely related to global market dynamics, including prices, and international regulations that affect the value of companies. As a result, while intellectual capital like technical expertise, patents, and technological discoveries are valuable, their influence is frequently restricted. It takes a long time and substantial financial resources to develop and deploy new technologies that can provide meaningful outcomes. Therefore, intellectual capital is less potent than physical and external variables regarding the value of enterprises in the energy sector. Testing in Indonesia intellectual capital on three industries in Indonesia yielded different results from studies conducted in the US (Chowdhury et al., 2018; Zéghal & Maaloul, 2010). In less active industries, intellectual capital does not have a significant influence. The implications for the company are expected to focus on effective communication with investors about IC's contribution to achieving competitive advantage and long-term growth. The value of a company depends not only on internal resources but also on perception and evaluation from the outside.

5.3 Regression Testing on Firm Innovation Against Firm Value

In the basic materials business, company innovation testing has a 5% confidence level and considerable impact on the firm's worth. Conversely, intellectual capital has little bearing on a firm's value in the non-cyclical consumer and energy sectors. Similar findings were achieved when the test utilized control factors, such as the company's age, amount of debt, and size, indicating that intellectual capital did not significantly affect the business value. Firm innovation resources in the basic materials industry, including the development of new technologies, more efficient production processes, and better resource management. The development of new technology is expected to provide opportunities for the development of new materials that can open new markets. Operational efficiency is achieved when the company can increase productivity at a lower cost so that it will be able to increase the value of the company. Then sustainability and environmental issues become issues in management that have an impact on the Firm's value. Innovations that focus on sustainability and environmental issues can attract investment from shareholders. Such innovations in low-carbon concrete and sustainable building solutions, will be able to meet environmental regulations and attract investors. In addition, firm innovation in the consumer non-cyclical industry also does not have a significant influence on the firm's value. This is due to the characteristics of the industry which tends to be stable and not too affected by changes in trends or innovative needs. Products in this sector usually have consistent demand and do not rely on new features or major changes to maintain or increase market share. As such, investments in innovation, such as the development of new products or advanced technologies, often do not yield results that are worth the costs. Consumers in this industry value product consistency and reliability more than the innovations that often occur in more dynamic industries. In the energy industry, firm innovation is not able to affect the firm's value. This is supported by the development of renewable energy technology or a more efficient extraction process, which requires a huge investment of funds. The development and implementation of new technologies in the energy industry require rigorous testing and infrastructure updates that are often very costly. While technological innovation is important for improving operational efficiency and sustainability, its impact on firm value is often not immediately felt and takes a long time to generate a significant return on investment. Based on the findings in three industries, in the basic materials industry, firm innovation has a significant influence on firm value. The practical implications that companies can have in maintaining firm innovation are, first, companies need to allocate sufficient resources (investments) to foster a culture of innovation and maintain a competitive advantage. Second, companies need to develop and protect intellectual assets resulting from R&D. The existence of R&D investment allocation systems and mechanisms established by companies will create barriers for competitors and increase the firm's value to maintain competitiveness (Elia et al., 2020).

5.4 Regression Testing on Managerial Ability Against Firm Value

The management competency test on the company's worth significantly impacted the 5% confidence level in the consumer non-cyclical business and the primary material industry. Nevertheless, managerial prowess has little bearing on the energy sector. The test findings indicated no significant relationship between management skill and firm value when the control variables—the company's age, amount of debt, and size—were included in the analysis. In the basic materials industry, managerial ability ensures that managers can adapt to the limitations of raw material sources and basics in the production process. So the right decisions related to the optimization of production and logistics processes, as well as risk management analysis effectively and efficiently greatly affect the firm's value. It aligns with research (Park et al., 2016) that indicates a company's value may increase if managers can identify market opportunities while preserving price efficiency. Managerial ability in the consumer non-cyclical industry has a significant influence on the firm's value. This industry is not affected by the economic cycle, due to the high public need for daily needs and health products. So the ability of managers who can be more efficient, such as the ability to reduce operational costs through strengthening the supply chain and automation, will be able to increase profit margins and firm value. This result follows research (Andreou et al., 2017) which states that managerial ability will look positive when the company is in a crisis condition. Managerial ability in the energy industry has challenges in analyzing complex external conditions. Price changes in the energy commodity market and government regulations are significant external factors and cannot be fully controlled by company managers. Fluctuations in global oil prices can affect the income and profitability of energy companies. Stringent regulations related to the environment and industrial safety can also require companies to change operations quickly, facing additional costs and the risk of regulatory complications. The implication is that company managers must be able to respond with flexibility and speed to these changes in external conditions. But in many cases, the manager's decisions are limited by factors that are beyond the manager's control. Thus, although managerial ability is an essential quality for effectively managing a company's operations and strategies, in the energy industry, managerial ability is not capable of exerting a significant influence on a firm's value directly.

One of the practical implementations that companies can do is that companies focus on developing efficient managerial skills, through training, professional development, and providing incentives to encourage optimal resource management. In addition, managers must have visionary leadership, playing a role in strengthening the firm's performance (Ting et al., 2021).

6. Conclusion

Companies must be able to utilize their resources to create a competitive advantage and ultimately create firm value. There is still a debate in defining a variable that can be said to be a unique resource. Barney (1991) revealed that four conditions must be met, namely valuable, rare, imperfect imitability, and non-substitution (VRIN). Unique internal resources as a result of the mapping of the study, can provide competitive advantages and be able to compete in industries such as goodwill, intellectual capital, firm innovation, and managerial ability. Indonesia as a developing country and a country full of changes, causes companies to have superior values that can compete in the industry. The study's findings show that management skills, corporate innovation, and intangible assets affect a company's value in the primary materials sector. In the consumer industry non-cyclical, only managerial ability affects the value of the company. Meanwhile, in the energy industry, there is no identified intangible resource that can affect the value of the company. These results are consistent after robust tests.

The implications of the research results for the development of the RBV theory show that not all types of industries have intangible resources that can provide competitive advantages and are tested in increasing the firm value. Companies in Indonesia have the consequence that the ability of managers is still an important factor in business. It was found in two types of industries, namely basic materials and consumer non-cyclical, that managerial ability influences the value of the company. The implication of the results of this research in practice is that companies must be careful in setting strategies to increase the firm value. Each type of industry has unique resources and significantly exerts different influences.

Unlike the previous research, this study contributes to the existing literature. First, the development of the RBV theory is that each company has a different type of resource and the ability to provide a competitive advantage on a sustainable basis which is reflected in the firm's values. Second, the results of this study contribute to providing strong results for the improvement of the existing literature, through panel data regression models and robust tests.

The limitations of this study need to be revealed so that it can be a guideline in future similar research. First, the assumptions in the formation of the research model represent the assumptions of the VRIN used. The assumptions used can be subjective because they are influenced by different points of view. Second, the difficulty in data collection is the limitation of the disclosure of the company's financial information as outlined in the company's annual financial statements. So a lot of time is spent collecting and checking in detail into financial statement records.

The existence of research limitations will provide space for further research. First, this study still uses four independent variables that meet VRIN with different assumptions based on the viewpoint of increasing firm value. There are still many unique resources identified from previous research, to be further researched. Second, it can use primary data to measure unique

intangible resources owned by the Company. Third, realizing the Firm's value takes a long time, so it is necessary to establish short-term measurements to ensure that the Company has a competitive advantage such as profitability measurement.

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