

Optimizing firm value: The impact of intellectual capital with competitive advantage

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Abstract

Managing firm value becomes crucial for ensuring shareholder interests. Investors rely on company information, particularly financial reports and ratios, to gauge performance before making investment decisions. Intellectual capital and competitive advantage emerge as key factors influencing firm value. This study aims to provide empirical evidence that intellectual capital has a significant effect on firm value with competitive advantage as a moderator. This study focuses on pharmaceutical companies listed on the Indonesia Stock Exchange. There are 12 such companies. We selected them based on having complete audited financial reports for the past 5 years. We collected data from audited financial reports of pharmaceutical companies listed from 2017 to 2021. The results suggest that the intellectual capital variable does not affect firm value. Meanwhile, partial testing carried out on indicators of intellectual capital found that only capital employed efficiency had a significant effect on firm value. Competitive advantage as proxied by inventory turnover does not affect firm value. However, competitive advantage as proxied by receivable turnover can have a significant influence on firm value. The research results show that managing intellectual capital efficiently will give rise to competitive advantage which has the impact of increasing firm value.

Keywords: Competitive advantage, Firm value, Intellectual capital

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1. Introduction

Firm value as a market-based factor is seen as an important factor for businesses that want to make good products to increase customer loyalty when running a business. Firm value shows the market's perception of the company's success in its high quality work (Keown, 2004).

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Firm value also includes a reflection of the growth prospects of a particular business in the future (Sudarsanam et al., 2006). Therefore, to confirm that a company operates as well as possible for shareholders, company value must be a concern of management.

Firm value is the reaction and perception of investors regarding company information, so good information about company performance will always be expected by investors (Moniaga, 2013). The information provided by the company is in the form of financial reports which have usually been analyzed by analysts. Apart from analysts, investors will usually also calculate financial ratios as a basis for making decisions. For this reason, before deciding to invest, investors must first have proper knowledge and understanding of company performance through share prices which are a proxy for firm value, which can be the basis for making an investment.

Firm value is an indicator for the market or investors to assess the company as a whole so that the company value can show the company's prospects in the future. To value company shares, the values that need to be considered are book value, market value and intrinsic value of the shares. If the growth of company value is in a decline phase, the company is expected to be able to conduct business that focuses on knowledge (knowledge-based business) by using human knowledge as the basis for an important competitive strategy among businesses.

Obtaining firm value as a company goal seems to require a procedure that is not easy. Companies are expected to be able to collect existing resources to obtain high company value. Based on existing references, it is stated that company value can be influenced by various variables. There are two factors that are proxied to influence firm value, including: intellectual capital and competitive advantage (Hatane et al., 2017; Rashid & Islam, 2013; Wijayanto et al., 2019). Intellectual capital has a fairly strong relationship with firm value because the higher the company's intellectual capital, the higher the firm value that will be obtained (Isanzu, 2015). Apart from intellectual capital which has strong implications for firm value, competitive advantage also has the same thing. Wijayanto et al. (2019) said that competitive advantage has a good impact on company value. Based on signaling theory, the information found in financial statements is a sign that can have an impact on company value (Connelly et al., 2010).

Intellectual Capital is a method that functions to assess or ensure the size of knowledge assets, and gain understanding in various sections, for example information technology, accounting, society, or management (Petty & Guthrie, 2000). Intellectual capital is seen as an intangible resource that can generate value for the company (Choong, 2008; Hunter et al., 2005; Sudarsanam et al., 2006). The company's ability to manage intellectual capital is one of the primary plans for top officials in the company (Martín-de-Castro et al., 2006). On the other hand, as an intangible resource which includes intellectual capital, it is considered mandatory for capital market implementers, management, and boards of directors, and other stakeholders (Cassel et al., 2000). Intellectual capital is used as a source of skills and expertise for the company to generate large profits for the company. Therefore, intellectual capital is used as a strategy to improve the company's economy in the long term. Intellectual capital is not only related to the benefits it brings, but is also related to the company's capacity to use the resources it has in an effort to achieve company goals (Roos et al., 2001). Intellectual capital describes market-based assets consisting of knowledge and abilities needed to increase firm value (McNaughton et al., 2000). At this time, intellectual capital has succeeded in developing as a resource that can be relied on and positioned as a driving aspect of increasing firm value (Chen et al., 2004; Harrison & Sullivan, 2000).

Nowadays, expertise-based assets have become one of the largest contributors to company valuation (Marr et al., 2004). High company value can be obtained by combining a portfolio of resources, which includes intellectual capital (Sudarsanam et al.,

2006). Apart from being able to increase firm value, intellectual capital can convey a good picture to society (Appuhami & Bhuyan, 2015; Keenan & Aggestam, 2001; Nuryaman, 2015; Riahi-Belkaoui, 2003). In the end, this attention is reflected and actualized through increasing company value.

Chen et al. (2005) states that intellectual capital can increase profitability, income growth and company value. Investors will convey a better assessment of companies that have good intellectual capital. Soebyakto et al. (2015) also showed that intellectual capital is able to increase company value. However, Hatane et al. (2017) through their comparative research stated that the benefits obtained by intellectual capital are different in each country. Intellectual capital in companies in Indonesia does not have a significant impact on firm value, on the contrary, intellectual capital of companies in Malaysia has a significant impact on firm value. Supporting the study conducted by Hatane et al. (2017) and Rashid et al. (2018) succeeded in obtaining evidence in their research that intellectual capital has no effect on firm value in Pakistan. Meanwhile Maditinos et al. (2011) in their research conducted in Greece found that intellectual capital had no effect on company value.

Intellectual capital not only provides benefits in increasing firm value, but is also a factor that gives rise to competitive advantage. Intellectual capital can strengthen a company's position in competition between companies and become the core of competitive advantage (Chahal & Bakshi, 2015; Wang & Chang, 2005, Wang, 2014). However, company managers must realize that competitive advantage will only be obtained if all the resources owned by the company are managed efficiently (Marr et al., 2004).

Competitive advantage based on resource based theory is the use of certain characteristics for a company to obtain profits or returns that are higher than the average (Lin & Huang, 2011). Competitive advantage can maintain business sustainability in the long term. Company activities in generating value, ownership and use of intellectual capital provide opportunities for companies to gain competitive advantage and value added (Sunarsih & Mendra, 2012). Companies are required to have competitive power and excellence in order to win the competition. One of the various things that a company can implement is competitive advantage, namely if the company has something that its competitors do not have.

Ma (1999) argues that competitive advantage reflects a company's superior resources to be able to survive competition and achieve its strategic goals. In dynamic capabilities theory which focuses on developing resources to adapt to changes in the surrounding environment (Teece et al., 1997). Based on this theory, competitive advantage can be obtained by updating resources, including intellectual capital (Kamukama, 2013). This thinking focuses on the goal of competitive advantage through building capabilities that link superior resource reconstruction processes (Teece et al., 1997; Zahedi & Ramzeni, 2015). Several academics have tested the strong influence of intellectual capital on competitive advantage (Andes et al., 2021; Chahal & Bakshi, 2015; Jain et al., 2017; Kamukama, 2013; Tripathy et al., 2017; Wahyuni et al., 2020). However, Sadalia et al. (2018) explained that human capital representing intellectual capital does not have a dominant influence on achieving competitive advantage.

This study describes the competitive advantage that can be utilized to obtain optimal firm value. Researchers have the assumption that if competitive advantage management is carried out correctly, then the company can use it as a tool to increase firm value. Although there has not been much research conducted discussing the relationship between intellectual capital, competitive advantage and firm value, several previous studies have been found to be able to measure the influence between these three

variables. [Ana et al., \(2021\)](#); [Andes et al. \(2021\)](#); [Boasson et al., \(2015\)](#); [Wijayanto et al., \(2019\)](#) stated that competitive advantage has a significant influence on firm value. This research aims to provide empirical evidence that intellectual capital has a significant effect on firm value with competitive advantage as a moderator.

2. Hypotheses Development

Stakeholders' theory

The theory of stakeholder according to [Freeman & Reed \(1983\)](#) is "any identifiable group or individual who can affect the achievement of an organization's objectives, or is affected by the achievement of an organization's objectives". According to this theory, stakeholders have the right to obtain information about organizational activities that can affect them, even when they have difficulty being directly involved in the company's operational activities ([Deegan, 2004](#)). Stakeholder's theory aims to provide assistance to business owners by understanding the stakeholder environment and managing relationships in the stakeholder area ([Ulum, 2017](#)). The overall aim of stakeholder theory is to provide assistance to business owners in increasing value resulting from company activities, as well as reducing the possibility of losses for stakeholders ([Nurhayati, 2017](#)).

Managers can create and increase company value, when they can manage the organization optimally, then the manager has implemented this theory well. Company value can be created by utilizing all the resources the company has, including capital employed, human capital and structural capital. If this potential is managed and utilized efficiently, it is not impossible to produce added value for the company (VAICTM). Henceforth, the company can direct the company's financial performance to stakeholders ([Ulum, 2017](#)).

Resource Based Theory (RBT)

Resource based theory is a creation of competitive advantage that cannot be separated from the company's ability to manage resources that are valuable, rare, difficult to imitate, and can be managed well by the company ([Barney, 1991](#)). This theory determines the source of sustainable competitive advantage with various strategies to create company value ([Ferreira & Fernandes, 2017](#)). Conservative accounting practices emphasize that a company's investment in intellectual capital, which is presented in financial reports, results from an increase in the difference between market value and book value. If market conditions are efficient, investors will give high value to companies that have greater intellectual capital ([Firer & Williams, 2003](#)). Resource based theory has a role as the basis for work to explain and determine everything that can be the basis for competitive advantage and the strength of company performance ([Barney et al., 2011](#)).

[Kozlenkova et al. \(2014\)](#) explain that the basis of this theory lies in two opinions about company resources, and provides an explanation of how these resources can create sustainable competitive advantages and cause companies to be superior to their competitors. First, companies have a variety of different resources, even in the same industry ([Peteraf & Barney, 2003](#)). Opinions related to the diversity of resources explain that there are many companies that have better skills when completing certain activities because they have unique resources ([Peteraf & Barney, 2003](#)). Second, resource dissimilarity is difficult to eliminate, because it is difficult to exchange resources in each company, and leads to efforts to gain profits through sustainable resource diversity ([Kozlenkova, 2014](#)).

Signaling theory

Signaling theory is a theory that assumes that information openness is a response to asymmetric information that occurs in the market ([Spence, 1973](#)). [Gunarsih et al. \(2014\)](#)

explains how a party can curate asymmetric information by providing information to other parties. Increased information is a positive sign for investors that represents business quality to reduce uncertainty. Managers are required to have more information about the condition of the company than outside parties. The impact that can occur is that external parties who do not have information tend to have the same perception regarding the value of their company. This situation can result in external parties giving a lower assessment of the company than it should, resulting in missed opportunities, and vice versa.

[Khoirunnisa & Cahyati \(2017\)](#) believes that the purpose of signaling theory is to provide information to investors and potential investors regarding the state of the company. If you get positive information, it can be interpreted as being able to influence funding decisions, then the perception about the company will be good, and it is hoped that it will be able to influence the company's share price. However, if the information obtained is negative information, it will affect funding decisions and can reduce the company's good name which can result in a decline in share prices.

The influence of intellectual capital on firm value

Based on stakeholder's theory, stakeholders have the right to receive fair treatment. Managers need to manage the company to provide accountable benefits to stakeholders. Companies are expected to be able to provide added value by optimizing company capabilities, including employees, physical assets, and capital structure ([Faradina & Gayatri, 2016](#)). Increasing intellectual capital can increase company value and will also increase stakeholder value. Stakeholders who value the company more will be able to create value, because by creating good value, the company can better satisfy common interests. This is in accordance with research by [Septiana \(2018\)](#) which states that if intellectual capital increases, in the sense of being managed well, then market perception of the company's value will increase.

H₁: Intellectual capital has a positive and significant effect on firm value

The influence of competitive advantage on firm value

Research on competitive advantage on firm value is still rare. [Standfield \(2005\)](#) states that competitive advantage can increase market value, share prices, income, and outcome. [Boasson et al. \(2005\)](#) conducted research on competitive advantage on firm value on the basis of geographic resources, then [Ana et al. \(2021\)](#), [Andes et al. \(2021\)](#), and [Wijayanto et al. \(2019\)](#) conducted research on competitive advantage on firm value based on resource and non-resource perspectives. [Wijayanto et al. \(2019\)](#) explained that competitive advantage has a strong influence on firm value. The results of this research strengthen the assumption that investors prioritize the company's competitive efforts.

H₂: Competitive advantage has a positive and significant effect on firm value

The influence of competitive advantage moderates intellectual capital on firm value

Based on stakeholder's theory, companies that develop their resources are very important for the company's growth and sustainability. Resources that describe Intellectual capital can be relied on by companies to gain competitive advantage ([Chahal & Bakshi, 2015](#)). Meanwhile, resource-based theory explains that the creation of competitive advantage cannot be separated from the company's ability to use unique resources which are for the company's sustainability and will increase the company's value in the future.

All company activities aim to create firm value, so the use of intellectual capital is an opportunity for companies to gain competitive advantage and increase value added

(Chen et al., 2005). Intellectual capital is the right resource to optimize competitive advantage and maximize firm value. Yuliana & Khoiriyah (2018) examined the relationship between intellectual capital and competitive advantage, explaining that companies that manage intellectual capital efficiently indicate that the company will be different from its competitors, namely by having a competitive advantage.

H₃: Competitive advantage moderates intellectual capital on firm value

3. Methods, Data, and Analysis

The population in this study are pharmaceutical sub-sector companies listed on the Indonesia Stock Exchange in accordance with published financial reports. The number of pharmaceutical sub-sector companies listed on the Indonesia Stock Exchange is 12 companies. Sampling in this study used a purposive sampling method with the criteria of pharmaceutical sub-sector companies reporting complete audited financial reports for the last 5 years to the Indonesian Stock Exchange. After sampling, there were 2 out of 12 companies that did not report complete financial reports for the last 5 years to the Indonesian Stock Exchange, namely PT Phapros Tbk (PEHA), PT Soho Global Health Tbk (SOHO). The data collection technique used is documentation. The data in this research is secondary data, in the form of company financial reports that have been audited for pharmaceutical sub-sector companies listed on the Indonesia Stock Exchange for the 2017-2021 period.

Intellectual capital (MVAIC)

Pulic (1998) was able to indirectly find a method that can be used to calculate the amount of intellectual capital, namely the Value-Added Intellectual Coefficient (VAIC) procedure. (VAIC) calculates the efficiency of value creation from the assets owned by the company. Several researchers introduced the Modified VAIC (MVAIC) model as an extension of the previous VAIC model by overcoming limitations and to measure added value efficiency more comprehensively (Soetanto & Liem, 2019). The formula that can be used is in Equation 1 (Eq. 1).

Value added (VA) is a tool that can be used to measure a company's competency in creating value that is useful for business development and shareholder prosperity (Pulic, 2004). Value Added can be calculated from the difference between output consisting of total sales plus other income and input obtained from sales expenses plus other expenses, excluding workload.

$$\text{Value Added} = \text{OUT} - \text{IN} \quad (\text{Eq. 1})$$

Capital Employed Efficiency (CEE) shows the amount of value that can be created through investment in physical capital (Pulic, 2004). CEE can be calculated by comparing VA to CE. CE is obtained from book value through total company assets (Ulum, 2017). The formula used is in Equation 2 (Eq. 2).

$$\text{Capital Employed Efficiency (CEE)} = \frac{\text{Value Added}}{\text{Capital Employed}} \quad (\text{Eq. 2})$$

Human Capital Efficiency (HCE) shows how much added value a company can produce through its workforce salary budget (Pulic, 2004). The linkage between VA and HCE shows the capability of HCE to generate value in the business. The higher the HCE indicates the effective utilization of human resources in value creation. The formula that can be used is in Equation 3 (Eq. 3).

$$\text{Human Capital Efficiency (HCE)} = \frac{\text{Value Added}}{\text{Human Capital}} \quad (\text{Eq. 3})$$

Structural Capital Efficiency (SCE) shows the amount of efficiency that can be generated by a company through structural capital (Pulic, 2004). The value of structural capital is obtained based on the division of structural capital (VA – HCE) with value added (Pulic, 2004). The formula that can be used is in Equation 4 (Eq. 4).

$$\text{Structure Capital Efficiency (SCE)} = \frac{\text{Structure Capital}}{\text{Value Added}} \quad (\text{Eq. 4})$$

Relational Capital Efficiency (RCE) represents a company's ability to develop relationships with customers, suppliers, or external stakeholders (Nazari & Herremans, 2007; Nimtrakoon, 2015; Vishnu & Gupta, 2014). RCE can be calculated by entering marketing costs as RCE and dividing it by VA. The formula that can be used is in Equation 5 (Eq. 5).

$$\text{Relational Capital Efficiency (RCE)} = \frac{\text{Relational Capital}}{\text{Value Added}} \quad (\text{Eq. 5})$$

Modified Value Added Intellectual Coefficient (MVAIC) shows the capability of intellectual capital. MVAIC can be calculated using the Equation 6 (Eq. 6).

$$\text{MVAIC} = \text{CEE} + \text{HCE} + \text{SCE} + \text{RCE} \quad (\text{Eq. 6})$$

Competitive Advantage (CA)

Competitive advantage is an indicator of a company that is different from other companies and can be used to provide better service to customers and can be used to create firm value (Ma, 1999). Competitive advantage can be proxied using the power of supplier's and power of customer's.

Power over supplier's means the company's ability to bargain with suppliers to gain profits and can be measured using Inventory Turnover (ITO) (Dickinson & Sommers, 2012). The ITO ratio can be measured using the Equation 7 (Eq. 7).

$$\text{Inventory Turnover (ITO)} = \frac{\text{Cost of Goods Sold}}{\text{Inventory}} \quad (\text{Eq. 7})$$

Power over customers means the company's ability to bargain with customers. Companies need this capability when repeated transactions with customers occur. Customer's power over can be calculated using the Receivables Turnover (RTO) ratio with the Equation 8 (Eq. 8).

$$\text{Receivables Turnover (RTO)} = \frac{\text{Net Sales}}{\text{Receivables}} \quad (\text{Eq. 8})$$

Firm value (Tobin's Q)

Firm value is a tool for assessing company performance by referring to a market perspective. High firm value indicates that the company's performance is in good

condition (Andes et al., 2021). The firm value measuring tool in this research uses the Tobin's Q ratio with the Equation 9 (Eq. 9).

$$\text{Tobin's Q} = \frac{\text{Equity Market Value} + \text{Dividend}}{\text{Equity Book Value} + \text{Dividend}} \quad (\text{Eq. 9})$$

The data analysis method uses the statistical method of multiple linear regression with panel data. Data analysis in this research uses statistical procedures supported by Economic Views (Eviews). The panel data regression model equation used in this research.

$$\text{Tobin's Q} = \alpha + \beta_1 \text{MVAIC} + e \quad (\text{Model 1})$$

$$\text{Tobin's Q} = \alpha + \beta_2 \text{ITO} + e \quad (\text{Model 2})$$

$$\text{Tobin's Q} = \alpha + \beta_2 \text{RTO} + e \quad (\text{Model 3})$$

$$\text{Tobin's Q} = \alpha + \beta_1 \text{MVAIC} + \beta_2 \text{ITO} + \beta_3 \text{MVAIC} * \text{RTO} + e \quad (\text{Model 4})$$

$$\text{Tobin's Q} = \alpha + \beta_1 \text{MVAIC} + \beta_2 \text{RTO} + \beta_3 \text{MVAIC} * \text{ITO} + e \quad (\text{Model 5})$$

Where: Tobin's Q: Firm value proxy; α : Constant; $\beta_1 - \beta_3$: Regression coefficient; MVAIC: Intellectual capital; ITO: Inventory turnover (competitive advantage); RTO: Receivable turnover (competitive advantage); MVAIC*ITO: Interaction between IC and CA; MVAIC*RTO: Interaction between IC and CA; e: Residual error error

4. Results

Descriptive statistics analysis

Descriptive statistical analysis produces data processing that shows the sample criteria in the research including the amount of data studied, average value, median value, maximum value and minimum value for each variable. Descriptive statistics in this study include all variables, namely intellectual capital, competitive advantage, and firm value. The results of the descriptive statistics of the research data can be seen in [Table 1](#).

Table 1.
Descriptive statistics results

Value	I.C	ITO	RTOs	Tobin's Q
Mean	2.709	4.113	6.154	2.525
Median	2.465	3.455	6.245	1.76
Maximum	8.63	12.8	10.03	14.6
Minimum	1.91	1.14	2.6	0.28
Std. Dev.	1.001	2.209	1.873	2.756
Skewness	4.35	1.628	0.038	2.816
Kurtosis	25.798	6.468	2.444	11.817
Observations	50	50	50	50

The intellectual capital variable has an average value of 2.71, a maximum value of 8.63, and a minimum value of 1.91. Furthermore, the competitive advantage variable which is proxied by inventory turnover and receivable turnover has an average value of 4.11; 6.15, maximum value 12.8; 10.03, and the minimum value is 1.14; 2.6. The firm value variable which is proxied by the Tobin's Q ratio has an average value of 2.52, a maximum value of 14.6, and a minimum value of 0.28.

Selection of estimation model

In research using panel data, the estimation model selection uses three methods, namely Common Effect Model (CEM) regression, Fixed Effect Model (FEM), and Random Effect Model (REM). To obtain the correct estimation model, the Chow,

Hausman and Lagrange Multiplier tests were carried out. How test results show that the Cross-section Chi-square value has a probability value of 0.0000. Therefore, fixed effects are the appropriate estimation model when compared to common effects. Based on the Hausman test, it is known that the random cross-section probability value is 0.6568, so the most appropriate model is the Random Effect Model. Therefore, further testing is needed, namely the Lagrange Multiplier Test to determine a more precise estimation model between the random effect model and the common effect model. Based on the Lagrange Multiplier Test, the resulting Breusch-Pagan Cross-section probability value is smaller than 0.05, so the random effect model is the fit model. Therefore, the appropriate model for panel data regression in this research is the random effect model rather than the common effect model.

Hypothesis test

The F test is carried out to show how the independent variable influences the dependent variable simultaneously. If the probability value is < 0.05, it can be concluded that the independent variable can have a significant effect on the dependent variable simultaneously.

Table 2.

F-test results

R-squared	0.155390	Mean dependent var	0.734188
Adjusted R-squared	0.100307	SD dependent var	1.721470
SE of regression	1.632851	Sum squared resid	122.6454
F-statistic	2.821001	Durbin-Watson stat	2.443814
Prob(F-statistic)	0.049194		

Based on [Table 2](#), it can be seen that the probability F-statistic value is 0.049 < 0.05, so it can be concluded that the independent variables, namely intellectual capital and competitive advantage, can simultaneously influence the dependent variable, namely firm value.

The t test is carried out to show how the influence of the independent variable can explain the dependent variable. If the probability value is < 0.05, then it can be said that the hypothesis is accepted and it can be concluded that the independent variable can influence the dependent variable.

Table 3.

Results of Hypothesis 1 testing

Variables	Coefficient	Std. Error	t-Statistics	Prob.
C	1.836	1.059	1.733	0.089
MVAIC	0.254	0.275	0.921	0.361

Based on the results of hypothesis testing in [Table 3](#), it can be seen that the relationship between intellectual capital and firm value can be written using the model in Equation 10 (Eq. 10).

$$\text{Tobin's Q} = 1.836 + 0.254\text{MVAIC} \tag{Eq. 10}$$

Based on this explanation, intellectual capital has a probability value of 0.3616 > 0.05. It can be concluded that intellectual capital has no effect on firm value. These results explain that the hypothesis that was previously proposed was rejected.

Table 4.
 Intellectual capital indicator test results

Variables	Coefficient	Std. Error	t-Statistics	Prob.
C	2.808	1.348	2.082	0.043
CEE	1.83	0.683	2.680	0.010
HCE	-0.878	1.197	-0.733	0.467
SCE	-0.058	4.732	-0.012	0.99
RCE	-5.302	4.827	-1.098	0.277

Intellectual capital indicators on firm value. Of the four existing indicators, only capital employed efficiency has an effect on firm value because it has a probability value of $0.01 < 0.05$ (Table 4). Meanwhile, the other three indicators such as human capital efficiency, structural capital efficiency and relational capital efficiency do not have a significant effect because their probability values are greater than 0.05.

Table 5.
 Results of Hypothesis 2 testing

Variables	Coefficient	Std. Error	t-Statistics	Prob.
C	2,984	1,009	2,957	0.004
ITO	0.111	0.174	0.639	0.5258

Based on Table 5, it can be seen that the relationship between competitive advantage and firm value can be written using the model in Equation 11 (Eq. 11).

$$\text{Tobin's Q} = 2.984 + 0,111\text{ITO} \quad (\text{Eq. 11})$$

Based on this explanation, competitive advantage (ITO) has a probability value of $0.525 > 0.05$. It can be concluded that competitive advantage (ITO) does not have a significant effect on firm value.

Moderating Regression Analysis (MRA)

Moderating regression analysis (MRA) is used to determine whether the competitive advantage variable can strengthen or weaken the relationship between intellectual capital and firm value.

Table 6.
 ITO moderation variable test results

Variables	Coefficient	Std. Error	t-Statistics	Prob.
C	5,015	1,589	3.156	0.002
MVAIC	-0.849	0.452	-1.878	0.066
ITO	-1,377	0.459	-2.999	0.004
MVAIC*ITO	0.517	0.178	2.902	0.005
Effects Specification				
R-squared				0.1952
Adjusted R-squared				0.142
F-statistic				3.719
Prob (F-statistic)				0.017

The inventory turnover moderating variable in Table 6, it can be seen that the relationship between intellectual capital and firm value which is moderated by inventory turnover can be written using the model in Equation 12 (Eq. 12).

$$\text{Tobin's Q} = 5,015 - 0,849\text{MVAIC} - 1,377\text{ITO} + 0,517\text{MVAIC} * \text{ITO} \quad (\text{Eq. 12})$$

The research results show MVAIC*ITO which is the result of the interaction between the intellectual capital variable and inventory turnover, has a probability value of $0.0057 < 0.05$ with a t-count value of 2.902. So it can be concluded that inventory turnover is able to moderate the relationship between intellectual capital and firm value.

Table 7.
Results of Hypothesis 2 testing

Variables	Coefficient	Std. Error	t-Statistics	Prob.
C	0.692	1,507	0.459	0.648
RTOs	0.522	0.213	2,443	0.018

Based on [Table 7](#), it can be seen that the relationship between competitive advantage (RTO) and firm value can be written using the model in Equation 13 (Eq. 13).

$$\text{Tobin's Q} = 0,692 + 0,522\text{RTO} \quad (\text{Eq. 13})$$

The results show that competitive advantage has a probability value of $0.018 < 0.05$. It can be concluded that competitive advantage (RTO) has a significant effect on firm value. These results explain that if there is an increase in one unit of competitive advantage (RTO), it will increase firm value by 0.522 assuming other variables remain constant.

5. Discussion

The influence of intellectual capital on firm value

Based on the results of the analysis, it shows that intellectual capital has no significant effect on firm value. This is because the increase in firm value cannot be seen immediately in that period, because the effects of the use of intellectual capital can only be felt several periods later. Therefore, the first hypothesis is rejected. This is not in line with research conducted by [Andes et al. \(2021\)](#) which found that intellectual capital had a significant effect on firm value. Meanwhile, this research is in line with what was expressed by [Ana \(2021\)](#) who stated that intellectual capital has no effect on firm value. Intellectual capital management, which aims to create efficiency in the company, is still unable to attract the interest of investors to provide high added value to the company. The results of this research can show that the potential for IC management carried out by the company has no effect on increasing company value. This is because the efficiency resulting from IC is still considered a hidden value, so investors have not used a high IC value as a benchmark for forming company value ([Josephine et al., 2019](#)).

The results of this test strengthen the market orientation theory which states that firm value will be obtained when the company has the right strategy in managing intellectual capital ([Barney, 1991](#); [McNaughton et al., 2000](#)). If viewed from a strategic perspective, intellectual capital that is able to be managed and utilized well will make it easier for the company to obtain firm value ([Chen et al., 2004](#)), and vice versa, when the company is unable to utilize and manage intellectual capital efficiently and effectively, it can It is certain that intellectual capital will show different results.

The influence of competitive advantage on firm value

Based on the results of the data analysis that has been carried out, it shows that inventory turnover does not have a significant effect on firm value. This explains that inventory turnover cannot increase company value in that period. These results are not

relevant to [Ma \(1999\)](#) theory which states that competitive advantage, in this case inventory turnover, can increase firm value. This is not in line with research conducted by [Andes et al. \(2021\)](#) which states that competitive advantage has a significant effect on firm value. This indicates that if the company is able to control suppliers it will not have an impact on increasing firm value and is also not an appropriate measuring tool in calculating competitive advantage. On the other hand, [Ana \(2021\)](#) states that if a company is able to control suppliers well, it will create a competitive advantage, because the company has control in determining how much raw materials to buy and will increase production which will lead to increased sales.

However, in pharmaceutical companies this does not happen because suppliers are not an important factor in increasing sales which is ultimately useful for increasing company value. Under certain circumstances, market players have the potential to ignore a company's competitive advantage ([Dickinson & Sommers, 2012](#)). [Madininos et al., \(2011\)](#) argue that the market is inefficient in managing information regarding competitive advantage and market players do not really consider competitive advantage in assessing companies.

The research results are in line with research conducted by [Andiani & Prasetyo \(2020\)](#), [Wijayanto et al. \(2019\)](#), and [Andes et al. \(2021\)](#), which states that competitive advantage has a significant effect on firm value. [Porter \(1985\)](#) also states that every company with a competitive advantage can use this advantage as a strategy to win the competition in order to increase company value. Power over customers, which is proxied by receivable turnover, is considered capable of increasing firm value. This indicates that the company is able to control its customers by tightening credit policies on certain goods, which then makes customers timely in making credit payments to the company, which payments can be used by the company to increase capital and are useful for financing company activities and increasing sales then leads to an increase in company value.

The influence of competitive advantage in moderating intellectual capital on firm value

Based on the results of the data analysis that has been carried out, it shows that competitive advantage as proxied by ITO is able to moderate intellectual capital on firm value. The ability of competitive advantage to moderate intellectual capital on firm value is a strengthening relationship. This means that competitive advantage is able to strengthen the relationship between intellectual capital and firm value.

In accordance with the resource-based theory expressed by [Barney \(1991\)](#), if a company is able to use intellectual capital well, then the company will have a competitive advantage over its competing companies. By measuring inventory turnover and intellectual capital, the relationship between the company and suppliers will be better, the company has the opportunity to control suppliers so that the company's inventory is fulfilled, while suppliers get the right partners, for the sustainability of the company because they have a place to distribute their products to the company. Mutualistic symbiosis like this is what many other companies should do if they want to win the competition with their competitors. Furthermore, when companies are able to control suppliers, they automatically have a lot of inventory to increase their productivity in producing a product for sale. High sales will be able to create high profits and will affect the company value which can be reflected in the company's market value, so that it will invite investors to invest in the company.

The ability of competitive advantage to moderate the relationship between intellectual capital and firm value is due to the interaction between relational capital and the company's ability to manage relationships with its customers through receivable turnover. [Nimtrakoon \(2015\)](#) states that when a company is able to use relational capital

efficiently, it will be able to increase company value. Companies that are able to utilize relational capital and receivable turnover efficiently can create firm value. This can happen when a company is able to manage credit policies to its customers, then the turnover of receivables will be faster, also resulting in the receivables being paid and increasing business capital for the company. Furthermore, the company will be able to increase its productivity through paying receivables. When productivity increases, there will be an increase in company profits which can increase the value of the company.

6. Conclusion

The results show that the intellectual capital variable has no effect on firm value. This result is not in line with resource-based theory which states that if a company is able to use all the resources it has, it will create firm value. This is because the efficiency resulting from IC is still considered a hidden value. Meanwhile, partial testing carried out on indicators of intellectual capital found that only capital employed efficiency had a significant effect on firm value. Competitive advantage as proxied by inventory turnover has no effect on firm value. The company's ability to manage suppliers will not create firm value. The results of this research are not in accordance with market orientation theory which explains that strategic excellence, resource utilization and strategic management that refer to the market will contribute to optimal firm value. However, competitive advantage as proxied by receivable turnover is able to have a significant influence on firm value. The company is able to manage receivables turnover well by tightening credit policies to shorten receivables turnover. The results of this research are in accordance with market orientation theory as previously stated. Competitive advantage as proxied by inventory turnover and receivable turnover is able to moderate the relationship between intellectual capital and firm value. The research results show that managing intellectual capital efficiently will give rise to competitive advantage which has the impact of increasing firm value.

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