

## **Assessing the Relationship between Company Value and Intellectual Capital Disclosure Before and During Covid-19: Evidence Indonesia IT Companies**



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**ABSTRACT:** The purpose of this research is to examine the effect of Value Added Intellectual Coefficient (VAIC<sup>TM</sup>) consisting of Value Added Capital Employed (VACA), Value Added Human Capital (VAHU), Structural Capital Value Added (STVA) on firm value by Tobin's Q. The data used in this study secondary data in the form an annual IT companies report listed on the Indonesia Stock Exchange. The sample collection has done by purposive sampling method. The hypothesis testing is done using the PLS Structural Equation Model. The results showed that Structural Capital Value Added (STVA) does not have any significant effect on firm value. Meanwhile, Value Added Intellectual Coefficient (VAIC<sup>TM</sup>), Value Added Capital Employed (VACA), Value Added Human Capital (VAHU) have a positive effect on firm value and there is no significant difference of IC before and during Covid-19 on firm value by Tobin's Q. The results of this study will increase understanding in assessing how intellectual capital can add value to the company, especially for the IT sector when experiencing business difficulties. It is expected that companies that invest in intellectual capital then the company will have a good effect on firm value and are expected to provide long-term benefits.

**KEYWORDS:** Intellectual Capital, VACA, VAHU, STVA, firm value, Tobin's Q.

### **INTRODUCTION**

In the situation and conditions of Indonesia's economy and business which are still sluggish due to the Covid-19 pandemic, many companies are experiencing difficulties in finding sources of funds to be used as working capital to purchase fixed assets. In order to continue to exist, there is no way for Indonesian companies, especially IT companies, to start paying serious attention to the existence of intellectual assets (Andriana, 2014; Makki et al., 2009). Managing intellectual assets in a state of economic crisis basically does not require large funds, with the advantages of intellectual assets, companies will be able to compete to create value-added compared to physical capital financing. Improving the quality of intellectual assets in a crisis is to improve ourselves to rethink the strategies and goals of the company wants to achieve (Puspita, 2014; Wiig, 1997). Therefore, in creating value, the focus shifts from the use of tangible assets with large value to a group of assets, most of which are intangible assets, namely existing intellectual assets or knowledge capital. Since the beginning of the 1990s, attention to the practice of managing intangible assets, such as intellectual capital has increased significantly (Kamath, 2010; Smriti & Das, 2018).

Intellectual capital is an intangible asset that can provide knowledge-based resources that function to improve a company's performance and competitiveness and provide value compared to other companies. The real forms of intellectual capital such as creative and unique product designs that are not owned by business competitors, more sophisticated technology (Djamil et al., 2013; Pulic, 2000). Therefore, what top management and company owners need to realize is that real assets are humans, not only visible physical assets. Training programs to increase staff knowledge is needed in order to cultivate assets which in turn can increase the company's profitability. Intangible assets fall into the goodwill category. Company has a competitive advantage if the company can create a higher economic value than other companies in the industry (Makki et al., 2009; Malhamah & Octavera, 2018; Zéghal & Maaloul, 2010). Pulic (2004) defines intellectual capital as the entire value of a company that reflects the intangible assets of a company that has three pillars, namely customers, human capital and structural. Meanwhile, according to Xu & Liu (2020), intellectual capital is an intangible asset that includes knowledge and information owned by the company that should be used wisely so that the company gets a competitive advantage. Based on the definition of intellectual capital above, the conclusion is that intellectual capital is an intangible asset consisting of employee, organizational, knowledge, resources, and customer

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knowledge which is used by the company to provide competitiveness and added value to the company (Pulic, 2000; Razak et al., 2017).

Intellectual capital can affect the performance of a company, therefore the measurement of company performance should not only be based on financial ratios but also with intangible assets in the form of human resources. Financial performance is an analytical tool to assess whether the company has used the financial implementation provisions correctly (Joshi et al., 2013; Pulić, 2008). The company's financial condition is described in its financial performance, so that the company's financial condition in a certain period can be seen as good or bad. Intellectual capital is a part of intangible assets that is also related to knowledge and human resources. If a company wants to increase profits, it must maintain good relationships with customers which is also one of the company's pillars so that intellectual capital needs to be a company's concern (Shamsudin et al., 2013).

According to International Financial Reporting Standards (IFRS), intellectual capital is divided into three groups, namely (1) customer capital or relational capital, (2) human capital, (3) organization capital or structural capital. Customer capital, which is often referred to as customer capital and relational capital, is the company's relationship with internal and external parties (Liao et al., 2013; Pulic, 2004a). Human capital is a component that is difficult to measure, but it contains a lot of innovation, knowledge and skills (Liao et al., 2013; Pulic, 2004a). If company employees can use knowledge well, human capital will also increase. Along with the experience and long working time, the employees will become more professional. Organization capital or structural capital is the company's competence and system that can provide support to employees to create maximum performance. Even though the company has highly qualified employees, if it is not supported by a good system, the intellectual capital achievement will not be maximized and the potential is not used properly (Firsta & Muniarti, 2017; Pramudita, 2012; Pulic, 2004a).

Intellectual capital needs to be disclosed to external parties of the company because intellectual capital is company information that is non-financial in nature and discloses the company's non-physical assets, so that intellectual capital information can help external parties in assessing the company's performance (Chan, 2009; Singh & Rao, 2017). Companies must develop Human Resources (HR) so that they become more qualified individuals. The way to develop human resources can be done in various ways, not only through education (Handayani, 2015; Werastuti, 2014). Training, coaching, recruitment, opportunities, awards are some of the ways to develop human resources. With reliable resources, it is easier for the company to achieve its goals. According to IAS 38 Intangible Assets issued on January 1, 2013, Intangible assets are recognized if and only if: (1) allows future economic benefits attributable to assets that will flow to the company, and (2) costs acquisition of assets (assets) can be measured reliably. Under IFRS 3 Business Combinations, if Intangible assets are recognized in business combinations, the cost of those intangible assets is their fair value at the acquisition date (Firsta & Muniarti, 2017; Pramudita, 2012).

Some previous researchers looked for the contribution of IC to the performance of a company, while the question that arises is how the IC is calculated itself. Pulic (2000, 2004) provides an indirect calculation of IC and uses the Value Added Intellectual Coefficient (VAIC<sup>TM</sup>) method, to present information on added value and efficiency of tangible assets and non-monetary assets (intangible assets) of a company. The three components of important resources in companies owned by VAIC<sup>TM</sup> are: Value Added Capital Employed (VACA), Value Added Structural Capital (STVA) and Value Added Human Capital (VAHU). According to Pulic, (2004), if the efficiency of IC owned by the company is high, it can encourage investors to put more value. This indicates that, indirectly, one of the factors that influence market perceptions in measuring the value of a company is intellectual capital. The high IC owned by the company illustrates the company's competitiveness and added value against its competitors who have lower IC.

Currently IC research on various themes has been carried out in order to link intellectual capital with firm performance, firm net income and firm value. Some researchers generally measure firm value using share price to book value (PBV) and price earnings ratio (PER). Some researchers have not found consistent results, this is evidenced by the research of Das and Teng (2000) and Handayani (2015). Some research which has not succeeded in getting the effect of IC on the value of a company as assessed by the PBV method. The same thing was also found by Firsta, Muniarti (2017) and Firer, Mitchell (2003) who stated that IC has no direct influence on firm value as measured by PER.

Because there is inconsistency from the results of previous research, it encourages researcher to examine the research of intellectual capital. Therefore this research is a continuation of combination research by Firsta & Muniarti (2017) and Pramudita (2012), the differences in this research is that firm value is measured by the Tobin's Q calculation. The reason for using Tobin's Q calculation method is because Tobin's Q strengths use financial indicators that are in accordance with historical accounting performance. This can reflect market assessments and expectations so that the potential for manipulative activity is very small

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and Tobin's Q is able to reflect market sentiment, such as company prospects in the future (Lestari & Sapitri, 2017). Researchers choose IT companies because current IT companies need superior and quality human resources so they can market their products. In addition, the product IT company also deals with knowledge-based businesses. This research is important to do in a pandemic situation, because this study will also compare the influence of intellectual capital on company value before and during the Covid-19 period. In the current pandemic, the intellectual capital factor is a crucial element in the company's sustainability. Businesses must adapt quickly to stay afloat, including managing the radical changes facing their workforce. The pandemic also gives leaders the opportunity to design the future of work, take rapid action to protect worker health and safety, provide ITs that may not have existed before, and implement strategies to support workers in these challenging times. Based on the background explanation that has been stated above, the objective of this research can be formulated as follow:

1. Does Value Added Capital Employed (VACA), Value Added Human Capital (VAHU), Structural Capital Value Added (STVA) and Value Added Intellectual Coefficient (VAIC<sup>TM</sup>) affect firm value during COVID-19?
2. Does the firm size can moderate the relationship of VACA, VAHU, STVA and VAIC<sup>TM</sup> to firm value?
3. Does intellectual capital have a different effect on the firm value before and during the COVID-19 pandemic?

### **LITERATURE REVIEW**

The theory that is most widely used to explain intellectual capital is the stakeholder theory. Organizational management is expected to carry out activities deemed important by their stakeholders and report back on these activities to stakeholders (Harrison & Wicks, 2013). This theory states that all stakeholders have the right to be provided with information about how the organization's activities affect them (for example through pollution, sponsorship, safeguard initiatives etc.), even when they choose not to use that information and even when they cannot directly play a constructive role in organizational survival (Friedman & Miles, 2002; Harrison & Wicks, 2013; Hill & Jones, 1992).

Stakeholder theory states that organizations will choose to voluntarily disclose information about their environmental, social and intellectual performance, over and above their mandatory demands to meet actual or recognized expectations of stakeholders. The main purpose of stakeholder theory is to help corporate managers understand their stakeholder environment and manage more effectively among existing relationships in their corporate environment (Friedman & Miles, 2002). However, the broader aim of stakeholder theory is to assist corporate managers in increasing the value of the impact of their activities, and minimizing losses to stakeholders. In fact, the heart of the whole stakeholder theory lies in what happens when corporations and stakeholders carry out their relationship. Investors want the return that is reflected in accounting profit to be a precise and accurate measuring tool so that there is a need for accuracy in creating returns. The accuracy of value added and return in measuring performance adds to the strength of stakeholder theory (Friedman & Miles, 2002; Harrison & Wicks, 2013; Hill & Jones, 1992).

### **Intellectual Capital**

Capital is considered a very important thing in a company, so the business cannot run if there is no capital. Intellectuality is a combination of a person's skills to gain knowledge and apply his relationship with the environment and the problems that arise (Firsta & Muniarti, 2017; Pramudita, 2012). Intellectual capital is considered an asset and is defined as a collection of information resources owned by a company so that it can be used to make a profit, get new customers, create new products and improve business (Shiu, 2006; Ulum et al., 2017; Pulic, 2004a). According to Pulic (2000) intellectual capital is the expertise and knowledge that is in the company. Part of the company's valuation is based on expertise and knowledge if intellectual capital contributes significantly to increasing competitive advantage. The International Federation of Accountants (IFAC) interprets intellectual capital as another word of knowledge assets, intellectual assets and intellectual property (Pulic, 2000, 2004a).

According to (Pulic, 1999, 2004b) there are five arguments why companies need to carry out intellectual capital disclosures, namely (1) to support companies in developing strategies, (2) measuring strategy implementation, (3) as a company reference in giving awards, (4) providing information to stakeholders about assessment (5) considerations in making decisions for the purposes of product development and diversification. Disclosure of intellectual capital is not mandatory or can be called voluntary (voluntary) because currently there is no accounting standard provision in Indonesia that regulates the delivery of information about intellectual capital in financial statements. One of the benefits of disclosing intellectual capital is that it can provide evidence to stakeholders about the value applied in the company. Stakeholder doubts can also be reduced by informing the intellectual capital performance (Muhammad et al., 2008; Shamsudin et al., 2013; Pulic, 2004a).

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## Hypothesis Development

VACA explains the amount of capital the company has in generating value added (VA). The capital, in the form of equity and net income, can contribute to the creation of a VA which will affect the value of a company (Pulic, 2004). The income earned by the company will be even greater because the more capital the company has, the value of a company can be affected by this. Research found a positive influence between VACA on firm value (Prमितasari & Wahidahwati, 2017; Rahma, 2018). Another research also found a positive influence between VACA and firm value supports the above statement (Hamidah et al., 2014). Based on the explanations the following hypothesis formulated as follows:

H<sub>1</sub>: Value Added Capital Employed (VACA) has significant effect on firm value before and during Covid-19 pandemic.

Human capital (HC) being the most important of IC, it is a source of innovation and strategic renewal. VAHU describes the amount of company expense for employees in producing VA for a company (Pulic, 2004). These expenses are in the form of salaries and allowances, motivating the productivity level of an employee to be influenced by the amount of salary and benefits given. Signaling theory explains that the competitive advantage of a company that is able to create VA for the company is created by the use of good human resources. Some researcher explains that the most important and largest non-monetary assets in a company are human capital. HC is needed in creating a VA for the company (Prमितasari & Wahidahwati, 2017). Hamidah et al., (2014) has researched and found a positive influence between VAHU and firm value. Different results found by Rahma, (2018) in his research did not have a positive influence between VAHU and firm value. The explanation above forms the basis of the hypothesis for this study, namely as follows:

H<sub>2</sub>: Value Added Human Capital (VAHU) has significant effects firm value before and during Covid-19 pandemic.

STVA is a ratio that describes the amount of structural capital issued in creating VA for the company. Firsta, Muniarti (2017) and Pramudita (2012) states that SC includes all knowledge capital except humans owned by the company, for example, namely organizational charts, databases, company strategy, and all those that are able to increase the company's value to be greater than its material value. Added value for the company can be created from good SC processing (Firsta & Muniarti, 2017; Pramudita, 2012). Rahma (2018) and Sahari et al. (2020) research results have proven the positive effect of STVA on firm value. Different results were found by Ulum (2013) who found a negative influence between STVA and firm value. This explanation results in the following hypotheses for this study:

H<sub>3</sub>: Structural Capital Value Added (STVA) has significant effects firm value before and during Covid-19 pandemic.

Companies will strive to increase value creation in a variety of ways, one example is the management of their resources. These resources include HC, SC and Customer Capital. VA which is created from the efficient use of resources will produce a company's competitive advantage in line with the increase in value for a company (Pulic, 2004). Rahma (2018) and Sahari et al. (2020) successfully tested the absence of negative influence of IC on firm value. The opposite is found in the research of Hamidah et al., (2014) which found a negative influence between IC and firm value. Ulum (2013) in her research found that there was no effect of VAIC on firm value. This explanation forms the basis for the hypothesis of this study:

H<sub>4</sub>: Value Added Intellectual Coefficient (VAIC<sup>TM</sup>) has significant effect on firm value before and during Covid-19 pandemic.

Moderating variables are variables that can strengthen or weaken the direct relationship between the independent variable and the dependent variable (Hair et al., 2020; Martínez et al., 2017; Shackman, 2013). For this research firms size is positioned as mediating variable, because the larger size of the company indicates that the company is growing and it is expected that the company's value and performance will increase (Lestari & Sapitri, 2016; Malhamah & Octavera, 2018). Small companies usually do not have large capital and do not carry out routine transactions in large numbers, so they do not need to disclose detailed information such as large companies. Several studies have concluded that the increase in company size, the greater the funds invested in intellectual capital (Abeysekera, 2008; Holienka & Pilková, 2014). Naturally, small companies tend to have limited resources, including a limited number of employees and limited salary budgets because their revenue is smaller. Large companies have large asset capitalization, it is assumed that they are also able to have high quality of human resources, because they are able to pay higher salaries. It is hoped that these resources will contribute to the company to achieve good performance of company (Lestari & Sapitri, 2016). It is expected that large companies in better using and managing intellectual capital will have an effect on the company value. The explanation above results in the following hypothesis for mediating variable as follows:

H<sub>5</sub>: Company size mediates the effect of Value Added Capital Employed (VACA) on the firm value before and during Covid-19 pandemic.

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H<sub>6</sub>: Company size mediates the effect of Value Added Human Capital (VAHU) on the firm value before and during Covid-19 pandemic.

H<sub>7</sub>: Company size mediates the effect of Structural Capital Value Added (STVA) on the firm value before and during Covid-19 pandemic.

In times of crisis like today's intellectual capital plays a very strategic role in maintaining the performance of a company. Companies must focus on developing intellectual capital to be able to continue to grow and develop. Intellectual capital has been proven to be able to help companies get through the crisis. Research by Rahma (2018) and Sahari et al. (2020) reveals that intellectual capital significantly makes companies more efficient, it is hoped that the company will be able to reduce the impact of risks from the financial crisis caused by Covid-19 with intellectual capital. The explanation above results in the following hypothesis as follows:

H<sub>8</sub>: Intellectual capital have a different effect on the firm value of the company before and during the COVID-19 pandemic.

### RESEARH METHODOLOGY

For this research intellectual capital is calculated using the VAIC<sup>TM</sup> formula consisting of STVA, VACA and VAHU which has been used by many researcher was developed by (Pulic, 1998, 1999; Pulić, 2008; Pulic, 2004a). Intellectual capital performance is calculated by using VAIC<sup>TM</sup> (Value Added Intellectual Coefficient) which was initiated and developed in by Pulic (2000). The stages and formulations of VAIC<sup>TM</sup> calculations are:

#### 1. VA (Value Added)

The first step is to calculate VA (Value Added). Value added is calculated using the formula:

$$VA = OUT - IN$$

Information:

VA = Value added company

Input = total expenses and all company costs except for employee expenses

Output = total other income and company sales

#### 2. Value Added Capital Employed (VACA)

The next step is to calculate VACA. The indicator for VA that comes from human capital is VACA. This ratio expresses the contribution of each unit of Capital Employed to VA. VACA formula:

$$VACA = \frac{\text{value added}}{\text{capital employed}} \left( \frac{VA}{CE} \right)$$

Information:

VA = Value Added (difference between output and input)

CA = Capital Employed (net income, equity)

#### 3. Value Added Human Capital (VAHU)

When finished calculating VACA, then calculate VAHU. VAHU is the amount of VA obtained from each fund that is used as capital in human capital. VAHU formula:

$$VAHU = \frac{\text{value added}}{\text{human capital}} \left( \frac{VA}{HC} \right)$$

Information:

VA = Value Added

HC = Human Capital (all bonuses for employees and salary expenses)

#### 4. Structural Capital Value Added (STVA)

The next step is to calculate STVA. To calculate the amount of SC, STVA is used to calculate the total structural capital (SC) needed to obtain one rupiah VA using STVA. In addition, STVA is also seen as a signal of SC's success in creating value. The STVA formula is:



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$$STVA = \frac{\text{structural capital}}{\text{value added}} \left( \frac{SC}{VA} \right)$$

Information:

VA = Value Added

SC = Structural Capital (reduction between VA and SC)

5. Value Added Intellectual Coefficient (VAIC™)

The last step is calculating VAIC™. VAIC™ describes the intellectual capabilities of the company. VACA, VAHU, STVA are three components that are added together to get the VAIC™ value.

$$VAIC^{TM} = VACA + VAHU + STVA$$

In this study, company size is used as a mediating variable, company size is a picture of the size of a company. Total assets can be used to calculate the size of the company, therefore the size of the company can be projected with log of total assets.

**Log of Total Assets**

The variable that is the result or influence of the independent variable is called the dependent variable. The firm value obtained using Tobin's Q method is the dependent variable in this research. Tobin's Q is used as the basis for measuring company value because it can provide an overview of fundamental aspects and can reflect a company's IC. The Tobin's Q ratio is a measure of firm assets in relation to a firm's market value (Youndt et al., 2004). The formula for Tobin's Q is:

$$\text{Tobin's Q} = \frac{(EMV + D)}{EBV}$$

Information:

Q = Firm value

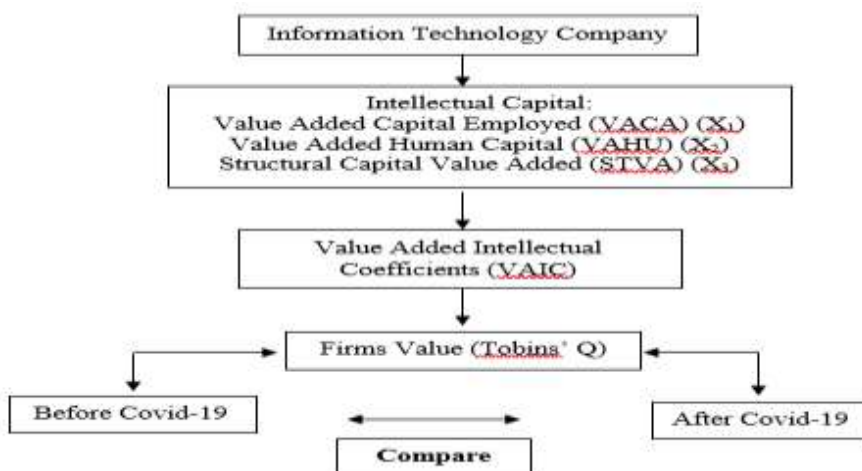
EMV = Market value of equity (closing price x shares outstanding)

EBV = Book value of total assets

D = Total book value of debt

If the Tobin's Q ratio is between 0 and 1, the cost of replacing company assets is more expensive than firm value. When Tobin's Q is above 1 it means that the company is worth more than the cost of its assets. Because according to Tobin's Q formula that the company must be valued like the value of the company's assets, then if the Tobin's Q value is above 1.0 theoretically indicates that the company is overvalued ( Youndt et al., 2004).

The research framework of thought simply describes the problem under research. The relationship between variables is also briefly described in terms of thinking, the framework for this research is presented below:



**Figure 1.** Research Framework

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The figure shows the relationship between the independent variable and the dependent variable. As described in the previous this study uses one dependent variable, firms value calculate using Tobin's Q, one moderating variable firm size and four independent variables for this research are: intellectual capital is calculated using the VAIC™ the formula consisting of STVA, VACA and VAHU.

### RESULT AND DISCUSSION

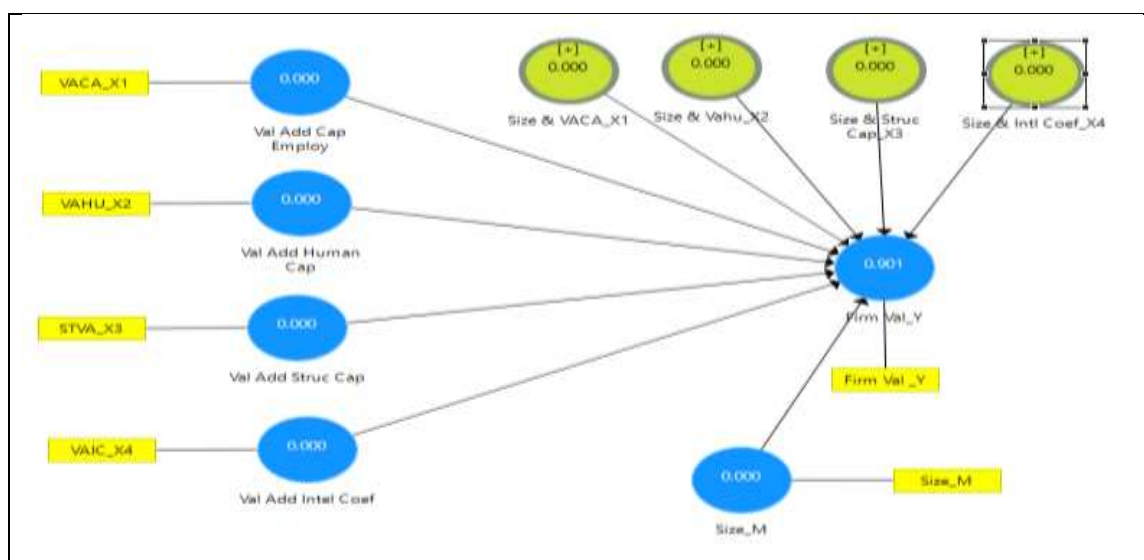
The population used is all companies engaged in ITs and listings on the IDX from 2018 to 2021. The sample obtained is 27 companies using purposive sampling method.

**Table 1. List of Observation**

No.	Description	Number of Company
1	IT companies listed on the IDX during 2018-2021	27
2	Report data is incomplete during 2018- 2021	(5)
	Total sample	22
5	Year of observation	4
6	Number of observation (22 x 4 years)	88

Source: IDX (2021)

The following are the results of the PLS Algorithm processing in the research model used are as follows:



**Figure 2. PLS Algorithm Model**

The PLS Algorithm calculation results show that the value of R Square = 0.912 shows a structural model that describes the effect of company size on intellectual capital as a whole is in the high category to explain the effect of the moderating variable (Hair et al., 2014; Shackman, 2013).

**Table 2. R Square**

Variable	R Square	R Square Adjusted
Firm Size (Before covid- 19)	0,812	0,804
Firm Size (During covid- 19)	0,644	0,620

Structural Model-Fit evaluation is carried out to determine the relevance of predicting structural models which can be used to test the effect of the moderating variable on the dependent variable and the independent variable. The measure that can be used is the predictive relevance SRMR value, because the two calculation results shows 0,011 two numbers less than 0,1 then the two structural variables have predictive relevance (Hair et al., 2014; Shackman, 2013).

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**Table 3. Structural Model-Fit**

Description	Saturated Model	Estimated Model
Standardized Root Mean Square Residual (SRMR)	0,011	0,015
Chi-Square	132,42	130,01

Path Coefficients in the table below contain the path coefficient values (the numbers are located in the original sample column). All path coefficients in this study are positive as based on the Path Coefficients table, the researcher can test for each path with the results listed in the table below. A positive sign and p value less than 0.05 indicates that the independent variable has a positive effect on the dependent variable.

Capital Employed is the company's ability to manage available funds in the form of capital assets which are valued based on total equity and net income. This can increase company value in the form of Tobin's Q value owned by manufacturing companies, by managing available funds, such as by procuring new machinery, buildings, land, use high technology and modern vehicles. Operational activities for managing these funds can increase revenue and profits for the company. In addition to value added caused by reducing operational costs, capital asset management can also be assessed as an effort to increase the competitiveness of manufacturing companies. Such a situation is considered by investors as a positive situation so that stock prices will experience an increase followed by an increase in the value of the company financed based on the Tobin's Q method. For H<sub>1</sub> and H<sub>2</sub> test results show researcher get results that are consistent with research from Prमितasari & Wahidahwati (2017) and Rahma, (2018), which prove that Value Added Capital Employed has a positive influence on firm value.

Companies that can manage human resources are not bad, will be able to build the company's competitive advantage so that it is in line with the increasing company value as explained by Signaling theory. For H<sub>1</sub> and H<sub>2</sub> test results show this is in accordance with the results of the VACA and VAHU test of firm value. Motivation to form a competitive advantage can be obtained from the salaries, bonuses and other benefits that the company provides to employees. The competitive advantage of employees in the form of creativity cannot be imitated by competitors. Through these advantages, it is expected to be able to support the company's capabilities in meeting consumer needs which will result in an increase in company value from the market view of the company. The results of this observation are in line with research from Prमितasari & Wahidahwati (2017) and Hamidah et al., (2014) which found a positive influence between VACA and VAHU on firm value.

For H<sub>3</sub> the results of the calculation show that the interaction path coefficient between Structural Capital Value Added is negative at -0.072 with the t value of 0.095 and the P value is 0.215 higher than the significance used at 0.05, indicating that there has been no appreciation by investors, both for the company's efforts to fulfill routine processes and the company's structure in supporting operational efforts or company in creating added value (Zéghal, D., & Maaloul, A., 2010). This is reflected in the company's lack of capability in utilizing funds to build good routine structures and processes, such as organizational culture, databases, management philosophy, company operational systems, and all forms of structural capital that companies have in supporting the efforts of their employees (Devi et al., 2017; Ulum, 2013). Investors are considered to prefer to focus on VACA and VAHU assessments rather than STVA assessments, because the weakness of structural capital is considered unable to guarantee value creation. Knowledge from human capital is considered to be more guarantee in value creation because knowledge that is believed to be timeless if managed properly will be more developed (Rahma, 2018 & Chan, K. H., 2009).

The results for H<sub>4</sub> prove that VAIC<sup>TM</sup>, which is simultaneously VACA, VAHU, and STVA, has a significant positive effect on firm value. The results of the observation illustrate that companies that have high intellectual capital values will also have an impact on high market valuations. A company that has the ability to properly process the 3 basic components of intellectual capital describes a company that is also good at processing its assets. The better at managing assets, reducing operational costs, and managing intellectual resources, the better the added value and competitive advantage of the company can be.

**Table 4. Hypothesis Result Path Coefficients**

	Before Covid-19 (2018- 2019)		During Covid-19 (2020 -2021)		
	Beta	P-value	Beta	P-value	Meaning
Influence Between Pathways	(Original Sample)		(Original Sample)		



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H <sub>1</sub>	Value added capital employed has positive effect on firm value	0,031	0,043	0,180	0,003	Value added capital employed has positive effect on firm value
H <sub>2</sub>	Value added human capital has positive effect on firm value	0,095	0,032	0,027	0,011	Value added human capital has positive effect on firm value
H <sub>3</sub>	Structural capital value added has negative effect to firm value but not significant on firm value	-0,072	0,095	-0,194	0,251	Structural capital value added has negative effect to firm value but not significant on firm value
H <sub>4</sub>	Value added intellectual coefficient has positive significant effect on firm value	0,062	0,015	0,012	0,004	Value added intellectual coefficient has positive significant effect on firm value

Significant P-value (Sig.) at  $\alpha = 5\%$

Moderating variables are variables that can strengthen or weaken the direct relationship between the independent variable and the dependent variable (Chin, Wynne, 1999; Hair et al., 2020; Sarstedt et al., 2014). The calculation results show that the P-value H<sub>5</sub> is 0,039 and H<sub>6</sub> is 0,006 smaller than the significance level used at  $\alpha 0.05$ , indicating that firm size can moderate the relationship between VACA and VAHU to firm value. For H<sub>5</sub> and H<sub>6</sub> are proven. Therefore firm’s size as moderating variables are variables that have an influence on the nature strengthening direction of VACA and VAHU to firm value. This research finding in line with several studies that concluded that the increase in company size, the greater the funds invested in intellectual capital. Large companies have large asset capitalization, it is assumed that they are also able to have high quality of human resources, because they are able to pay higher salaries, provide training, seminar and other benefit for employee. For the relationship between H<sub>7</sub> Structural Capital Value Added (STVA) and H<sub>8</sub> VAIC™ the calculation results show that the P-value H<sub>7</sub> is 0,128 and H<sub>8</sub> is 0,810 bigger than the significance level used at  $\alpha 0.05$ , therefore firms size have no moderating effect to firm value (Abeysekera, 2008; Holienka & Pilková, 2014; Iskandar et al., 2020).

**Table 5. Hypothesis Result Specific Indirect Effect**

Before Covid-19 (2018-2019)				During Covid-19 (2020- 2021)		
Hypothesis	Beta (Original Sample)	P-value		Beta (Original Sample)	P-value	Meaning
H <sub>5</sub>	Company size moderates the effect of Value Added Capital employed to the firm value.	0,011	0,039	0,402	0,006	Company size moderates the effect of Value Added Capital employed to the firm value.
H <sub>6</sub>	Company size moderates the effect of Value added human capital to Firm Value	0,025	0,021	0,055	0,001	Company size moderates the effect of Value added human capital to Firm Value
H <sub>7</sub>	Company size moderates the effect of Structural capital value added to the Firm Value	-0,179	0,128	-0,380	0,810	Company size moderates the effect of Structural capital value added to the Firm Value
H <sub>8</sub>	Company size moderates the effect of Value added intellectual coefficient to the Firm Value	0,025	0,012	0,103	0,033	Company size moderates the effect of Value added intellectual coefficient to the Firm Value

Significant P-value (Sig.) at  $\alpha = 5\%$

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Based on the results of the statistics analysis below Table 6, it can be seen that Sig. (2-tailed) > Alpha (0.181 > 0.05). This means that  $H_0$  is rejected, in other words there is no significant difference between Intellectual capital effect on the firm value before and during the COVID-19 pandemic. The underlying reason that there is no difference in IC before and during the COVID-19 pandemic is that the company being researched is an IT-based company, this IT company has routinely held training, seminars and short courses for employees in turn. This is because IT companies do have to be adaptive to the development of technological issues. Therefore, training programs to increase staff knowledge have been carried out in order to cultivate the company's IC. Another factor is that the time period of the pandemic that was studied was only two years before and after pandemic Covid-19, perhaps by increasing the research time frame it would provide a more concrete result of influence of the IC factor on firm value.

**Table 6. Paired Samples Test**

Description	Mean	Std.Deviation	Std. Error Mean	t	df	Sign. (2-tailed)
Before Covid-19 and During Covid-19	0,00875	0,1499	0.0352	0.025	7	0,181

Significant P-value (Sig.) at  $\alpha = 5\%$

### CONCLUSION, LIMITATION AND SUGGESTIONS

The purpose of this research is to analyze and determine the effect of VACA, VAHU, STAVA, VAIC TM and company size as moderating variable on firm value in IT companies listed on the IDX in 2018-2021. From the result that have been carried out, the conclusions drawn are: VACA, VAHU, VAIC TM had positive effect on firm value as measured using Tobin's Q method. STAVA has no effect on Firm Value obtained using Tobin's Q method. Firm's size can use as moderating variables because firm size has influence on the nature strengthening direction of VACA and VAHU to firm value.

The results of the research are influenced by some limitations, such as: first, this research only use one company sector, namely IT companies listed on the IDX so that the result cannot represent to all companies in Indonesia. Second, only use four independent variables to test and analyze the relationship between the dependent and independent variables. Other limitations of this study is researcher in this study uses a period of financial statement data of only four years, namely from 2018 to 2021, so the limited time period certainly affects this research.

From the conclusions and limitations of the study, the researcher can provide several suggestions for other researchers with similar topics in order to get better results. First, future research is expected to take more and longer the number of companies and years of observation. This is because IC has a long-term effect. Second, further research is expected to carry out detailed research on other type of companies that are in accordance with their respective industrial sectors, this is because the type of industry in each sector has different conditions so that it can cause better result.

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