The dynamic impact of Intellectual Capital on Firm Value Case study of firms listed in Jakarta Islamic Index (JII) -period of 2015-2020

التأثير الديناميكي للرأسمال الفكري على قيمة المؤسسة–دراسة حالة قائمة من الشركات ضمن مؤشر جاكارتا الاسلامي في الفترة ما بين 2015–2020

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Abstract:

　　The company's success is measured by the value of the company, which is determined by tangible assets and intangible assets. This study aims to analyze the relationship between intellectual capital and the value of firms listed in the Jakarta Islamic Index (JII) in the 2015 to 2020 time period, depending on Pulic's model, the study tried to analyze the relationship between the value-added intellectual coefficient (VAIC) as a measurement of intellectual capital efficiency, and the measurement of price to book value (PBV) as the dependent variable. We used a purposive sampling method in our case study, with the sample drawn from 30 firms listed on the Jakarta Islamic Index and annual reports provided in Indonesian currency. The results of this study showed that human capital efficiency and structural capital efficiency do not have a significant effect on Firm Value, while working capital efficiency has a significant effect on firm value.

Keywords: Firm value; intellectual capital efficiency; human capital efficiency; structural capital efficiency; working capital efficiency.

JEL Classification Codes: L16 ; L25 ; P34 ;

ملخص:

يقاس نجاح المؤسسة بقيمتها التي تحددها الأصول المادية والأصول غير الملموسة. تهدف هذه الدراسة إلى تحليل العلاقة بين رأس المال الفكري وقيمة الشركات المدرجة في مؤشر جاكرتا الإسلامي (JII) للفترة من 2015 إلى 2020 ، اعتمادا على نموذج بوليك ، حاولنا تحليل العلاقة بين معامل القيمة المضافة الفكرية ($VAIC$) كمقياس لكفاءة رأس المال الفكري ، و سعر القيمة الدفترية (PBV) باعتبارها المتغير التابع. لقد استخدمنا طريقة أخذ عينات مقصودة في دراستنا للحالة، حيث أخذت العينة من 30 شركة مسجلة في مؤشر جاكرتا الإسلامي (JII) والتقارير السنوية المقدمة بالعملة الإندونيسية. وأظهرت نتائج هذه الدراسة أن كفاءة رأس المال البشري وكفاءة رأس المال الهيكلي ليس لهما تأثير كبير على قيمة الشركة، في حين أن كفاءة رأس المال العامل له تأثير على قيمة الشركة.

كلمات مفتاحية: قيمة المؤسسة، كفاءة رأسمال الفكري، كفاءة رأسمال البشري، كفاءة رأسمال الهيكلي، كفاءة رأس المال العامل.

تصنيفات **JEL** : L16 ; L25 ; P34

1. INTRODUCTION

According to the International Federation of Accountants (IFAC), Intellectual Capital (IC) is synonymous with intellectual property, intellectual assets, and knowledge assets. This capital can be interpreted as capital based on the knowledge that the company has. IFAC` classifies intellectual capital into three categories, namely: human capital, Structural Capital or Organization Capital, and Relational Capital or Customer Capital. According to Stewart, IC is an intellectual material of knowledge, information, intellectual property rights, an experience that can be used to create wealth (Ulum, 2013).

Intellectual capital's moral property has earned a strategic role in maximizing the value of an organization, which is valued by its knowledge and intellectual assets. The optimal utilization of such intangible assets is a necessity imposed by the requirements of the knowledge economy.

Value added (VA) is the most objective indicator to assess business success and to show the company's ability to create value (value creation).

VA is calculated as the difference between output and input. Output (OUT) represents revenue and includes all products and services sold in the market, while input (IN) includes all expenses used in obtaining revenue.

The economic value of a country's productivity is determined by its workforce's skill and knowledge, as well as the firm's capacity to solve business challenges, all of which influence the market firm's value (Ali Talip Akpinar, 2014).

Firm value is the main factor that determines the decision of investors to invest in the shares of firms that go public on the stock exchange, including the Indonesia Stock Exchange (IDX). The value of a company as an investment commodity is unique because it is very sensitive to changes in the business environment. These changes can have a positive impact and vice versa. Investors who invest in stocks need accurate information as a consideration in making choices. Firm value is one of the factors in determining the choice to buy shares so the main objective of firms that have gone public is to increase the prosperity of the owners or shareholders through increasing company value (Salvatore, 2005). The higher the stock price, the higher the company value. The company value is the desire of company owners because a high value shows that the prosperity of shareholders will also be high.

In many successful firms, intellectual capital investment is higher than physical and financial asset investment (Noradiva, 2016). In this increasingly competitive global economy, IC is becoming more valuable, particularly in Southeast Asia, which implemented AEC in 2015. (Nimtrakoon, 2015).

The country chosen as the study's subject is Indonesia, where the research is being carried out.

The Association of Southeast Asian Nations (ASEAN) considers Indonesia to be the greatest growing market among its member states.

In April 2021, the Islamic Financial Market in Indonesia, excluding Shariah-compliant shares, reached 1,899.09 Trillian Rupiah (131.26 billion USD), accounting for 10.11 % of the whole financial industry. This is broken down into (winosa, 2021):

- The Islamic capital market, which comprises mutual funds, corporate and

sovereign Sukuk, has a total value of 1,170.87 trillion Rupiah. 17.52 % of market share.

- Islamic Banks have 609 trillion Rupiah, comprising Islamic windows, subsidiaries, full-fledged Shariah-compliant banks, and rural banks. 6.48 % of market share.

- 119.22 trillion Rupiah in non-bank Islamic financial institutions, including insurance, multi-finance, pension funds, and microfinance. 4.42 % of market share.

On July 3, 2000, the Jakarta Islamic Index (JII) became the first Islamic stock index to trade on the Indonesian stock exchange. The 30 most liquid Islamic equities traded on the Indonesia Stock Exchange make up the JII components (IDX). The Islamic Securities (DES) review schedule has been altered by the New Financial Services Authority, in addition to the Indonesia Sharia Stock Index (ISSI). The review of Islamic shares on JII components is held twice a year, in May and November (OJK).

What we are interested in this study is analysing intellectual capital and the values of firms listed in the Jakarta Islamic Index (JII), and seeking to answer the following research problem:

What impact does intellectual capital have on the value of firms listed in the Jakarta Islamic Index (JII) in Indonesia?

To achieve the objective of this study we developed the following hypotheses:

➢ The intellectual capital efficiency variable has a significant effect on Firm Value.

➢ The working capital efficiency variable has a significant effect on Firm Value.

➢ The value-added intellectual coefficient variable has a significant effect on firm value.

2. Literature review

Several studies have been conducted on the relationship between intellectual capital and firm value.

(Sharma, 2018) tried in his review paper to include all the studies about the relationship between intellectual capital and two variables market value of the firm and financial performance. He found that most studies showed a

positive correlation between variables. However, we saw that there are other important studies not included in this review paper.

Some other studies have preferred to use an intermediate variable to study the relationship between intellectual capital and a firm's value. (Nuryaman, 2015) used profitability as an intervening variable in his study, he found that profitability serves positively the relationship between intellectual capital and firm value.

In another study (Abdullah Jihad Rasmi Rabaya, 2020) they found that Malaysian financial reporting standard 139 strengthens the relationship between intellectual capital and firm value.

Two studies use the same moderating variable: ownership structure. According to the first study (Bambang Bemby S., 2015), managerial ownership has a detrimental impact on the link between intellectual capital and business value.

 The second study (Aftab Ahmed, 2019) has also shown a negative effect of the moderating variable on the relationship between the variables of the study.

In terms of research about the relationship between intellectual capital and firm value and financial performance, we have the study of (Ismail, 2020) who found that a firm's liquidity is not significantly affected by intellectual capital and intellectual capital has a positive impact on firm's value.

(Dimitrios Maditinos, 2011) also found that there is a relationship between human capital and financial performance, this result corresponds to the Italian study (William Forte, 2019). However Iranian study about firms listed in Tehran stock exchange (Mohsen IRANMAHD, 2014) found that the value added of intellectual capital and the value added of capital applied and the value added of intellectual capital coefficient had no effect on firm value.

There have been other studies that used the value-added intellectual capital to measure the intellectual capital as the study of (Anh Huu Nguyen, 2020) which found a positive impact of value-added intellectual capital (VAIC) on a firm's profitability which improve the value of firms listed on Vietnam stock market.

In addition, investors can place different values on the components of value creation efficiency, according to another study (Ming-Chin Chen, 2005).

Based on the above, we note that previous research has consistently found a link between intellectual capital and firm value.

There was little research to utilize Pulic's model as a coefficient to represent the firm's intellectual competence using Jakarta Islamic Index when this study was conducted.

By implementing the notion in Indonesia, a big developing nation in ASEAN, this study contributes to the investigation of intellectual capital and business value.

Using the components of the (VAIC) value-added intellectual coefficient, this study adds to our knowledge of the link between IC and the value of firms included in the Jakarta Islamic Index (JII), and it helps us figure out how IC enhances company value in a typical developing nation.

2. Background

2.1 The definition of intellectual capital

The recent economic performance of many countries does not come from their natural resources. Prosperity is no longer based on tin, rubber, or wood. Countries with significant natural resources, such as oil-producing countries, are not necessarily among the major economic powers. In recent years, Intellectual Capital has distinguished itself as one of the essential components of growth and success.

Intellectual capital is often of considerable value because of its particular nature, including patents of invention, trademarks, industrial designs, utility models, designations of origin, integrated circuit layout designs, copyright, but also know-how, trade secrets, proprietary techniques, workforce talent, skills and experience, training systems and methods, customer lists, distribution networks, quality management systems, etc.

Intellectual capital is an essential component of intangible assets. In Europe, intellectual capital has been integrated into the concept of intangible capital since an accounting standardization of the European Commission and the Organisation for Economic Co-operation and

Development (OECD) in 1997. In the United States, the Uniform Commercial Code tacitly recognizes this membership. Section 9-102(a) paragraph 42 of the Code of Harmonization of Sales Laws and Other Commercial Transactions in the 50 Member States defines General Intangible as any element of assets other than accounts, movable property, commercial damage claims, deposit accounts, documents, property, instruments, investment property, letter of credit rights, letters of credit, money, oil, gas, or other minerals before extraction. The term includes intangibles of payment and software (Cornell University Law School website).

(Petty & Guthrie, 2000) Intellectual capital plays an important role in determining a company's value and national economic performance.

Intellectual capital also implies the implementation of methods of memory management, of collecting experience. In this respect, it is difficult to give a precise definition of intellectual capital, because it is a new field in which research is underway.

Stewart, (Stewart, 1997) indicates that intellectual capital is all that cannot be touched, but can make money for the company". It breaks it down into three parts: human capital, structural capital, and, ultimately, relational capital. It encompasses all knowledge, information, intellectual property, and experience that can be used to create wealth.

In the same time period of 1997 to 1999, Edvinsson & Malone (Edvinsson L., 1999) define intellectual capital as 'the customer and partner relationships, innovation efforts, the company's infrastructure and the knowledge and skills of the organization's members." Some researchers believe that this definition is the closest to completeness.

This capital is closely associated with knowledge management. It is composed of: "all the knowledge of the staff and all the others intellectual resources acquired through experience or learning to be used for the purpose of wealth creation" (Hussi, 2004).
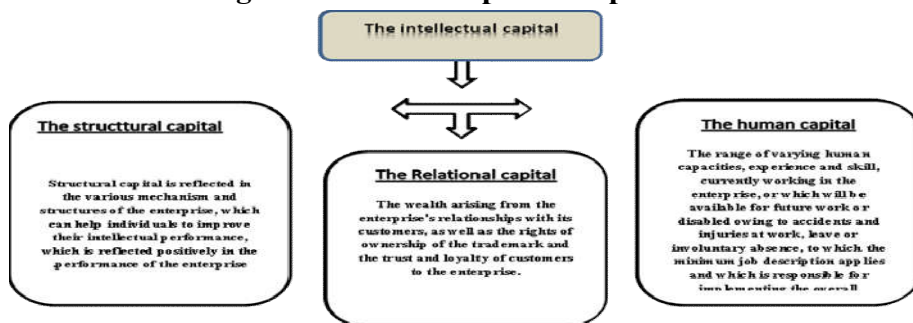
From the above, it can be deduced that intangible capital as science and in relation to the conceptual, definitional, and classification axes is characterized by some parsimony in the field of research, which is still embryonic. No consensus has so far been reached on concepts, definitions,

or classification.

In recent years, intellectual capital has distinguished itself as one of the essential components of growth and success. It encompasses both human capital and intellectual assets. Human capital is obviously the human component of an organization, including its owners, its employees, and more generally, all the people who contribute by their talents, their know-how, and their individual skills. Intellectual assets, on the other hand, include not only intellectual property but codified rules and other material manifestations of knowledge that may be held by the same organization.

There are many divisions of the components of intellectual capital, but we will focus on the division of "Stewart," which is the most common based on the current literature, and so we distinguish between three components of intellectual capital:

Fig.1. intellectual capital components

The intellectual capital

The structtural capital

Structural capital is reflected in the various mechanism and structures of the enterprise, which can help individuals to improve their intellectual performance, which is reflected positively in the performance of the enterprise

The Relational capital

The wealth arising from the enterprise's relationships with its customers, as well as the rights of ownership of the trademark and the trust and loyalty of customers to the enterprise.

The human capital

The range of varying human capacities, experience and skill, currently working in the enterprise, or which will be available for future work or disabled owing to accidents and injuries at work, leave or involuntary absence, to which the minimum job description applies and which is responsible for implementing the overall

Source: designed by the researchers according to:
(Adel Hurrahush Al-Mufji, 2007)
(Yusuf, 25-27 Avril,2005)
(Hassan, 2008)

2.2 The measurement of intellectual capital

Measuring the performance of intangible assets has two objectives, first, provide information for external stakeholders such as creditors, customers, and shareholders so that they can assess the quality of a company's management and ensure that it is a reliable producer or trusted entrepreneur. Second and primarily, to facilitate the management of decision-makers by providing them with quality information to assess the status and contribution of strategic resources. The measurement of capital performance has posed several difficulties of generalization by researchers and practitioners given the lack of consistency and framework global (JALLOULI, 2008).

Several authors have developed indicators that can identify and measure the performance of intangible assets.

Considering the multitude of methods proposed to measure and manage intellectual capital, (Luthy, 1998) and (Sydler et al., 2014) distinguish between four approaches to measuring intangible capital (AÂMOUM Hanane, 2020):

2.2.1 Direct intellectual capital methods

- The "human resource costing & accounting" was developed in 1985 by (Flamholtz, 1985) and then improved by (JOHANSON & NILSON, 1996). It measures intellectual capital through the measurement of the contribution of human capital held by the corporation divided by the capitalization of salary expenditures.

- EVVICA or Estimated Value Via Intellectual Capital Analysis developed by (McCutcheon, 2008) is a method inspired by the work of (Sullivan, 2000) which analysis of a company's human, relational and structural capital and the renewal capacity of the same company.

These so-called direct methods seek to estimate the monetary value of immaterial capital through the identification of its different components. Once the components are identified, they are measured individually and the immaterial capital is equal to their sum.

2.2.2 Market capitalization methods MCM:

- Market to book ratio (Stewart, 1998): This method measures intangible capital; as the difference between the stock market value of a company and its book value.

- Tobin's Q (Tobin, 1950): Intangible capital is equal to the stock market value of the company divided by the replacement value of the capital. The company will invest in capital that results in a market value greater than the value of their replacement.

These methods measure intangible capital as the difference between the market price of a company and its own capital.

Thus, any difference between these two values goes to the Intangible Capital which does not appear on the financial statements of the company.

2.2.3 Return on Assets Methods

- Economic Value Added (EVA) (Stewart, 1991): This is one of the

measures most used. The EVA is calculated by adjusting the business outcome through intangible capital charges. The change in EVA shows whether the intangible capital of a company may or may not be productive.
- Value Added Intellectual Coefficient or VAIC (Pulic, 2000): This method allows to measure the added value of Intangible Capital, and its efficiency through three criteria: Human capital, structural capital and invested capital.

These methods are based primarily on the profitability of assets to measure intangible capital. The return on assets is equal to the net profit of a company for a period divided by the total of its assets.

2.3 Firm value

(Bringham & Houston, 2006) Firm value is very important because high company value will be followed by high shareholder wealth.

Firm valuation is a set of concepts and methods whose main purpose is to give value to a firm's assets. It follows a process that is consistent with a given economic and regulatory environment (PALARD, 2013). It consists of proposing a value relevant to the assets of the assessed entity, thus providing a baseline for different financial transactions.

Good numbers of economic agents and operators may be involved in the evaluation of firms, such as credit institutions, investment funds, the State, etc. in the framework of the elaboration of a strategy for new fundraising, a sale (in whole or in part) or as part of an Initial Public Offering (IPO).

The valuation of a firm consists of proposing a value or a range of values to the firm's assets, and in no way proposing a price. It is, therefore, necessary to distinguish between these two concepts.

Indeed, the value of a firm is the result of the application of a valuation method; it depends on both the economic agent who carries out the transaction (analyst, investor, buyer, etc.) and the objectives it pursues.

Among the elements relating to firm valuation is stock market capitalization. This is the market value of all the securities representing a firm. It is equal to the number of securities in circulation multiplied by the course (institue national de la statistique et des etudes economiques, n.d.)**.**

Among the cases where it is necessary to carry out a business appraisal is the IPO.

The IPO is a financial transaction that allows a firm to finance its expansion by opening its share capital to investors (individuals, firms, etc.) on a stock market.

3. Research plan
3.1 Study model

Depending on Pulic's model, we tried to analyze the relationship between the value-added intellectual coefficient (VAIC) as a measurement of intellectual capital efficiency, and the measurement of price to book value (PBV) as the dependent variable. The components of (VAIC) represent the independent variables as shown in figure 02:

VAIC is determined by adding the direct sum of key efficiency figures, which in turn are calculated as ratios:
. Working capital efficiency CEE = VA/CE.
. Human capital efficiency HCE = VA/HC.
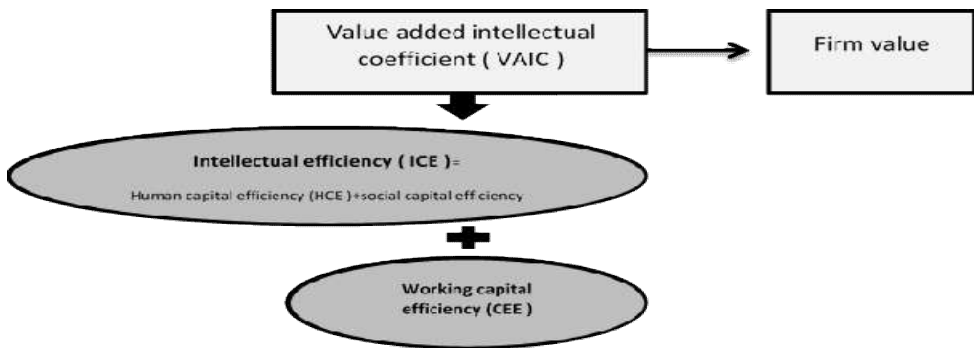. Structural capital efficiency SCE = SC/VA.

As a result, intellectual capital efficiency (ICE) is defined as:

$$ICE = HCE + SCE$$

Finally:

$$VAIC = ICE + CEE$$

Fig.2. the study model

The Source: prepared by the researchers.

3.2 Research methodology

We chose an inductive approach by evaluating the relationship between variables to achieve the study's goals. We used a variety of statistical tests to evaluate the study's hypotheses, including:
Normality test to determine whether sample data has been drawn from a

normally distributed population, multicollinearity test to diagnose the inter-association or inter-relation between two or more independent variables, multiple regression analysis test to assess the strength of the relationship between the dependent variable and several predictor variables as well as the importance of each of the predictors to the relationship.

We used a case study of firms listed in the Jakarta Islamic Index (JII) from 2015 to 2020 as a research strategy.

3.3 Sample and data collection

We used a purposive sampling method in our case study, with the sample drawn from 30 firms listed on the Jakarta Islamic Index (JII) (Appendices) and annual reports provided in Indonesian currency (rupiah). The 07 chosen samples of firms are shown in the following table:

Table 01: Company Research Sample

No.	Company Name	Company Code
1.	PT AKR Corporindo Tbk	AKRA
2.	PT Indofood CBP Sukses Makmur Tbk	ICBP
3.	PT Indofood Sukses Makmur Tbk	INDF
4.	PT Kalbe Farma Tbk	KLBF
5.	PT Telekomunikasi Indonesia (Persero) Tbk	TLKM
6.	PT United Tractors Tbk	UNTR
7.	PT Astra International Tbk	ASII

Source : www.idx.co.id (01/02/2021).

As study tools, we used the data of annual reports (balance sheet, profit, and loss), historical data on stock prices, and the book value of common shares.

3.4 General Information about data

3.4.1 Human Capital / VAHU

Human Capital used in this study is the total employee burden in the 7 firms sampled in the 2015-2020 period. The data is obtained from a summary of financial performance published on the Indonesia Stock Exchange on the website www.idx.co.id. Then to determine VAHU we depended on the following formula:

$$\text{VAHU} = \frac{VA}{HC}$$

Table 02: Value Added Human Capital (VAHU)

No.	Company	2015	2016	2017	2018	2019	2020
1	AKRA	6,38	7,18	6,36	5,45	5,02	5,41
2	ICBP	2,73	3,25	3,60	3,41	3,28	3,69
3	INDF	3,01	3,14	3,35	3,12	2,96	3,02
4	KLBF	4,48	4,20	4,25	4,11	3,87	3,85
5	TLKM	3,92	3,76	4,01	4,26	3,87	4,20
6	UNTR	2,82	2,36	1,99	2,62	2,94	2,61
7	ASII	2,80	2,43	2,38	2,49	2,63	2,52

Source: www.idx.co.id (data processed in 2021)

Table 2 shows the VAHU data for the firms used as the research sample in the 2015-2020 period. In this research period, the highest VAHU value was owned by PT AKR Corporindo Tbk in 2016 with VAHU = 7.18 and the lowest VAHU value was owned by PT United Tractors in 2017 with VAHU = 1.99.

3.4.2 Structural Capital / STVA

Structural Capital used in this study is the total value added less the burden of employees at 7 firms sampled in the 2015-2020 period. To determine STVA we used this formula:

$$\text{STVA} = \frac{SC}{VA}$$

Table 03: Value of STVA

No.	Company	2015	2016	2017	2018	2019	2020
1	AKRA	0,84	0,86	0,84	0,81	0,80	0,82
2	ICBP	0,63	0,69	0,72	0,71	0,69	0,72
3	INDF	0,66	0,68	0,70	0,67	0,66	0,67
4	KLBF	0,78	0,76	0,76	0,76	0,74	0,74
5	TLKM	0,74	0,73	0,75	0,76	0,74	0,76
6	UNTR	0,65	0,58	0,50	0,62	0,66	0,62
7	ASII	0,64	0,59	0,58	0,60	0,62	0,60

Source: www.idx.co.id (data processed in 2021)

Table 3 shows the Structural Capital Value Added (STVA) data in the firms used as the research sample. We see that the highest STVA was owned by PT AKR Corporindo Tbk in 2016 with STVA = 0.86, and the lowest STVA value was owned by PT United Tractors in 2017 with STVA = 0.50.

3.4.3 Working capital / VACA

Working capital used in this study is the available funds (equity + net income) in 7 firms of the study. We used the following formula to determine VACA:

$$\text{VACA} = \frac{VA}{CA}$$

Table 04: Value of VACA

No.	Company	2015	2016	2017	2018	2019	2020
1	AKRA	0,34	0,35	0,28	0,25	0,20	0,23
2	ICBP	0,56	0,59	0,61	0,57	0,56	0,58
3	INDF	0,46	0,43	0,48	0,45	0,44	0,45
4	KLBF	0,89	0,81	0,78	0,72	0,66	0,63
5	TLKM	0,45	0,48	0,52	0,51	0,43	0,47
6	UNTR	0,36	0,35	0,26	0,37	0,40	0,37
7	ASII	0,32	0,29	0,26	0,27	0,29	0,27

Source: www.idx.co.id (data processed in 2021).

Table 4 indicates that the highest VACA value was owned by PT Kalbe Farma Tbk in 2015 with VACA= 0.89, and the lowest VACA value was owned by PT AKR Corporindo Tbk in 2019 with VACA= 0.20.

3.4.4 Company Value

The company value used in this study is the price to book value (PBV) of the 7 firms. According to the following formula we calculated PBV:

$$PBV = \frac{price\ per\ share}{book\ value\ of\ common\ stock}$$

Table 05: Company Value (PBV)

No.	Company	2015	2016	2017	2018	2019	2020
1	AKRA	2,70	3,88	2,96	3,36	1,73	1,54
2	ICBP	2,49	2,34	5,43	5,10	5,36	4,88
3	INDF	1,44	1,04	1,56	1,43	1,31	1,28
4	KLBF	8,75	5,55	5,84	5,70	4,65	4,53
5	TLKM	3,34	3,33	3,76	3,99	3,22	3,43
6	UNTR	1,66	1,56	1,83	2,77	1,78	1,32
7	ASII	2,47	1,92	2,35	2,14	1,91	1,50

Source: www.idx.co.id (data processed in 2021)

According to table 5, the highest company value was owned by PT Kalbe Farma Tbk in 2015 with PBV = 8.75 and the lowest company value was owned by PT INDF in 2016 with PBV = 1.04.

To simplify the analysis of data we calculated the mean of all values from 2015 to 2020 of each company in the four variables as the table below:

Table 06: mean of values

HCE	SCE	CEE	FV	ICE
5,97	0,83	0,28	2,70	6,80
3,33	0,69	0,58	4,27	4,02
3,10	0,67	0,45	1,34	3,77
4,13	0,76	0,75	5,84	4,88
4,00	0,75	0,48	3,51	4,75
2,56	0,61	0,35	1,82	3,16
2,54	0,61	0,28	2,05	3,15

The Source: prepared by the researchers.

3.4.5 Normality Test

Since normal data is an inherent assumption in parametric research, determining the normality of data is a requirement for many statistical experiments.

Table 07: One-Sample Kolmogorov-Smirnov Test

		CEE	FV	SCE	HCE
N		7	7	7	7
Normal Parameters[a,b]	Mean	,4521	3,0745	,7012	3,6602
	Std. Deviation	,17040	1,58165	,08231	1,19367
Most Extreme Differences	Absolute	,157	,170	,164	,205
	Positive	,157	,170	,164	,205
	Negative	-,149	-,137	-,138	-,174
Kolmogorov-Smirnov Z		,416	,451	,435	,543
Asymp. Sig. (2-tailed)		,995	,987	,991	,930

Source: prepared by researcher based on spss output.

According to the results in the table above, we can see that all variables have a significance value greater than 0.05 which means that our data is normally distributed.

4. RESULTS AND DISCUSSION

4.1 Testing the Hypotheses

In order to test the hypotheses of the study we depended on the multiple regression analysis test:

Table 08: the multiple regression analysis

model	Beta	T	Sig.	R	R2	F	Sig.
constant	-2.166	-1.387	0.238	0.89	0.79	7.959	0.04
ICE	0.325	1.451	0.220				
CEE	0.829	3.698	0.021				

Source: prepared by researcher based on spss output.

When independent variables in a regression model are correlated, this is known as multicollinearity. Since independent variables should be independent, this correlation is a challenge. When you match the model and analyze the data, a high degree of correlation between variables will trigger problems.

Table 09: Multicollinearity Test

Model		Collinearity Statistics	
		Tolerance	VIF
1	ICE	1,000	1,000
	CEE	1,000	1,000

a. Dependent Variable: FV

Source:prepared by researcher based on spss output.

The results showed that the tolerance values of both variables (ICE, CEE) are more than (0.1). Likewise, the VIF value of variables is less than (10).it means there is no multicollinearity in the regression model.

Hypothesis 01: The intellectual capital efficiency variable has a significant effect on Firm Value.

As shown in Table 09, the t value of Beta coefficient reached (1.451) with a level of significance greater than 0.05, which means accepting the zero hypothesis that the intellectual capital efficiency variable does not have a significant effect on Firm Value.

Hypothesis 02: The working capital efficiency variable has a significant effect on Firm Value.

According to table 09, the t value of the Beta coefficient reached (3.698) with a level of significance less than 0.05, this means that if the working capital efficiency increases by one unit, the company value will increase by 0.829 units.

This result confirmed the hypothesis that the working capital efficiency variable has a significant effect on Firm Value.

Hypothesis 03: The value-added intellectual coefficient variable has a significant effect on firm value.

- The value of R (0.89) indicates that there is a strong correlation between the value-added intellectual coefficient variable and firm value.
- The value of R squared (0.79) indicates that the value-added intellectual coefficient explains 79% from changes in the firm value, while 21% of changes return to other variables.
- The value of the F test (7.959) is significant at the 0.05 level, which means we accept the model after excluding the non-significant variables

which affect the credibility of our results.

Based on the value of the regression coefficient of the independent variables, we can write the regression equation as follows:

$$Y = -2.166 + 0.325 \text{ ICE} + 0.829 \text{ CEE}$$

Upon the results above we confirmed the third hypothesis that the value-added intellectual coefficient variable has a significant effect on firm value by the variable of CEE.

4.2 Discussion of the Findings

> ➢ Based on the Resource-Based Theory (RBT), to develop a competitive advantage of firms must have superior resources and capabilities that exceed competitors. Excellent resources can be obtained from human capital (employees). However, this study cannot prove this theory. Investors pay less attention to the company's intellectual property and pay more attention to other factors such as physical capital, share prices, the company's ability to establish and maintain relationships with external parties such as suppliers and customers.

> ➢ The size of the structural capital owned by the company will not affect the value of the company. Based on the load theory, the higher the expense the lower the profit received, conversely, the lower the expenses incurred by the company the higher the profit received. However, this study cannot prove this theory. This study shows the lack of the company's ability to manage funds to create a good routine structure and processes, such as the company's operational system, facilities and infrastructure, organizational culture, procedures, databases, management philosophy, and all forms of structural capital the company has in supporting its employees' businesses. Based on the results of this study, it can be seen that the facilities and infrastructure provided by the company have not encouraged employees to increase added value for the company.

> ➢ The higher the available capital (equity and net income) in the company, the higher the contribution of available capital to the value-added creation of the company which will affect firm value. This result is in line with the resources-based theory, firms that have

a high value of working capital (equity and net income) can efficiently contribute to the creation of added value for the company which has an effect on increasing company value.

➢   The results indicate that the market provides a higher value to firms that have high intellectual capital. The higher the disclosure of intellectual capital, the higher the firm value. Expansion of intellectual capital disclosure will reduce information asymmetry between the old owner and potential investors, thus helping potential investors in assessing the company's shares and being able to carry out a precise analysis of the company's future prospects. The results of this study also support the theory described by (Ulum, 2013) that intellectual capital not only has a positive effect on company performance for the current year, but intellectual capital can also predict future financial performance. These results are consistent with research conducted (Afifah, 2014) which states that the VAIC component has a significant effect on firm value. And these results are not in accordance with the research conducted (Nainggolan & Mahrina, 2019) which states that Value added intellectual capital has no effect on Price to book value (PBV) or company value, as well as results (Chen, Cheng, & Hwang, 2005) VAIC ™ has no effect on the PBV of mining industry firms listed on IDX.

5. CONCLUSION

We draw the following conclusions based on the information contained in this study:

1. Partially, human capital efficiency does not have a significant effect on Firm Value. Minimal disclosure of intellectual capital makes investors not aware of more information about the company's operational activities so that the intellectual resources contained in the company are not known in detail.

2. Partially, the structural capital efficiency does not have a significant effect on Firm Value. The absence of influence is due to the involvement of human capital in it and structural capital that has not supported the performance of human resources.

3. The working capital efficiency has a significant effect on firm value in JII during the study period (2015-2020). This is due to the fact that

maximizing the use of working capital would help the company's long-term viability. The company's and stock market's shareholders would prosper from this maximum use.

4. Simultaneously, the results show that there is a significant influence between the VAIC components on firm value.

In light of the aforementioned findings, the following suggestions have been proposed:

- Recognizing the importance of human resources is not enough, if strategies and policies that value its role in the company do not follow.
- The practical interest in planning and developing an individual's career path will develop the human capital of a company that increases the value offered to a customer through various services.
- Encourage competition among firms to improve and develop the level of services provided.
- Development of motivational policies for workers to devise new ideas, which help improve and develop services for the customer that are reflected in the achievement of the company's goals.
- Firms must publish information about their own units' knowledge capital to raise investor awareness of knowledge capital.
- Firms should pay attention to each aspect in increasing intellectual capital in order to increase the productivity of their usage of intellectual capital.
- Businesses should invest in developing information infrastructure, technologies, policies, operations, and supply chains to grow structural resources.

Limitation

The research data is limited, firms that join JII change because the JII constituent Islamic stock review is conducted twice a year, in May and November, adjusting the schedule of the List of Islamic Securities (DES) review by the financial services authority (OJK). So it is difficult to find a company period that has remained long enough in JII.

Suggestion

Based on this study, it is advisable for further research to add other variables that are considered to affect firm value, such as sales growth. This is important to increase added value in the eyes of investors who will invest.

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