(Case Studies on Various Industrial Companies on the IDX 2014-2018)

INFLUENCE INTELLECTUAL CAPITAL ON THE PERFORMANCE OF MANUFACTURING COMPANIES LISTED IN INDONESIA STOCK EXCHANGE (A Case Study of Various Industrial Companies on the IDX 2014-2018)

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Abstract - This study aims to test whether the influence intellectual capital on the performance of Miscellaneous Industry companies listed on the Indonesia Stock Exchange (BEI). The independent variable in this study, namely intellectual capital as measured using the VAI C^{TM} and the dependent variable, namely the performance of various industrial companies as measured by return on assets (ROA) and return on equity (ROE). This research uses associative causality research with a quantitative approach, which is measured by the linear regression method with panel data Eviews The population of this research is Miscellaneous Industry companies listed on the Indonesia Stock Exchange (BEI) in 2014-2018. The sample is determined by method purposive sampling, with a total sample of 16 companies of various industries so that the total observations in this study were 80 observations. The data used in this study are secondary data. The data collection method uses documentation through the official IDX website; www.idx.co.id. Hypothesis testing using t test, F test and R test 2. The results of the research prove that (1) intellectual capital has a positive effect on company performance (return on assets) in Miscellaneous Industry companies in 2014-2018, (2) intellectual capital has a positive effect on company performance (return on equit) in Miscellaneous Industry companies in 2014-2018, (3) intellectual capital collectively have a positive effect on company performance (return on assets) and (return on equity) in various Industry companies in 2014-2018.

Keywords: Intellectual Capital, Return On Assets, and Return On Equity

I. INTRODUCTION

Indonesia is the largest archipelagic country in the world and is ranked second in the world in economic growth of 5.07% among the G10 countries that have released GDP growth in Q1 2019. China (6.4%), Indonesia (5.07%), United States (3.2%), Spain (2.4%), South Korea (1.8%), Mexico (1.3%), Singapore (1.3%), European Union (1.2%), France (1.1%), and Italy (0.1%) (Herdaru Purnomo, 2019). Economic development is able to rank second in the world because it is supported by various fields in manufacturing companies, for example various industrial sectors. The various industrial sectors listed on the Indonesia Stock Exchange consist of several sub-sector, namely, the machinery and heavy equipment sub-sector, the automotive and components sub-sector, the textile and garment sub-sector, the footwear sub-sector, the cable sub-sector, and the electronics sub-sector.

In the current era of globalization, business players in various industries face very formidable and varied challenges because they are required to use existing resources effectively, efficiently and economically in order to achieve the goals of various industrial companies, namely to obtain maximum profit or profit. Company performance is something that is produced by the company in a certain period by referring to the established standards. The company's performance must be improved in order to influence investors' perceptions of the company. Company performance consists of financial performance concerning aspects of raising funds and channeling funds, which are usually measured by indicators of capital adequacy, liquidity and profitability. Meanwhile, non-financial performance is seen through the analysis of employee performance through work performance, product quality,

Phenomenon of existence intellectual capital can be understood in a theoretical framework known as resource-based theory or Resource Based Theory (RBT) which was developed by Barney in 1991. This theory states that valuable resources (valuable), rare (rare), cannot be imitated (inimitable), and irreplaceable (non-substitutable) or abbreviated as VRIN to become a strategic asset that effectively contributes to creating a competitive advantage. Pulic (1998) in Adrian Gozali and Hatane (2014), has introduced a model that monitors and measures value creation. Intellectual Capital (IC) company. The intellectual capital method is called the Added Value As a Result of the Company's Intellectual Ability (Value Added Intellectual CoefficientTM - VAICTM). The main components of the VAICTM are Value Added Capital Employed (VACA), Value Added Human Capital (VAHU), Structure Capital Value Added (STVA) (Hapsari and Ifada, 2012).

Research conducted abroad, among others, was conducted by Firer and William (2003), Chen et al., (2005) while in Indonesia, Ulum (2010). The main focus of their research is evaluating the performance of intellectual capital and linking it to the company performance achieved by the company (Indah Fajarini and Riza Firmansyah, 2012). Selection of VAICTM as a basis for measuring intellectual capital refers to the research of Firer and William (2003), Chen et al., (2005) in Indah Fajarini and Riza Firmansyah (2012), where all the required information is available in the financial reports. While the performance of various industrial sector companies with Return On Asset (ROA) and Return On Equity (ROE) refers to the research conducted by Ulum (2010), because ROA can reflect business profits and efficiency in the utilization of total assets, while ROE can represent return common shareholders and usually become important financial considerations and indicators for investors (Ulum, 2010). Various industrial companies were chosen as samples because this sector is still rarely studied when seen from previous research. In addition, these various industrial companies are some of the companies that Indonesia can rely on to target the Chinese, Japanese and Korean markets, and this company is also one of the companies that are included in the intensive IC group of companies (Indah Fajarini and Riza Firmansyah, 2012).

II. THEORETICAL BASIS

2.1. Resource Based Theory (RBT)

Resource Based Theory (RBT) or Resource-Based Theory, pioneered by Penrose (1959) in Rahma and Nanda (2019), argues that company resources are heterogeneous, not homogeneous and the productive services provided come from company resources which provide unique characteristics for each company. Meanwhile, according to Solikhah et al., (2010) in Nafiroh and Nahumury (2016), Resource Based Theory (RBT) are ideas or ideas or thoughts that develop in strategic management theory and company competitive advantage which believe that a company will achieve its advantages if it has unique, superior resources and is not owned by other companies.

2.2. Intellectual Capital

Intellectual capital first suggested by Galbraith in 1969 in Farrukh and Joiya (2018) that intellectual capital or intellectual capital is a type of knowledge activity, the use of brain power, and resources fundamental or fundamental from the company's performance to achieve the company's goals.

2.3. Value Added Intellectual Capital (VAICTM)

VAIC[™] is one of the monetary-based measurement methods that can be used because it is considered a suitable indicator to measure the efficiency of added value in intellectual capital. Three types of input or input which are components of the VAIC, namely:

1) Value Added Capital Employed (VACA)

Value Added of Capital Employed (VACA) is an indicator for VA created by one unit of physical capital or physical capital. Pulic in (Hamidah et al., 2014) assumes that if 1 unit from Capital Employed (CA) produces return larger than other companies, the company is better at utilizing CA or physical capital.

- 2) Value Added Human Capital (VAHU) VAHU is a support element intellectual capital because it reflects the company's collective ability to produce the best solutions based on the knowledge possessed by human resources in the company. According to Pulic (1998) in Nafiroh and Nahumury (2016), VAHU shows how much VA is generated by spending funds for labor.
- 3) Structural Capital Value Added (STVA) STVA shows contribution Structural Capital (SC) in value creation in the company. STVA measures the amount of SC needed to produce VA (Pulic, 1998 in Nafiroh and Nahumury, 2016). SC is not an independent or influencing measure as HC is dependent or influenced by value creation.

2.4. Return On Assets (ROA)

Return On Asset (ROA) is the ratio of net income to total assets, providing an overview or idea of the overall return on investment obtained by the company (Weston et al., 1998: 103 in Hamidah et al., 2014). ROA is the ability of capital invested into all company assets to generate profits.

2.5. Return On Equity (ROE)

Return On Equity is the amount of net income returned as a presentation of shareholder equity. Pramudita (2012) in Nafiroh and Nahumury (2016) states that ROE measures the efficiency of a company in generating profit from every money invested by shareholders.

2.6. Influence Intellectual Capital (VAICTM) To Return On Assets (ROA)

Return On Assets (ROA) is an analysis of the company's ability to generate profits by using the total assets owned by the company in accordance with the costs to fund these assets (Hanafi and Halim, 2003 in Nikmah and Hera Apriyanti, 2016: 57). Stewart (1991) explained that Intellectual capital is a resource in the form of knowledge available to the company that it ultimately brings future economic benefits at the company. Efficient use of company resources can reduce costs so that it will increase company profits. This is in accordance with the view stakeholder theory that is, if the company can develop and utilize the knowledge they have as a means to increase profits, this will benefit the people stakeholder.

Relationship intellectual capital with the company's financial performance (ROA) has been proven by several researchers in Indonesia. Chusnah, Zulfiati & Supriyati (2014) and Indah Fajarini & Riza Firmansyah (2012) have proven that Intellectual Capital (VAICTM) has a positive influence on the company's financial performance (ROA).

H₁: Intellectual Capital (VAICTM) has a positive effect on company performance (Return On Assets) in various industrial companies in 2014-2018.

2.7. Influence Intellectual Capital (VAICTM) To Return On Equity (ROE)

Increasing company revenue and profits can result in an increase in the company's ROE (Nafiroh and Nahumury, 2016). Relationship intellectual capital with the company's financial performance (ROE) has been proven by several researchers in Indonesia. Indah Fajarini & Riza Firmansyah (2012) and Tiara & Rosanna (2018) have proven that Intellectual Capital (VAICTM) has a positive influence on the company's financial performance (ROE).

H₂: Intellectual Capital (VAICTM) has a positive effect on company performance (Return On Equity) in various industrial companies in 2014-2018.

III. RESEARCH METHOD

3.1. Research Strategy

Based on the level of the position of the variables, this research is associative causality, namely research that finds out the relationship or causal effect of the independent variable on the dependent (Sugiyono, 2013).

3.2. Population and Sample

The population used in this study were 51 companies in various industrial sectors listed on the Indonesia Stock Exchange (BEI) in 2014-2018. The method used in this research is a method purposive sample, by using the criteria or special characteristics of the sample obtained is really in accordance with the research to be carried out so that it is expected to answer the research problem. A sample of 16 companies of various industries listed on the Indonesia Stock Exchange in 2014-2018

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3.3. Data and Data Collection Methods

The method used in this research is the documentation method, namely by collecting, recording and reviewing secondary data in the form of annual financial reports of various industrial companies published on the Indonesia Stock

Exchange (BEI), as well as from various books, scientific journals, and websites web related. The method used in this research is the documentation method, namely by collecting, recording and reviewing secondary data in the form of annual financial reports of various industrial companies published on the Indonesia Stock Exchange (BEI), as well as from various books, scientific journals, and websites web related.

3.4. Operationalization of Variables

1) Intellectual Capital

The combination of the three added values (value added-VAICTM) developed by Pulic (1998).

- (a) VAICTM indicates the intellectual ability of the organization or company that can also considered a BPI (business performance indicator).
- (b) Value added-VA is the most objective indicator to assess success business and demonstrate the company's ability to create value (value creation).
- (c) Value added of venture capital (value added capital employed-VACA) is an indicator for VA created by a unit from physical capital. This ratio shows the contribution made by each unit from CE to value added company.
- (d) Value added of human capital (value added human capital-VAHU) shows how much many VA can be generated with funds expended by the workforce. This ratio shows the contribution made by each rupiah invested in HC against value added company.
- (e) Value added of structural capital (structural capital value added-STVA). This ratio measures the amount of SC needed to produce 1 rupiah inVA and is an indication of how successful SC is in value creation.
- 2) Company Performance

In this study who became dependent variables is Return on assets (ROA) and Return on equity (ROE).

- (a) The rate of return on assets or Return On Assets (ROA) reflects business profits and company efficiency in the utilization of total assets. ROA is the ratio of net income to total assets, providing an overview or idea of the overall return on investment obtained by the company.
- (b) Return on equity or Return On Equity (ROE) presented return of common stockholder and are usually important financial considerations and indicators for investors. High ROE indicates the company's acceptance of good investment opportunities and effective cost management.

3.5. Data Analysis Methods

Processing and data analysis using the program Eviews 10 (Econometric Views) is program computer based Windows that Lots used to statistical analysis and time-series type econometrics (time series) and collected individually based on cross section (cross section /latitude series data).

3.6. Data Analysis Design

There are 5 (five) stages of calculating the VAICTM are as follows: (1) Calculating Added Value

VA is calculated as the difference between the output and input.

$$VA = Out - In$$

Information	:
VA	: Value Added
Out	: Total revenue (Operating and non-operating income)
In	: Operating and non-operating expenses (other than employee
	expenses)
<u> </u>	

(2) Calculating the Added Value of Venture Capital VACA is a comparison between value added (VA) against capital employed (CE).

$$VACA = \frac{VA}{CE}$$

Information	:
VACA	: Value Added Capital Employed
VA	: Value Added
CE	Capital Employed: available funds (equity, profit

(3) Calculating the Added Value of Human Capital VAHU is a comparison between value added (VA) to employee expenses (HC).

{	$VAHU = \frac{VA}{HC}$
Information	
VAHU	: Value Added Human Capital
VA	: Value Added
HC	

(4) Calculating the Added Value of Structural Capital STVA is something that compares the ratio of structural capital (SC) against value added (VA).

ises

$$STVA = \frac{SC}{VA}$$
$$SC = VA - HC$$

Information	•
STVA	: The added value of structural capital: the ratio of SC to VA
VA	: Value Added
SC	: Structural Capital = $VA - HC$ (See steps 1 and 3)

(5) Counting Value Added Intellectual Coefficient (VAICTM) VAICTM is the sum of VACA, VAHU, dan STVA.

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

:	
:	Value Added Intellectual Coefficient
:	Value Added Capital Employed
:	Value Added Human Capital
:	Value Added Structural Capital
	:

The material calculated by the researcher is Return on assets and Return on equity.

(1) Counting Return On Assets (ROA)

The ratio of net income after interest and tax to total assets is with the following formula:

clean)

$ROA = \frac{Net \ Income}{total \ assets}$

Interpretation: this means that for every IDR 1 of assets used, the company is only able to generate IDR... net income. It could also be said that the company was only able to generate net profit... from the total assets used.

(2) Counting Return On Equity (ROE)

ROE is calculated based on the ratio of net income after interest and tax to equity. ROE can be calculated by the following formula:

$$ROE = \frac{Net \ Income}{Stockholder \ Equity}$$

Interpretation: this means that for every IDR 1 invested in the company, shareholders get an additional value of IDR ... equity. It can also be said, of the total investment in the company, shareholders get an increase in equity value of almost half, namely

3.7. Panel Data Regression Analysis

Panel data regression analysis is a regression analysis tool in which data is collected individually (cross section) and followed at a certain time (Ghozali and Ratmono, 2013: 232).

The panel data regression model used in this study is as follows:

	$\mathbf{ROA}_{it} = \alpha + \beta \mathbf{VAIC}_{it} + \xi_{it}$
	$\text{ROE}_{\text{it}} = \alpha + \beta \text{ VAIC}^{\text{TM}}_{\text{it}} + \xi_{\text{it}}$
Information	A CONTRACTOR OF A CONTRACTOR OFTA CONTRACTOR O
ROA _{it}	: Return On Assets i in t
ROE _{it}	: Return On Equity i in t
VAIC TM _{it}	[™] Value Added Intellectual Coefficient [™] for company i and time t
α	- Constant
β	: Regression coefficient
i	: Company
t	: Time
ξ _{it}	: Error terms
	INDONESIA

IV.RESEARCH METHOD

4.1. General Description of Research Objects

The various industrial sectors on the Indonesia Stock Exchange are divided into 6 subsectors consisting of heavy machinery and equipment, automotive and components, textiles and garments, footwear, cables, and electronics. This study uses secondary data obtained from the site www.idx.co.id in the form of annual financial reports listed on the Indonesia Stock Exchange for the period 2014-2018.

The criteria used by researchers to select the research sample are as follows:

- 1) Various industrial companies listed consecutively on the Indonesia Stock Exchange (IDX) for the last 5 (five) years for the period 2014 2018.
- 2) Companies that publish audited annual financial reports for 2014 2018.
- 3) Companies that use the rupiah currency in their financial statements. The use of the rupiah currency is applied because if using foreign currency, at the time of processing the data must be converted into rupiah so that it makes it easier for researchers to process data.

4) Companies that generated positive net income during the last 5 (five) years. This condition is set because to know the value return on assets (ROA) and return on equity (ROE) of the company be in a condition of profit. Negative profit will cause the value of the company's intellectual capital to be negative.

The following is a table of sample research selection criteria.

Table 4.1.	Sample Research Selection Criteria
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No.	Sample Criteria	Total
1	Number of various industrial companies listed on the IDX for the period 2014-2018 Number of	51
2	Various industrial companies that did not publish audited financial reports for 2014-2018	(7)
3	Companies that do not use the rupiah currency in the financial statements of negative net	(14)
4	Profit and loss for the last 5 (five) years	(14)
Number of various industrial companies		16
Year		5
Data	used	80

Source: <u>www.idx.co.id</u> 2014 – 2018

Table 4.1. show companies that have met the criteria and have complete data in their annual financial reports. The population of manufacturing companies in various industrial sectors is 51 companies listed on the Indonesia Stock Exchange in 2014-2018, then filtering the data using sample criteria to produce a sample of 16 companies of various industries listed on the Indonesia Stock Exchange in 2014-2018 which are declared eligible as samples. The data used are as many as 80 financial statements of various industry companies listed on the IDX in 2014-2018.

4.2.Data Analysis Design

- a. Calculating Value Added
 - Based on calculation data Value Added (VA) in 2014 2018, VA is calculated as the difference between the output and input so that it is found that the company that has the lowest added value is Star Petrochem Tbk. (STAR) in 2018 amounting to 173,591,040. This indicates that value added in the company is lower, that is, it does not show the company's ability and business success in value creation compared to other companies that were used as research samples. The company with the highest added value is Astra International Tbk. (ASII) in 2018 amounting to 27,372,000,000,000. This indicates that value added in the company is higher, that is, it is able to demonstrate the company's ability and business success in value creation compared to other samples. The average added value of the 16 companies is 1,456,088,171,565.
- b. Calculating the Value Added of Venture Capital
 - Based on calculation data Value Added Capital Employeed (VACA) in 2014 2018, VACA is calculated as an intermediate comparison value added (VA) against capital employed (CE) so that it is found that the company that has the lowest added value for working capital is Star Petrochem Tbk. (STAR) in 2018 amounted to 0.000363. This indicates that Value Added Capital Employeed (VACA) in the company is lower, that is, it does not show the company's contribution in utilizing physical capital compared to other companies used as research sampies. The company that has the highest added value for business capital is Selamat Sempurna Tbk. (SMSM) in 2014 amounting to 0.367604. This indicates that Value Added Capital Employeed (VACA) in the company is higher, that is, it is able to show the company's contribution in utilizing physical capital more effectively than other companies used as research samples. The

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average value added for the total working capital of the 16 companies is 0.109660.

c. Calculating the Value Added of Human Capital

Based on calculation data Value Added Human Capital (VAHU) in 2014 - 2018, VAHU is calculated as an intermediate ratio value added (VA) to employee expenses (HC) so that it is found that the company that has the lowest added value for human capital is Kabelindo Murni Tbk. (KBLM) in 2018 amounting to 1,023258. This indicates that Value Added Human Capital (VAHU) in the company is lower, that is, it does not reflect the company's collective ability to produce the best solution based on the knowledge possessed by human resources in the company compared to other companies used as research samples. The company that has the highest added value to human capital is Astra Otoparts Tbk. (AUTO) in 2017 amounting to 4,748860. This indicates that Value Added Human Capital (VAHU) in the company is higher, that is, it is able to reflect the collective ability of the company to produce the best solutions based on the knowledge possessed by human resources to other companies that are used as research samples. The average added value of human capital for the 16 companies is 2.179814.

d. Calculating the Value Added of Structural Capital

Based on calculation data Structural Capital Value Added (STVA) in 2014 - 2018, STVA is calculated as an intermediate comparison structural capital (SC) against value added (VA) so it is found that the company that has the lowest value added structural capital is Kabelindo Murni Tbk. (KBLM) in 2018 amounting to 0.022729. This indicates that Structural Capital Value Added (STVA) in these companies is lower, that is, it shows less of the contribution of SC in the creation of company value compared to other companies used as research samples. The company that has the highest added value for structural capital is Astra Otoparts Tbk. (AUTO) in 2017 amounting to 0.789423. This indicates that Structural Capital Value Added (STVA) in the company is higher, which is able to show the contribution of SC in the creation of company value companies that were used as research samples. The average value added for structural capital of the 16 companies is equal to 0.458601.

e. Calculating the Value Added Intellectual Coefficient (VAICTM)

Based on data Value Added Intellectual Capital (VAICTM) 2014 - 2018, VAICTM calculated as the sum of VACA, VAHU, and STVA so that it is found that the company has a VAICTM the lowest is Kabelindo Murni Tbk. (KBLM) in 2018 amounting to 1.095502. This indicates that Value Added Intellectual Capital (VAICTM) the company is lower, that is, it does not maximize the company's intellectual ability compared to other companies that are used as research samples. Companies that have a VAIC value TM the highest company is KMI Wire and Cable Tbk. (KBLI) in 2016 amounting to 5,748303. This indicates that Value Added Intellectual Capital (VAICTM) the company is higher, that is, it is able to maximize the company's intellectual ability compared to other companies that are used as research samples. Average VAIC score TM the total of 16 companies amounted to 2.748075.

f. Calculating the Return On Assets (ROA)

Based on calculation data Return On Assests (ROA) in 2014 - 2018, ROA is calculated as a comparison of the ratio of net income after interest and taxes to total assets so that it is found that the company that has the lowest ROA is PT Jemblo Cable Company Tbk. (JECC) in 2016 amounting to 0.000251. This indicates that Return On Assests (ROA) in the company is lower, that is, the company is less effective in using assets to generate profits compared to other companies that are used as research samples. The company that has the highest ROA value is PT Supreme Cable Manufacturing and Commerce Tbk. (SCCO) in 2017 amounted to 0.389092. This indicates that Return On Assests (ROA) in the company is less that Return On Assests (ROA) in the company is higher, that is, the company is

more effective in using assets to generate profits compared to other companies used as research samples. The average ROA of the 16 companies is 0.074208.

g. Calculating the Return On Equity (ROE)

Based on the calculation data attachment Return On Equity (ROE) in 2014 - 2018, ROE is calculated as a comparison of the ratio of net income after interest and taxes to equity so that it is found that the company with the lowest ROE value is Star Petrochem Tbk. (STAR) in 2017 amounting to 0.000523. This indicates that Return On Equity (ROE) in these companies is lower, namely the company's acceptance of investment opportunities that are not good and cost management that is less effective than other companies that are used as research samples. The company with the highest ROE value is Kabelindo Murni Tbk. (KBLM) in 2017 amounting to 0.602649. This indicates that Return On Equity (ROE) in these companies is higher, namely the company's acceptance of excellent investment opportunities and effective cost management compared to other companies used as research samples. The average ROE value of the 16 companies is 0.133053.

4.3. Descriptive statistics Intellectual Capital To Return On Assets

Descriptive statistics intellectual capital to return on assets used to provide an overview of the variables under study, namely Intellectual Capital (IC) as the independent variable and Return On Assets (ROA) as the dependent variable. Table 4.2. Below are the results of the descriptive statistical analysis intellectual capital (IC) against return on assets (ROA).

Date: 05/31/20 Time: 03:06					
Sample: 2014 - 2018					
ROA	Intellectual Capital				
0.074208	2.748075				
0.008220	2.543600				
0.389092	5.748303				
0.000251	1.095502				
0.092600	1.167719				
4.396820	0.695576				
22.091980	2.550958				
1472.773000	Q T A 7.123151				
0.000000	0.028394				
1.255340	219.846000				
0.112542	107.721900				
80	80				
	Time: 03:06 2018 ROA 0.074208 0.008220 0.389092 0.000251 0.092600 4.396820 22.091980 1472.773000 0.000000 1.255340 0.112542 80				

 Table 4.2.
 Descriptive Statistics Results Intellectual Capital (VAIC™) To Return On Assests (ROA)

Source: Eviews 10 data processed in 2020

Table 4.2. showed that the results of the IC descriptive statistics (VAIC^{TM)} on ROA for the dependent variable performance of various industrial companies using return on assets (ROA) which is measured from the ratio of net income after interest and taxes to the company's total assets, has an average value (mean) of 0.074208 with a standard deviation (standard deviation) of 0.092600 and the median of 0.008220 and the lowest value (minimum) amounting to 0.000251 was owned by PT Jemblo Cable Company Tbk in 2016 while the highest value was (maximum) amounting to 0.389092 owned by PT Supreme Cable Manufacturing and Commerce Tbk in 2017.

On the independent variable Intellectual Capital (IC) by using Value added intellectual

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coefficient (VAICTM), has an average value (mean) of 2.748075 with a standard deviation (standard deviation) of 1.167719 and the median of 2.543600 and the lowest value (minimum) amounting to 1.095502 owned by Kabelindo Murni Tbk in 2018 while the highest value (maximum) 5,748303 owned by KMI Wire and Cable Tbk in 2016.

4.4. Panel Data Regression Model Selection Intellectual Capital To Return On Assets

a. Likelihood Ratio (Chow Test)

Compare the best models between Common Effect Model or Fixed Effect Model in estimating panel data. The following is a table of model test results using chow test:

Table 4.3. Model Test Results Using Chow Test					
Redundant Fixed Effects 7	Redundant Fixed Effects Tests				
Equation: Untitled					
Test cross-section fixed effects					
Effects Test Statistic d.f. Prob.					
Cross-section F 31.651419 (15,63) 0.0000					
Cross-section Chi-square171.543890 15 0.0000					

Source: Eviews 10 data processed in 2020

Table 4.3. shows that the results of the model test using chow test on common effect model vs fixed effect model above, we get F_{count} of 31.651419 and the probability value (P-value) 0.0000 < 0.05 is significant at $\alpha = 5\%$, then Fixed Effect Model (FEM) which is more appropriate to use.

b. Hausman Test

Compare the best models between Fixed Effect Model or Random Effect Model which will be used to perform panel data regression.

The following is a table of model test results using hausman test:

Table 4.4.Model Test Results Using Hausman Test					
Correlated Random Effects - Hausman Test					
Equation: Untitled	DONES	IA /			
Test cross-section random effects					
Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.		
Cross-section random	0.334318	1	0.5631		

Source: Eviews 10 data processed in 2020

Table 4.4. shows that the results of the model test using hausman test on fixed effect model vs random effect model above, is obtained random cross section of 0.334318 and the probability value (P-value) amounting to 0.5631 > 0.05 significant at $\alpha = 5\%$, then Random Effect Model (REM) which is more appropriate to use.

c. Lagrange Multiplier (LM)

Compare the best models between Common Effect Model or Random Effect Model in estimating panel data.

The following is a table of model test results using lagrange multiplier:

Lagrange multiplier (LM) test for panel data					
Date: 05/31/20 Time: 04:05					
Sample: 2014 - 2018					
Total panel observation	ons: 80				
Probability in ()					
Null (no rand. effect)	Cross-section	Period	Both		
Alternative	One-sided	One-sided			
Breusch-Pagan 10.722180 1.424644 6.574353					
	0.000000	(0.922900)	0.000000		
a	10.1	1.1. 0.000			

Fabel 4.5.	Model	Test Results	Using	Lagrange	Multiplier

Source: Eviews 10 data processed in 2020

Table 4.5. shows that the results of the model test using lagrange multiplier on common effect model vs random effect model above, is obtained Breusch-Pagan cross section < 0.05, that is, 0.000000 < 0.05 is significant at $\alpha = 5\%$, then Random Effect Model (REM) which is more appropriate to use.

4.5. Panel Data Regression Analysis Intellectual Capital To Return On Assets

Panel data regression analysis intellectual capital to return on assets is a regression analysis tool capable of detecting and measuring unobservable effects where the data is collected individually pure data (cross section) and data is followed at a specific time (time series). Panel data regression analysis tool in this study uses Random Effect Model (REM). Table 4.6. below the panel data regression test results using random effect model can be seen in the table below:

Fabel 4.6.	Panel Data Regression	Test Results Using 1	Random Effect Model
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	0		0	
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.000591	0.003484	-0.169 <mark>653</mark>	0.8657
Intellectual Capital	0.001377	0.000567	2.426708	0.0175
Sou Sou				

Table 4.6. shows that the panel data regression test uses random effect model, then the panel data regression equation can be formulated:

 $ROA_{it} = -0.000591 + 0.001377 VAIC^{TM}_{it} + \xi_{it}$

Based on the panel data regression equation above, it can be analyzed as follows:

- 1) The constant is -000591 with a probability of 0.8657, this means that there is an influence intellectual capital it will reduce the ROA by -000591.
- 2) Variable intellectual capital has a positive coefficient value of 0.001377 with a probability of 0.0175 illustrating that if every one-unit increase intellectual capital with the assumption of other fixed variables (constant) it will increase company performance (ROA) by 0.001377 and have a positive effect on the company.

4.6. Hypothesis Test

a. Partial Test (t Test)

Partial test (t test) aims to measure the effect of the independent variable on the dependent variable partially. The t test was used with a significant level of 0.05.

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There were as many observations (n = 80), the number of independent and dependent variables was (k = 2), then degree of freedom (df): n - k = 80 - 2 = 78, where the level of significance is α = 0.05. Then t_{table} can be determined using Ms. Excel with formulas insert function as follows: t_{table} = TINV (Probability, deg freedom)

Dortial Tast Dasult (+ Tast)

 $t_{table} = TINV (Probability, deg_freedometric transference) = TINV (0.05, 78)$

 $t_{table} = 1.99085$

The following is a table of partial test results (t Test):

Table 47

Table 4.7. Fattal Test Result (t Test)						
Variable	Coefficient	Std. Error	t-Statistic	Prob.		
С	-0.000591	0.003484	-0.169653	0.8657		
Intellectual Capital	0.001377	0.000567	2.426708	0.0175		
G						

Source: Eviews 10 data processed in 2020

The table above shows that intellectual capital have t_{count} amounting to 2.426708 so that $t_{count} > t_{table}$ namely 2.426708 > 1.99085 with a probability of < 0.05, namely 0.0175 < 0.05, that is intellectual capital positive effect on return on assets. Thus the hypothesis H₁ that States that intellectual capital positive effect on return on assets could be accepted. The results of this study are consistent with the results of research by Tiara Novira Sucipto and Rosanna Purba (2018) which found that intellectual capital (IC) has a positive effect on the company's financial performance, coupled with advances in technology and increasingly sophisticated information as well as fast information, making every company increase the capacity of a better company.

b. Determination Coefficient Test (R²)

Test the coefficient of determination (\mathbb{R}^2) is a tool to measure the influence of the independent variable on the dependent variable. The coefficient of determination in this study is indicated by the value Adjusted R-Square. The coefficient of determination is between zero and one ($0 \le \mathbb{R}^2 \le 1$). If the value of \mathbb{R}^2 small, then the ability of the independent variables to explain the dependent variation is very limited. Based on this explanation, the test results of the coefficient of determination or Adjusted R-Square (\mathbb{R}^2) which is equal to 0.118847 which means 11.88% variation return on assets (ROA) can be affected by intellectual capital. While the rest (100% -11.88% = 88.12%) return on assets (ROA) can be influenced by other factors that were not examined by researchers in this study.

4.7. Descriptive statistics Intellectual Capital To Return On Equity

Table 4.8. Below are the results of the descriptive statictical analysis Intellectual Capital (IC) against return on equity (ROE)

Date: 05/31/20	Time: 02:53	
Sample: 2014 - 2	2018	
Sample: 2014 - 2	.010	
	ROE	Intellectual Capital
Mean	0.133053	2.748075
Median	0.086390	2.543600
Maximum	0.602649	5.748303
Minimum	0.000523	1.095502
Std. Dev.	0.179143	1.167719
Skewness	3.296912	0.695576
Kurtosis	12.537310	2.550958
Jarque-Bera	448.129500	7.123151
Probability	0.000000	0.028394
Sum	2.022110	219.846000
Sum Sq. Dev.	0.494821	107.721900
Observations	80	80

Tabel 4.8.Descriptive Statistics Results Intellectual Capital (VAICTM) To Return On Equity
(ROE)

Source: Eviews 10 data processed in 2020

Table 4.8. showed that the results of the IC descriptive statistics (VAICTM) to ROE for the dependent variable performance of various industrial companies using ROE which is measured from the ratio of net income after interest and tax to company equity, has an average value (mean) of 0.133053 with a standard deviation (standard deviation) of 0.179143 and the median of 0.086390 and the lowest value (minimum) in the amount of 0.000523 owned by Star Petrochem Tbk in 2017 while the highest score (maximum) amounting to 0.602649 owned by Kabelindo Murni Tbk in 2017.

On the independent variable Intellectual Capital (IC) by using Value added intellectual coefficient (VAICTM), has an average value (mean) of 2.748075 with a standard deviation (standard deviation) of 1.167719 and the median of 2.543600 and the lowest value (minimum) amounting to 1.095502 owned by Kabelindo Murni Tbk in 2018 while the highest value (maximum) 5,748303 owned by KMI Wire and Cable Tbk in 2016.

4.8. Panel Data Regression Model Selection Intellectual Capital To Return On Equity

a. Likelihood Ratio (Chow Test)

Compare the best models between Common Effect Model or Fixed Effect Model in estimating panel data. The following is a table of model test results using chow test:

Tabel 4.9. Hash Off Model Menggunakan Chow Test							
Redundant Fixed Effects T	ests						
Equation: Untitled							
Test cross-section fixed eff	Test cross-section fixed effects						
Effects Test	Statistic	d.f.	Prob.				
Cross-section F 132.142111 (15,63) 0.0000							
Cross-section Chi-square	222.415668	15	0.0000				

Source: Eviews 10 data processed in 2020

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Table 4.9. shows that the results of the model test using chow test on common effect model vs fixed effect model above, we get F_{count} amounting to 232.142111 and the probability value (Pvalue) 0.0000 < 0.05 is significant at $\alpha = 5\%$, then Fixed Effect Model (FEM) more just right to use.

b. Hausman Test

Compare the best models between Fixed Effect Model or Random Effect Model which will be used to perform panel data regression.

The following is a table of model test results using hausman test:

Table 4.10. Model Test Results Using Hausman Test							
Correlated Random Effects	- Hausman Test						
Equation: Untitled							
Test cross-section random effects							
Test Summary Chi-Sq. Statistic Chi-Sq. d.f. Prob.							
Cross-section random 12.360784 1 0.0004							

4 10 M 11T (D

Source: Eviews 10 data processed in 2020

Table 4.10. shows that the results of the model test using hausman test on fixed effect model vs random effect model above, is obtained random cross section amounting to 12.360784 and the probability value (P-value) equal to 0.0004 < 0.05 is significant at $\alpha = 5\%$, then Fixed Effect Model (FEM) which is more appropriate to use.

4.9. Panel Data Regression Analysis Intellectual Capital To Return On Equity

Table 4.11. below the panel data regression test results using fixed effect model can be seen in the table below:

be	bel 4.11. Panel Data Regression Test Results Using Fixed Effect Mod								
	Variable	Coefficient	Std. Error	t-Statistic	Prob.				
	С	0.018083	0.003676	4.919793	0.0012				
	Intellectual Capita	0.002618	0.001265	2.069266	0.0426				

Tabe <u>l 4.11</u>	. Panel Data	Regression Test	Results	Using F	ixed Effect N	Iodel

Source: Eviews 10 data processed in 2020

Table 4.11. shows that the panel data regression test uses fixed effect model, then the panel data regression equation can be formulated as follows:

 $ROE_{it} = 0.018083 + 0.002618 VAIC^{TM}_{it} + \xi_{it}$

Based on the panel data regression equation above, it can be analyzed as follows:

- 1) The constant is -000591 with a probability of 0.8657, this means that there is an influence intellectual capital it will reduce the ROA by -000591.
- 2) Variable intellectual capital has a positive coefficient value of 0.001377 with a probability of 0.0175 illustrating that if every one-unit increase intellectual capital with the assumption of other fixed variables (constant) it will increase company performance (ROA) by 0.001377 and have a positive effect on the company.

4.10.Hypothesis Test

a. Partial Test (t Test)

There were as many observations (n = 80), the number of independent and dependent variables was (k = 2), then degree of freedom (df): n - k = 80 - 2 = 78, where the level of significance is $\alpha = 0.05$. Then t_{table} can be determined using Ms. Excel with formulas insert function as follows:

 $t_{table} = TINV (Probability, deg_freedom)$

 $t_{table} = TINV (0.05, 78)$

$$t_{table} = 1.99085$$

The following is a table of partial test results (t Test):

Tabel 4.12. Partial Test Result († Test)						
Variable	Coefficient	Std. Error	t-Statistic	Prob.		
С	0.018083	0.003676	4.919793	0.0012		
Intellectual Capital	0.002618	0.001265	2.069266	0.0426		
	E 1 10	1	1: 2020			

Source: Eviews 10 data processed in 2020

The table above shows that intellectual capital have t count amounting to 2.069266 so that $t_{count} > t_{table}$ namely 2.069266 > 1.99085 with a probability of < 0.05, namely 0.0426 < 0.05, that is intellectual capital positive effect on return on equity. Thus the hypothesis H₂ which states that intellectual capital positive effect on return on equity could be accepted. The results of this study are consistent with the results of research by Indah Fajarini and Riza Firmansyah (2012) which found that intellectual capital (IC) has a positive effect on the company's financial performance by using return on equity (ROE), where efficient asset management and the use of capital invested in all assets to generate greater returns.

b. Determination Coefficient Test (R²)

Test the determinant coefficient or Adjusted R-Square (R^2) amounting to 0.881802, which means 88.18% variation return on equity (ROE) can be affected by intellectual capital. While the rest (100% - 88.18% = 11.82%) return on equity (ROE) can be influenced by other factors that were not examined by researchers in this study.

4.11. Interpretation of Research Results

1) Influence Intellectual Capital To Return On Assets (ROA)

Hypothesis 1 of the study examines the effect intellectual capital to return on assets (ROA) by using random effect model (REM). Table 4.7. show that intellectual capital has a positive influence on return on assets which can be determined with a probability value of 0.0175 which has a value smaller than the significant value set at 0.05 (0.0175 < 0.05). Based on this explanation, it is known that hypothesis 1 is accepted.

The results of this study are consistent with the results of research by Tiara Novira Sucipto and Rosanna Purba (2018) which found that intellectual capital (IC) has a positive effect on the company's financial performance by using return on assets (ROA), where Intellectual Capital can encourage the company's financial performance, coupled with advances in technology and increasingly sophisticated information as well as fast information, making every company increase the capacity of a better company.

The results of this study are in accordance with the results of research by Farrukh and Joiya (2018) which state that there is a positive influence between intellectual capital with firm performance (ROA) in manufacturing companies in Pakistan. So it can be indicated if intellectual capital has played an important role in contributing to the financial performance of various industrial companies in Indonesia.

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However, the results of this study are different from Tara and Hatane (2015) who state that intellectual capital does not have a positive effect on the company's financial performance (ROA), so there are indications that the use of physical and financial assets still dominates to contribute to company performance.

2) Influence Intellectual Capital To Return On Equity (ROE)

Hypothesis 2 of the study examines the effect intellectual capital to return on equity (ROE) by using fixed effect model (FEM). Table 4.12. shows that intellectual capital has a positive influence on return on equity which can be determined with a probability value of 0.0426 which has a value smaller than the significant value set at 0.05 (0.0426 < 0.05). Based on this explanation, it is known that hypothesis 2 is accepted.

The results of this study are consistent with the results of research by Indah Fajarini and Riza Firmansyah (2012) who found that intellectual capital (IC) has a positive effect on the company's financial performance by using return on equity (ROE), where efficient asset management and the use of capital invested in all assets to generate greater returns.

The results of this study are in accordance with the results of research by Hermawan and Mardiyanti (2016: 75) which states that IC has a positive influence on corporate financial performance (ROE) in High IC Intensive manufacturing companies. This shows that the High IC Intensive group of manufacturing companies relies on available funds such as equity and net income to increase Value Added which ultimately increases profitability. These results are supportive Stakeholder Theory, where in this theory it is stated that all stakeholders in the company try to maximize their welfare by playing their role as control over the entire management resources owned by the company. The effective and efficient use of IC will contribute significantly to the achievement of competitive advantage and in turn will be reflected in good company performance.

However, the results of this study are different from Adhita and Titiek (2015) who state that intellectual capital has no positive effect on the company's financial performance (ROE). Theory stakeholder assume that organizational accountability is not only limited to economic or financial performance, companies should need to make disclosures about it intellectual capital or more intellectual capital than required by the competent authority. In addition, the manufacturing sector still uses a lot of fixed assets in its operations. Intellectual capital very crucial or influencing the economic sector for the company's success, other assets and capabilities also contribute to profitability. Companies from different industries have different ranges of assets and capabilities to operate their business effectively, so companies need more than just their physical (fixed) assets or financial assets.

V. CONCLUSIONS AND SUGGESTIONS

Based on the results and discussion as previously presented, several conclusions can be drawn as follows:

1) The first hypothesis proposed in this study is influence intellectual capital on company performance (ROA) in various industrial companies in 2014-2018. So that the first hypothesis has a positive effect, which means that H₁ accepted because it says that the better the company is at managing intellectual capital then it will efficiently provide increased results on the company's financial performance. This research is supported by research by Indah Fajarini and

Riza Firmansyah (2012) who found that intellectual capital (IC) has a positive effect on the company's financial performance (ROA). This means that with a structured corporate routine process, good work procedures, adequate technology and operational systems, various industrial companies have been able to optimize their existing physical capital intellectual capabilities so as to achieve better corporate financial performance.

2) The second hypothesis is influence intellectual capital on company performance (ROE) in various industrial companies in 2014-2018. So that the second hypothesis has a positive effect, which means that various industrial companies rely on available funds such as equity and net income that can increase Value Added which ultimately increases profitability. This research is supported by research by Indah Fajarini and Riza Firmansyah (2012) who found that intellectual capital (IC) has a positive effect on the company's financial performance (ROE). This means efficient asset management as well as the use of capital invested in all assets to generate greater returns.

This study has suggestions, for other research, the results of this study are expected to be used as a reference in more in-depth research on influence intellectual capital on company performance with other measurement indicators, such as: Earnig Per Share (EPS), Net Profit Margin (NPM), Market Book Value (MBV), Price to Book Velue (PBV), Growth in Revenue (GR), Assets Turn Over (ATO), company value, Corporate Social Responsibility (CSR) in the midst of the Corona virus pandemic which is making changes to economies around the world, making research abroad to compare with Indonesia, conducting research with a period of six to ten years to come and developing this research with a different sample apart from various industries.

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