THE EFFECT OF INTELLECTUAL CAPITAL ON FINANCIAL PERFORMANCE OF BANKS IN INDONESIA

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Abstract

Intellectual capital is an intangible asset in the form of knowledge resources that exist in each element such as employees, databases, software, harmonious relationships with outsiders, distribution networks, and infrastructure. Intellectual capital is used to create added value and wealth with a higher value that can lead to sustainable competitive advantage. The purpose of this study is to analyze the effect of Value Added Human Capital (VAHU), Value Added Capital Employed (VACA), and Structural Capital Value Added (STVA) to financial performance as measured by ROA. The data used are secondary data from annual financial statements of banking companies from 2013 to 2017. To test the effect of intellectual capital on financial performance with indicators of profitability Return on Assets (ROA) using multiple linear regression analysis. The results showed that VAHU and VACA are partially significant to Return on Assets (ROA), while STVA partially has no significant effect on Return on Assets (ROA). Then VAHU, VACA, and STVA together have a significant effect on Return on Assets (ROA).

Keywords: Banking Companies; Intellectual Capital (IC); Financial performance; Return on Assets (ROA), Value Added Human Capital

INTRODUCTION

The current economic development that is controlled by technology and knowledge has brought many changes to the management of a business and the determination of business strategy. Businessmen are beginning to realize that competitiveness lies not only in the possession of tangible assets but also in intangible assets.

Intangible assets are long-term assets that are physically incomprehensible and not for sale, but are used in corporate operations (Dunia, 2005). Intangible assets are valued as valuable assets, non-substitutable, rare and difficult to imitate. Intangible assets can also create wealth, added value and produce sustainable competitive advantage in competition. An approach that can be used in the assessment and measurement of intangible assets is through intellectual capital.

Intellectual capital is an intangible asset in the form of knowledge resources contained in each element such as employees, customers, processes, or technology that the company can use in the process of creating added value for the company. Pulic, 1997, in Ulum, 2009, introduces the measurement of intellectual capital by using "Value Added Intellectual Coefficient" (VAIC™). VAIC™ consists of three components. The first component of VAIC™ capital is human capital. Human capital is part of intellectual capital that is very important for the progress and growth of the company in the future so that becomes a determining factor to assess the company's performance. (Kartika and Hatane, 2013). Human capital is the expertise and competence that is in each employee in producing a good or service. The second component of VAIC™ capital is capital employed. Capital employed is a financial capital owned by a company that can generate a good working relationship and can maintain trust between the company and its partners. The third component of VAIC™ capital is structural capital. Structural capital is the capital required by the company to meet the company's routine process in producing optimal performance, such as the company's operational system, manufacturing process, organizational culture, and all forms of intellectual property owned by the company (Sawarjuwono and Kadir, 2003).

The company's most easily measured and seen performance is from its financial performance. Financial performance can be interpreted as achievement achieved by company in a certain period which reflect health level of company (Sukhemi, 2007). One ratio that can be used to measure company's financial performance is profitability ratio that is Return on Assets (ROA). ROA is the ratio used to measure how effectively the company's assets are used to generate profits.

Banking companies are chosen as research samples because the banking company is one company that closely related to the utilization of elements in intellectual capital. While for

financial performance selected using ROA ratio because the object taken is ten banks with the largest assets up to 2017 so that it is very suitable when using this ratio, considering this ratio is used to measure the effectiveness of the company in generating profits by utilizing the assets it has. Then the researcher also wants to see how much influence each element of intellectual capital has on Return on Assets (ROA).

The purpose of this study was to analyze the effect of Value Added Human Capital (VAHU), Value Added Capital Employed (VACA), and Structural Capital Value Added (STVA) partially or simultaneously on financial performance as measured by ROA.

LITERATURE REVIEW

Intellectual Capital

According to Sawarjuwono and Kadir (2003), Intellectual capital is the sum of what is produced by the three main elements of the organization (human capital, structural capital, and customer capital) related to knowledge and technology that can give more value to the company in the form of competitive advantage of the organization. Risanti, 2014 in Williams, 2001, Intellectual Capital (IC) is an information and knowledge that can be implemented in work to create a value.

According to Kartika and Hatane (2013), Intellectual capital is a major asset of a company in addition to physical and financial assets. From various definitions above it can be concluded that intellectual capital is the main asset of a company in addition to physical and financial assets, where in intellectual capital there is knowledge in every element of employees, software, good relations with outsiders, distribution networks, and infrastructure that can create added value and leading to a sustainable competitive advantage.

Value Added Intellectual Coefficient (VAIC™)

VAIC™ is an instrument for measure the performance of the intellectual capital of the company. This approach is relatively easy and very possible to do, as it is constructed from accounts in the company's financial statements (balance sheet and profit and loss). Measurement of intellectual capital in this model is measured based on human capital (VAHU), capital employed (VACA), and structural capital (STVA).

VAHU (Value Added Human Capital)

VAHU shows how much value added can be generated with the funds spent on labor. This measurement indicates the ability of human capital to create value within the company. Human capital reflects the company's collective ability to produce the best solution based on the

knowledge possessed by the people in the company (Sawarjuwono and Kadir, 2003). Included in human capital is education, experience, skills, creativity, and attitude.

VACA (Value Added Capital Employed)

VACA is an indicator for value added created by a unit of physical capital. VACA shows how much value can be generated with available funds (equity and net income) within the company. Capital employed describes the ability of companies in managing resources in the form of capital assets that if managed properly will improve the financial performance of the company.

STVA (Structural Capital Value Added)

STVA shows the contribution of structural capital in value creation. STVA measures the amount of structural capital needed to generate one rupiah of value added and as an indication of the success of structural capital in value creation. Structural capital is the company's ability to fulfill the company's routine process and its structure that supports the employee's effort to produce optimal intellectual performance and overall business performance, such as company's operational system, manufacturing process, organizational culture, management philosophy and all forms of intellectual property owned by the company (Sawarjuwono and Kadir, 2003).

Financial performance

To see the level of success of the company in achieving its goal required a measure of the work. The size of this work can be called performance. The company's most easily measured and seen performance is from its financial performance.

Financial performance can be interpreted as achievements achieved by the company in a certain period that reflects the level of health of the company (Sukhemi, 2007). To measure the financial performance of a company generally use financial ratios. One of the financial ratios is the profitability ratio. Profitability ratio is the ratio to assess the company's ability to earn profits (Soraya, 2015).

Profitability ratios one of them is Return on Assets (ROA). ROA is the ratio used to measure the firm's performance in using assets to generate profits. In other words, this ratio represents the profitability ratio in measuring the ability of the company to generate profits by using the total assets owned by the company.

The Conceptual Framework

Measurement of financial performance is done by calculating tangible assets owned by the company, but in this research we can measure the company's performance by using intangible

assets that is by using intellectual capital element developed by Pulic. Intellectual capital is defined as a knowledge resource in the form of an employee, customer, process, or technology in which a company can use it in the process of creating value for the company. The method that can be used for intellectual capital measurement is with VAIC™. The VAIC™ component consists of human capital (VAHU), capital employed (VACA) and structural capital value added (STVA).

VAHU, VACA, and STVA are used as independent variables. Human capital presents the individual knowledge stock of an organization shown by its employees (Ulum, 2009). Capital employed is a financial capital owned by a company that can generate a good working relationship and able to maintain trust between the company and its partners. Structural capital describes the capital required by the company to meet the company's routine process in producing optimal performance, as well as the overall business performance (Sawarjuwono and Kadir, 2003).

For the dependent variable used in this study is the profitability ratio measured by using Return on Assets (ROA). ROA is the ratio used to measure a company's ability to generate profits derived from the use of assets. The relationship between intellectual capital and the company's financial performance has been proven by previous researchers, Arifah (2012), Ulum (2009), Hamidah and Sari (2014) and Raesah (2015). The conceptual framework is shown in the figure as follows:
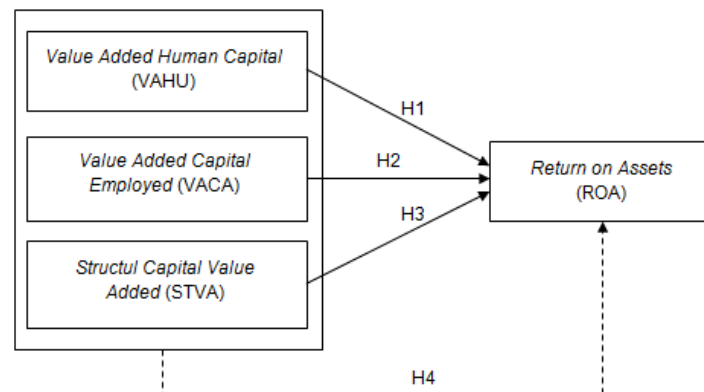
Figure 1. The conceptual framework

Hypotheses

Based on the framework and research model, the results of previous research, and the formulation of the problem can then be formulated hypotheses as follows:

H1: Value Added Human Capital (VAHU) partially effect on Return on Assets (ROA).

H2: Value Added Capital Employed (VACA) partially effect on Return on Assets (ROA).

H3: Structural Capital Value Added (STVA) partially effect on Return on Assets (ROA).

H4: Value Added Human Capital (VAHU), Value Added Capital Employed (VACA), Structural Capital Value Added (STVA) simultaneously affect Return on Assets (ROA).

METHODOLOGY

Object of Research

Objects used in this study are ten banking companies that have the largest assets in Indonesia until the end of 2017. The report period used in this study is the period 2013-2017. Because the object taken are the banks with the largest assets in Indonesia, for the accuracy of the data, the latest 5 years of data are used. For the 2018 annual report not yet audited, the data that can be used starts in 2017 up to the previous 5 years.

Population and Sample Research

The population in this study is a banking company listed on the Indonesia Stock Exchange in the period 2013-2017.

The sample to be studied in this research is 10 banking companies that have the largest assets in Indonesia until the end of 2017. Sampling technique of company in this research use purposive sampling method. Purposive sampling is a technique of determining samples with certain considerations.

Types and Data Sources

The type of data used in this study is secondary data in the form of financial statements in banking companies issued by the Indonesia Stock Exchange (BEI). Period of financial statements that the authors use in this study is the period 2013-2017. The financial statements of these banking companies can be obtained through the Indonesia Stock Exchange website (www.idx.co.id).

Research Variables

Independent Variables

The independent variable used in this research is Value Added Intellectual Coefficient (VAIC™) element. Begin by calculating the added value.

Value Added (VA) is the difference between sales (OUT) and input (IN). The formula for calculating VA is as follows.

$$VA = OUT - IN$$

Information :

Output (OUT) = Total revenue

Input (IN) = Expenses and other costs (other than employee salaries)

Next calculate the VAHU showing how much VA can be generated with the funds spent on labor. This ratio shows the contribution made by each rupiah invested in human capital to the value added organization.

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

Information :

HC = Salary and employee benefits

After calculating the VAHU, proceed by calculating VACA is an indicator for added value (VA) created by a unit of physical capital. This ratio shows the contribution made by each unit of CE to the value added organization.

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

Information :

CE = Total equity and net income

After calculating the VACA, continuing by calculating the STVA is a measurement of the amount of structural capital (SC) required to generate 1 rupiah of Value Added (VA) and is an indication of how the success of structural capital (SC) in value creation.

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

Information :

SC (Structural Capital) = VA – HC

Dependent Variables

Dependent variable in this study is the company's financial performance used is Return on Assets (ROA). Return on Assets (ROA) shows the company's ability to efficiently use total assets for its operations. This ratio measures the company's ability to generate profits by using the total assets owned by the company.

$$ROA = \frac{Net\ Profit}{Total\ Assets}\ x\ 100\ \%$$

Analysis Technique

The tool used to test the hypothesis is regression analysis. The regression analysis technique chosen is multiple linear regression analysis.

RESULTS

This study is focused on the ten banking companies that have the largest assets in Indonesia until the end of 2017 and has been listed on the Indonesia Stock Exchange in the period 2013-2017.

According to Law No. 10 of 1998 concerning banking, a Bank is a business entity that collects funds from the public in the form of deposits and distributes them to the public in the form of loans and or other forms in order to improve the standard of living of many people.

Table 1 Banking Company Sample

No	Company Name	Code
1	Bank Rakyat Indonesia (Persero) Tbk	BBRI
2	Bank Mandiri (Persero) Tbk	BMRI
3	Bank Central Asia Tbk	BBCA
4	Bank Negara Indonesia (Persero) Tbk	BBNI
5	Bank CIMB Niaga Tbk	BNGA
6	Bank Danamon Indonesia Tbk	BDMN
7	Bank Pan Indonesia Tbk	PNBN
8	Bank Permata Tbk	BNLI
9	Bank Tabungan Negara (Persero) Tbk	BBTN
10	Bank Maybank Indonesia Tbk	BNII

Classic Assumption Test

Normality Test

Normality test is a test to determine the normal distribution of research data. Normality test used in this study is Kolmogorov-Smirnov Test, namely:

- If Asymp.Sig (2-tailed) > 0,05 means the data is normally distributed.
- If Asymp.Sig (2-tailed) < 0,05 means the data is not normally distributed.

Table 2 Normality Test Results

	VAHU	VACA	STVA	ROA
Asymp. Sig. (2-tailed)	0.445	0.018	0.163	0.361

From the test result showed that significant value of VAHU variable equal to 0,445 > 0,05, VACA variable equal to 0,018 > 0,05, STVA variable equal to 0,163 > 0,05 and ROA variable equal to 0,361 > 0,05. From these results it can be concluded that all variables are normally distributed.

Multicollinearity Test

Multicollonearity test aims to test whether the regression model found a correlation between independent variables. A good regression model should not be correlated among independent variables (Ghozali, 2013). The Multicolinearity Test can be seen as follows.

- Tolerance value > 0.1 means no multicollinearity occurs.
- Variance Infaltion Factor (VIF) < 10 means no multicollinearity occurs.

Table 3 Multicollinearity Test Results

Model	Collinearity Statistics	
	Tolerance	VIF
1 (Constant)		
VAHU	0.259	3.865
VACA	0.242	4.125
STVA	0.700	1.429

From the results show each variable has a tolerance value > 0.1 and VIF < 10, so it can be concluded that all independent variables used do not experience symptoms of multicollinearity.

Autocorrelation Test

Autocorrelation test is used to test whether or not there is correlation between intruder error in period t with period t-1 in linear regression equation. A good regression model is a regression independent of autocorrelation (Ghozali, 2013). Guidance on D-W (Durbin-Watson) numbers for detecting autocorrelation can be seen in the D-W table, which can be seen in the relevant statistics book. However, in general can be taken benchmark as follows.

- The D-W number is between -2 to +2, meaning there is no autocorrelation.

Table 3 Autocorrelation Test Results

Model	Durbin-Watson
1	1.968

The table above shows the D-W value of 1.968 which means that the value is between -2 to +2, it can be concluded there is no autocorrelation.

Heteroscedasticity Test

The heterocedasticity test aims to test whether in the regression model there is a variance inequality of the residual one observation to another observation (Ghozali, 2013)**.**

- If there is no clear pattern, as well as dots spread above and below the number 0 on the Y axis there is no heteroscedasticity.
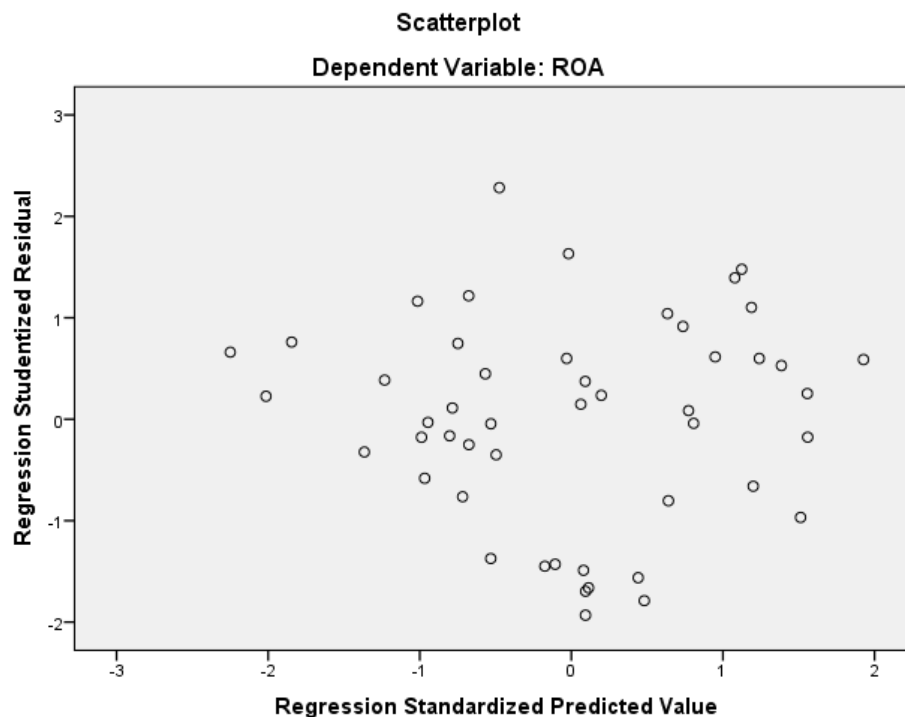

Figure 2 Heteroscedasticity Test Result

In the picture above shows that from the test results that scatterplot does not form a clear pattern or can be said to spread. This suggests that the regression model has no symptoms of heteroscedasticity.

Hypothesis Testing

Multiple Linear Regression Analysis

Multiple linear regression is used to prove the presence or absence of two or more independent variables with dependent variables. This analysis is to know the direction of relationship between independent variable and variable.

Table 4 Results of Multiple Linear Regression Test

Model	Unstandardized Coefficients B
(Constant)	-1.575
VAHU	.530
VACA	5.141
STVA	1.187

From the above explanation, it can be obtained the following equation:

$$\text{Y} = -1{,}575 + 0{,}530 \text{ VAHU} + 5{,}141 \text{ VACA} + 1{,}187 \text{ STVA}$$

From the above regression equation it can be concluded as follows:

1. Constant value (α) of -1,575 means that if the variable VAHU (X1), VACA (X2) and STVA (X3) are equal to 0, then ROA is the constant value itself -1,575.

2. The value of variable regression coefficient VAHU (X1) is positive value is 0,530. It means that every increase of VAHU variable is 1%, then ROA will also increase by 0,530%.

3. The value of variable regression coefficient of VACA (X2) is positive value is 5,141. It means that every increase of VACA variable is 1%, then ROA will also increase by 5,141%.

4. The value of variable regression coefficient STVA (X3) is positive value is 1,187. This means that every increase of STVA variables by 1%, then ROA will also increase by 1,187%.

Multiple Correlation Coefficient

The value of correlation coefficient (R) shows how big correlation or relationship between independent variables with dependent variable.

Table 5 Multiple Correlation Coefficient Results

Model	R
1	.904[a]

In the table above shows the value of correlation coefficient (R) of 0.904 which means that the correlation or the relationship between independent variables, namely VAHU, VACA, and STVA with dependent variable that ROA shows in very strong correlation category.

Determination Coefficient Test (R²)

The coefficient of determination (R2) is used to determine the ability of independent variables in explaining the change of dependent variables simultaneously. The coefficient value obtained will range from $0 < R2 \leq 1$ where if the value of R2 approaches 1, the stronger the ability of the independent variable to explain the dependent variable.

Table 6 Coefficient of Determination Results

Model	Adjusted R Square
1	0.898

The Adjusted R-Square value is 0.898. This shows that ROA is affected by 89.8% by VAHU, VACA, and STVA variables. While the rest of 10.2% influenced by other variables.

Partial Parameter Significance Test (t Test)

The t test is used to find out whether the partial or individual independent variables significantly influence or not to the dependent variable.

Table 7 Partial Parameter Significance Test Results (t Test)

Model	t	Sig.
(Constant)	-7.023	.000
VAHU	5.143	.000
VACA	5.801	.000
STVA	3.659	.001

In t test hypothesis is used as follows.

Ho: There is no partial effect between VAHU, VACA, and STVA on ROA.

Ha: There is partial effect between VAHU, VACA, and STVA on ROA.

Simultaneous Parameter Significance Test (F Test or ANOVA Test)

Test F Test or ANOVA (Analysis of Variance) is used to know simultaneously or together independent variables significantly influence or not to the dependent variable.

Table 8 Simultaneous Parameter Significance Test Results (F Test or ANOVA Test)

Model	Sig.
Regression	$.000^b$
Residual	
Total	

In Test F used hypothesis as follows:

Ho: There is no simultaneous effect between VAHU, VACA, and STVA on ROA.

Ha: There is simultaneous effect between VAHU, VACA, and STVA on ROA.

DISCUSSIONS

The Effect of Value Added Human Capital (VAHU) on Return on Assets (ROA)

In the results of the first hypothesis testing of the effect of Value Added Human Capital (VAHU) to Return on Assets (ROA), obtained a significance value of 0.00 (0.000 < 0.05). This means that Value Added Human Capital (VAHU) has an influence on Return on Assets (ROA). The value of VAHU variable regression coefficient is also marked positive, that is 0,530, it indicates VAHU has a direct relationship with ROA, so if there is 1% increase in VAHU variable then ROA will experience increase of 0.530%.

Human capital is the power behind intellectual capital, innovation and improvement. It contains the competence, skills and knowledge possessed by humans. The existence of good human resources within the company, then the company will have its own advantages in working, competing, and formulate a better strategy in dealing with their competitors.

This study showed that VAHU has a positive influence on ROA, in other words the higher the VAHU value, the higher the ROA. this shows that banking companies are able to maximize the utilization of competencies, skills and knowledge possessed by human as effectively and efficiently to create value added and improve company profitability as measured by Return on Assets (ROA).

The results of this study are in line with the results of research conducted by Mursida (2014), which shows partially VAHU significant effect on ROA.

The Effect of Value Added Capital Employed (VACA) on Return on Assets (ROA)

The second hypothesis test results about the effect of Value Added Capital Employed (VACA) to Return on Assets (ROA), where the significance value of 0,000 (0,000 < 0.05). This means that Value Added Capital Employed (VACA) has a significant effect on Return on Assets (ROA). The value of regression coefficient of VACA variable is positive sign, that is equal to 5,141, it shows VACA has direct relationship with ROA, so if there is 1% increase in variable of VACA then ROA will experience high enough increase, that is equal to 5,141%.

The study showed VACA has a significant influence on ROA. The results of this study confirms that the banking company is able to manage and utilize the physical capital that is available well, in this case the banking company is able to maintain good working relationships with its partners and also able to maintain the confidence of its customers, so that banking companies can increase the added value of intellectual ability company and also increase its profitability.

The results of this study are in line with the results of research conducted by Kartika and Hatane (2013), which showed partially VACA significant effect on ROA.

The Effect of Structural Capital Value Added (STVA) on Return on Assets (ROA)

Results of the third hypothesis testing of the effect of Structural Capital Value Added (STVA) to Return on Assets (ROA), where the significance value of 0.001 (0.001 < 0.005). This means that Value Added Capital Employed (VACA) does not have a significant effect on Return on Assets (ROA). However, the regression coefficient value of STVA variable is negative as it is -0.144. It shows STVA has a relationship that is inversely proportional to the ROA, so if there is a 1% increase in the variable VACA then ROA will decrease by 1.187%.

The study showed that STVA has no significant effect on ROA. The results of this study show that banking companies have not been able to manage and utilize structural capital which will result in competitive advantage that can relatively improve profitability. Banking companies still rely more on intellectual capital in their individual employees (human capital) and physical capital in the company in maintaining good relations with its partners (capital employed).

The results of this study are in line with the results of research conducted by Hamidah and Sari (2014) which shows partially that STVA does not have a significant effect on financial performance in banking companies.

The Effect of Value Added Human Capital (VAHU), Value Added Capital Employed (VACA), and Structural Capital Value Added (STVA) to Return on Assets (ROA) Simultaneously

F test result (0.000 < 0.05) shows that Value Added Human Capital (VAHU), Value Added Capital Employed (VACA) and Structural Capital Value Added (STVA) have significant effect on

Return on Assets (ROA). The results of this study prove that the elements of intellectual capital can provide added value and increase profitability with ROA indicators for banking companies.

In this study shows that banking companies are able to manage and utilize intellectual capital effectively and efficiently so as to contribute positively to the financial performance of banking companies, especially on profitability. In the coefficient of determination test showed that ROA is influenced by 89.8% by VAHU, VACA and STVA variables. While the rest of 10.2% influenced by other variables.

This proveed that most of the company's performance in using total assets to generate profit as measured by ROA indicator is strongly influenced by intellectual capital owned by the company. The existence of the influence of intellectual capital elements to profitability with ROA indicators due to more banking companies maximize the utilization of assets to encourage the quality of employees owned to increase the profit generated.

The results of this study in line with the results of research conducted by Arifah (2012) which shows simultaneously intellectual capital significant effect on Return on Assets (ROA).

CONCLUSION

Based on the results of research and data analysis in the previous chapter, some conclusions can be drawn as follows.

1. The results of statistical tests show that Value Added Human Capital (VAHU) partially affects the Return on Assets (ROA) in banking companies.
2. The results of statistical tests show that the Value Added Capital Employed (VACA) partially affects the Return on Assets (ROA) in banking companies.
3. The results of statistical tests show that Structural Capital Value Added (STVA) partially has no effect on Return on Assets (ROA) in banking companies.
4. Statistical test results show that Value Added Capital Capital (VAHU), Value Added Capital Employed (VACA) and Structural Capital Value Added (STVA) simultaneously affect the Return on Assets (ROA) in banking companies.

SUGGESTIONS

Based on the conclusions obtained in this study, following suggestions are made:

1. For banking companies are expected to manage the resources and knowledge of employees, especially structural capital in the banking company has not been able to provide a significant effect to produce better performance for the development of the company.

2. Further research is expected to add more sample quantities and not only using samples of banking companies but also other sectors in Indonesia.

3. Further research is expected to measure or predict a picture of the influence of intellectual capital on financial performance in the future.

4. Further research can examine intellectual capital elements with other types of methods, and add more dependent variables (ROE, ROI, EPS etc.).

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