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Does profitability have an effect on intellectual capital?

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Abstract

The purpose of this research is to examine how Return on Asset is impacted by value added capital employed (VACA), value added human capital (VAHU), and structural capital value added (STVA). Basic materials firms that are listed on the Indonesia Stock Exchange between 2016 and 2023 are the samples. Data were collected through documentation and literature review, and the study is classified as quantitative research employing both descriptive and verificative approaches. The sampling technique applied was purposive sampling, while the data were analyzed using multiple linear regression. The results of the partial t-test indicate that VACA has a significant effect on ROA, whereas VAHU and STVA exhibit no significant influence. However, the simultaneous F-test results demonstrate that VACA, VAHU, and STVA collectively exert a significant and positive effect on ROA.

Keywords: *basic materials; value added capital employed; value added human capital; structural capital value added, return on asset*

Abstrak

Penelitian ini bertujuan untuk menganalisis pengaruh value added capital employed (VACA), value added human capital (VAHU) dan structural capital value added (STVA) terhadap return on asset. Penelitian ini dilakukan pada perusahaan Basic materials yang terdaftar di Bursa Efek Indonesia periode tahun 2016-2023. Penelitian ini tergolong penelitian kuantitatif dengan pendekatan deskriptif dan verifikatif dengan teknik pengumpulan data di dapat melalui studi pustaka dan dokumentasi. Teknik pengambilan sampel dengan menggunakan metode purposive sampling. Analisis data menggunakan analisis regresi linier berganda. Hasil penelitian yang diperoleh pada uji-t secara parsial diperoleh hasil bahwa value added capital employed berpengaruh dan signifikan terhadap return on asset; value added human capital dan structural capital value added tidak berpengaruh terhadap return on asset. Adapun hasil penelitian pada uji-F secara simultan diperoleh hasil value added capital employed, value added human capital dan structural capital value added berpengaruh positif dan signifikan terhadap return on asset

Kata kunci: *basic materials; value added capital employed; value added human capital; structural capital value added, return on asset*

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INTRODUCTION

The basic materials industry is still experiencing a slowdown in recovery, primarily due to the pressure of high raw material prices. Most raw materials have to be imported, but on the other hand, there are import barriers due to the ongoing pandemic, namely the scarcity of commodities caused by supply instability and the increasingly expensive cost of shipping containers at ports during the pandemic. This is due to the difficulty in obtaining containers. As a result, the company passed the increased costs onto consumers, leading to a significant price hike (Hamdani & Prastiyanti, 2022).

Companies in this sector heavily rely on knowledge, employee skills, technology, and innovation in conducting their business activities and are a significant source of intellectual capital. If we look at the role of each component of intellectual capital, namely human capital (HC), relational capital (RC), and structural capital (SC), the company needs intellectual capabilities as a source to innovate.

Intellectual Capital in Indonesia began to develop after the emergence of PSAK No. 19 revision 2014 concerning intangible assets. Intangible assets are defined in paragraph 9 of PSAK 19 (Effective January 1, 2019) as identifiable non-monetary assets without physical substance. although not explicitly stated as intellectual capital, intellectual capital has received attention. Where intangible assets or non-physical assets are non-monetary assets identified without a physical presence and owned to be used in producing or delivering goods or services, leased to other parties, or for administrative purposes (IAI, 2020). This causes companies to pay more attention to intangible assets as a business strategy to achieve competitive advantage and implement knowledge-based business.

Intellectual Capital is not an ordinary accounting concept; it is not enough to say that IC is the difference between the book value and the market value of a company. When companies talk about IC reports (IC statements), they are actually expressing their interest in controlling and managing the company. Intellectual Capital is about managerial activities that can be attributed to efforts on behalf of knowledge. These activities are often related to employee development, organizational restructuring, and the development of marketing activities (Ulum, 2017).

LITERATURE REVIEW

Stakeholder theory

The stakeholder theory is able to explain the relationship between the company and its stakeholders. Stakeholders can essentially control or have the ability to influence the use of economic resources utilized by the company. Therefore, the power of stakeholders is determined by the degree of power they hold over those resources. In other words, this theory states that the success and survival of a company greatly depend on its ability to balance the diverse interests of stakeholders. If capable, the company will gain sustainable support and enjoy growth in market share, sales, and profits. This theoretical perspective explains that society and the environment are the core stakeholders of the company that must be considered (Lako, 2016).

Management accounting

Management accounting is an accounting system whose main purpose is to present financial reports for the benefit of the company's internal parties, such as financial managers, production managers, marketing managers, and other internal parties. Management Accounting is the process of identifying, collecting, measuring, classifying, and reporting information that is

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useful for internal users in planning, controlling, and making decisions. Management accounting functions as an identifier, collector, measurer, classifier, and reporter of information that is useful for internal users in planning, controlling, and decision-making (Hansen & Mowen, 2018).

Financial ratio

The financial condition of a company can be analyzed, among other ways, by calculating and comparing financial ratios. These financial ratios can be used to compare the results of financial statements and see the relationships between financial information. The activity of comparing the figures in the financial statements by dividing one figure by another. Comparison can be made between one component and another component within a single financial statement or between components across different financial statements. Then the figures being compared can be numbers from a single period or multiple periods (Kasmir, 2023).

Return on asset

Return on Asset is the result of investment returns, also known as return on investment or return on total assets, which is a ratio that shows the return on the total amount of assets used in the company (Kasmir, 2023).

The indicator for calculating return on assets is as follows:

$$\text{ROA} = \frac{\text{Earning after Tax}}{\text{Total Asset}}$$

Value added capital employed (VACA)

VACA is an indicator for VA created by one unit of physical capital. Ulum (2017) assuming that if 1 unit of VACA generates a higher return than other companies, it means that the company is better at utilizing its VACA. Thus, better utilization of VACA is part of the company's IC. this intellectual capital as capital employed (CE). Where this intellectual capital represents the capital owned by the company in the form of harmonious relationships with its partners and the management of physical capital to help create added value for the company. In this study, CE refers to the amount of equity.

Value added human capital (VAHU)

VAHU shows how much value added (VA) can be generated with the funds spent on labor. The relationship between VA and human capital indicates the ability of HC to create value within the company. Consistent with the views of other IC authors, total salary and wage costs are indicators of the company's HC (Ulum, 2017).

Structural capital value added (STVA)

STVA, which shows the contribution of structural capital (SC) in value creation. STVA measures the amount of SC needed to generate 1 rupiah of VA and indicates how successful SC is in value creation. SC is not an independent measure like HC; it is dependent on value creation. This means that the greater the contribution of HC to value creation, the smaller the contribution of SC in that regard. Furthermore, Pulic (2000) states that SC is VA minus HC, and this has been verified through empirical research in the traditional industrial sector (Ulum, 2017).

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Relationship between value added capital employed and return on asset

VACA is an indicator for VA created by one unit of physical capital. If 1 unit of VACA generates a higher return than other companies, it means that the company is better at utilizing its VACA. Thus, better utilization of VACA is part of the company's IC. (Ulum, 2017). The results of previous research conducted by Saragih (2017) VACA significantly affects the company's performance as measured by ROA. However, it is in stark contrast to the research conducted by Permana & Ikhlas (2016) VACA does not affect ROA.

H_1 : Value added capital employed affects return on asset.

Relationship between value added human capital and return on asset

VAHU shows how much VA can be generated with the funds spent on labor. The relationship between VA and HC indicates the ability of HC to create value within the company. Consistent with the views of other IC authors, Pulic argues that total salary and wage costs are indicators of a company's HC (Ulum, 2017).

The results of the research conducted by Soetedjo, et al, (2016) that VAHU has a significant influence on return on assets. Unlike the research conducted by Aprianti & Siska (2018) where VAHU does not affect ROA.

H_2 : Value added human capital affects return on asset.

Relationship between structural capital value added and return on asset

STVA which shows the contribution of structural capital (SC) in value creation. SCE measures the amount of SC needed to generate 1 rupiah of VA and indicates how successful SC is in value creation. SC is not an independent measure like HC; it is dependent on value creation. Meaning, the greater the contribution of HC to value creation, the smaller the contribution of SC in that regard. Furthermore, Pulic states that SC is VA minus HC, and this has been verified through empirical research in the traditional industrial sector (Ulum, 2017).

The results of previous research conducted by Saragih (2017) that STVA has a significant impact on financial performance measured by ROA. Meanwhile, the research conducted by Permana (2016) mentioning that STVA does not affect ROA.

H_3 : Structural capital value added affects return on asset.

H_4 : Value added capital employed, value added human capital, and structural capital value added affects return on asset simultaneously.

The author defines a framework from this research as follows:

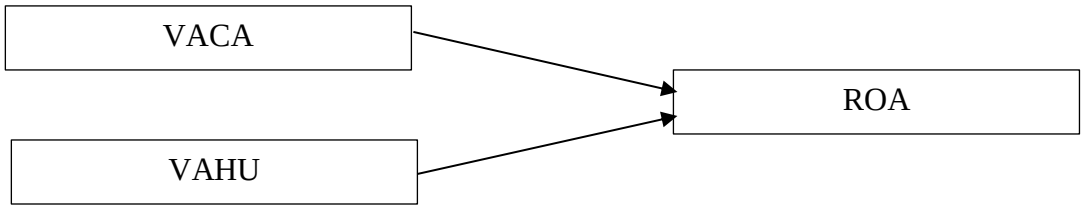

Figure 1. Research Framework

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RESEARCH METHOD

Place and time of research

In this research, the data source used is secondary data, as the data obtained indirectly means that the data are primary data that have been further processed and data presented by other parties or sources. The data used in this research was obtained from financial statements over eight years from 2016-2023 and from basic material companies obtained from the Indonesia Stock Exchange.

Method of collecting data

Without knowing data collection techniques, researchers will not obtain data that meets the established data standards. The methods used to obtain or collect data in this research include documentation methods and library studies. The sampling technique used is Nonprobability sampling, specifically purposive sampling.

Population and sample

The population in this study uses data from Basic Material Companies listed on the Indonesia Stock Exchange for the period from 2016 to 2023. The population consists of 14 companies, and not all of these companies will be the subjects of the research, so further sample selection is necessary.

Descriptive analysis method

The descriptive analysis method is a type of analysis where data is gathered, categorized, or compiled, and then determined and interpreted by the author to give a summary of the issues the firm is facing.

Verificative analysis method

To determine whether a relationship exists between variables and to test the relationship hypothesis, the verification method is utilized. Finding the degree of correlation between the independent variables (X), which are Value added human capital (X_2), Value added capital employed (X_1), and Structural capital value added (X_3), and the dependent variable (Y), which is return on asset, partially and simultaneously, is the goal of the verification analysis in this study.

Multiple linear regression test

Regression analysis considering the relationship of two or more independent variables can be solved using the multiple linear regression analysis approach. After data analysis, the multiple linear regression model equation is:

$$Yi = \alpha + \beta_1 X_{1i} + \beta_2 X_{2i} + \beta_3 X_{3i} + \varepsilon_i$$

Where :

Y = Return on asset
α = Constanta
β = Regression coefficient
X_1 = VACA
X_2 = VAHU
X_3 = STVA
ε_i = residual

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Pearson correlation coefficient test

Multivariate analysis includes correlation since it examines the relationship between two or more variables that are being examined collectively. Assessing whether a meaningful relationship exists between the two variables, as well as determining its direction and strength, is the goal of Pearson correlation analysis. Although correlation and regression analysis are closely related, they serve various goals and are frequently combined.

This correlation strategy is used to find relationships and demonstrate the putative relationship between the two variables if the data for the two variables are in the form of intervals or ratios or if the source of the excess data is the same. This is known as the product moment correlation. (Sugiyono, 2022)

The Product Moment correlation formula is:

$$r_{xy} = \frac{n\Sigma XY - (\Sigma X \cdot \Sigma Y)}{\sqrt{[n\Sigma x^2 - (\Sigma x^2)\ n\ \Sigma y^2 - (\Sigma y^2)]}}$$

Where:

rxy : Correlation between dependent and independent variable
X : Variable X
Y : Variable Y
n : Total sample/period to research

Determination coefficient test

The coefficient of determination's magnitude can be computed using statistical techniques to determine the effect of variable variation. Once the correlation coefficient has been determined, it is squared and multiplied by 100% to determine the coefficient of determination. Percentage is used to express the coefficient of determination, or determinant.

Determination Coefficient formula is:

$$Dc = r^2 * 100\%$$

Where:

Dc = Determination coefficient
r^2 = Coefficient correlation

Hypothesis testing

Partial test (t-test)

To determine how much the dependent variable influences the independent variable, the t test is used. The significance level for the test is set at 0.05 (α = 5%). Following these criteria, the hypothesis is either accepted or rejected.:

- The hypothesis is rejected if the regression coefficient is not significant, which is shown by a significant value of˜ 0.05. Accordingly, the independent variable does not significantly affect the dependent variable to a certain extent.
- If the significant result is less than 0.05, suggesting that the independent variable affects the dependent variable, the hypothesis (significant regression coefficient) is supported.

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Simultaneous test (F-test)

A simultaneous test of the regression coefficients is the F test. The purpose of this test was to ascertain how each independent variable in the model affected the dependent variable concurrently. These two assumptions are tested using the F statistical test.:

- Using a 5% confidence level, we adopt the alternative hypothesis, which states that all independent factors have an impact on the dependent variable simultaneously, if F is greater than 4.
- comparison between the table-based F value and the estimated F value. If f count exceeds f table, Ho is rejected, but Ha is supported.

RESULTS AND DISCUSSION

Descriptive analysis

Table 1. Descriptive statistics

	N	Minimum	Maximum	Mean	Std Deviation
Return on Asset	40	.97	26.06	5.9320	5.03009
VACA	40	.23	1.74	.7535	.42209
VAHU	40	5.8	17.62	11.6050	3.88669
STVA	40	.83	.94	.9020	.03764

The table above shows that the average ROA value is 5.93%, which does not meet the target of 5.98%. The best achievement with a maximum value of 26.06% occurred in 2017 at PT Duta Pertiwi Nusantara, Tbk. Meanwhile, the year 2019 had the lowest value of 0.97% at PT Aneka Gas Industri, Tbk. The average VACA value is 0.75%, indicating that this value is still below the expected target of 1.5%. The highest value occurred in 2016 at PT Ekadharma Internasional, Tbk, while the lowest value occurred at PT Aneka Gas Industri in 2021. The average VAHU value is 11.61%, which does not meet the established standard of 15%. The highest VAHU value occurred at PT Intanwijaya International, Tbk at 17.62%, while the lowest value of 5.8% in 2018 occurred at PT Duta Pertiwi Nusantara, Tbk. The average value for STVA is 0.90 times, which is higher than the established standard of 0.80 times, thus on average, STVA is considered poor. The highest STVA value occurred at PT Intanwijaya Internasional, Tbk in 2023, while the lowest value of 0.83 times occurred at PT Duta Pertiwi Nusantara, Tbk in 2018.

Table 2. Normality test
one-sample Kolmogorov-Smirnov test

Test statistic	1.044
Asymp. sig. (2-tailed)	.226[c,d]

According to the findings of the Kolmogorov-Smirnov normality test, the significant value generated is above 0.05, or 0.226 > 0.05, indicating that the data was regularly distributed.

Table3. Multicollinearity test

Model	Tolerance	VIF
(Constant)		
VACA	.472	2.119

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VAHU	.062	1.606
STVA	.057	1.749

a. dependent variable: Return on asset

With the variance influence factor value (VIF) for the variable VACA being 2.119 smaller than 10 and tolerance 0.472, the variance influence factor value (VIF) for the variable VAHU being 1,606 smaller than 10 and tolerance of 0,062, and the variance influence factor value (VIF) for the final variable STVA being 1.749 smaller than 10 and tolerance of 0.057, it can be concluded from the above table that there is no multicollinearity problem.

Heteroscedasticity test

By comparing the variance of the residuals of one observation to the other (SRESID), a scatterplot graph between the dependent variable's projected value (ZPRED) and its residual is shown to check for heteroscedasticity in the regression model.

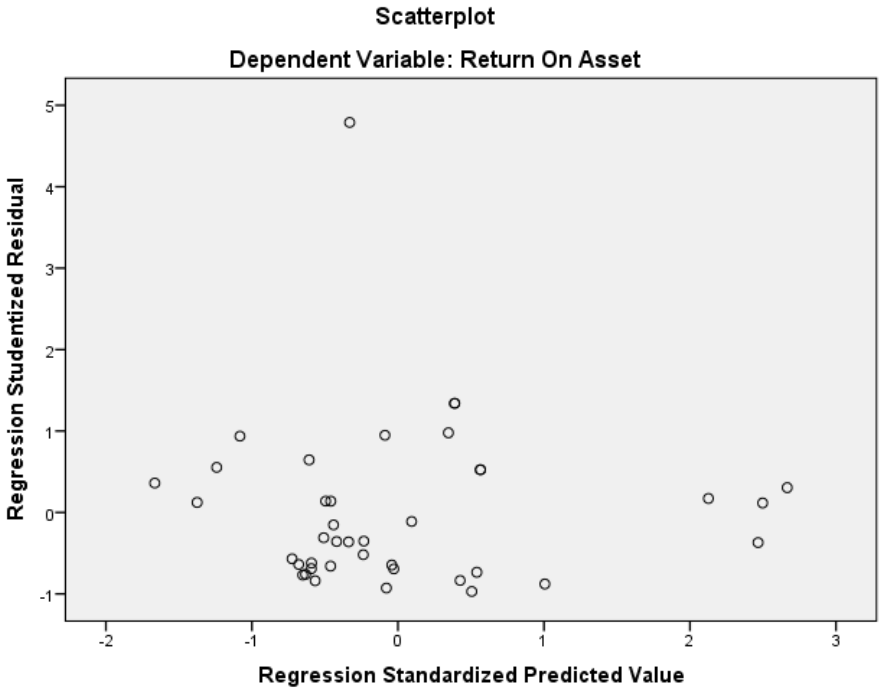

Figure 2. Heteroscedasticity test graph

There is no pattern formed by the dots in the above image; they are dispersed at random. Furthermore, the Y axis has dots scattered both above and below zero. It is permissible to conduct additional research on the regression model since it does not contain any heteroscedasticity.

Table 4. Autocorrelation test

R	R square	Adjusted R square	Std. error of the estimate	Durbin-Watson
.449[a]	.202	.136	4.67678	1.087

From the table above it can be seen that the Durbin-Watson value resulting from the regression model is 1.087 which is greater than 0 and less than dL which is 1.338. Thus, it can

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be concluded that there is no positive autocorrelation, because the Durbin-Watson value is between $0 < dw < dl$ or $0 < 1.087 \leq 1.338$.

Table 5. Multiple linear regression test

Item	B unstd.	Std. Error	Beta stand.	t	Sig
(Constant)	-41.365	66.159		-0.625	0.535
VACA	6.634	2.583	0.557	2.569	0.015
VAHU	-0.97	0.772	-0.75	-1.256	0.217
STVA	59.379	83.239	0.444	0.713	0.48

The result above shows that the following multiple linear regression equation can be produced by calculating the regression coefficients and constant values :

$$Y = -41.365 + 6.634\ X_1 - 0.970\ X_2 + 0.970\ X_3 + \varepsilon$$

From this equation, it can be interpreted that as $\alpha = -41.365$ meaning that if the variable VACA, VAHU, and STVA are zero (0), then the value of Return on Asset is 41,365.; $\beta 1 = 6.634$ Meaning that each addition of one unit of the VACA and other variables is constant, it will increase the value of the Return on Asset with 6.634, in the other hand, for every one unit decrease in the VACA and other variables; $\beta 2 = -0.970$ meaning that each addition of one unit of the VAHU and other variables is constant, it will reduce the value of the Return on Asset with 0,970 in the other hand, for every one unit decrease in the VACA and other variables being constant, the Return on Asset will increase by 1,099; $\beta 3 = 0.970$, meaning that each addition of one unit of the STVA and other variables is constant, it will increase the value of the Return on Asset with 0.970, in the other hand, for every one unit decrease in the STVA and other variables

Coefficient determination result

Table 6. Coefficient determination

Model	R	R square	Adjusted R square	Std. error of the estimate
111	.449a	0.202	0.136	4.67678

The simultaneous link created by VACA, VAHU, and STVA results in a coefficient of determination of 20.2% of return on asset. Although other factors including the company's worth and other macroeconomic factors affect the remaining 79.8%, they are not considered in this study..

Based on the test results above, it can be seen that:

$$Dc = R^2 \times 100\%$$
$$= (0.449)^2 \times 100\%$$
$$= 20{,}2\%$$

Table 7. Hyphotesis testing result

Item	B unstd.	Std. Error	Beta stand.	t	Sig
(Constant)	-41.365	66.159		-0.625	0.535
VACA	6.634	2.583	0.557	2.569	0.015
VAHU	-0.97	0.772	-0.75	-1.256	0.217
STVA	59.379	83.239	0.444	0.713	0.48

With degrees of freedom (v) = 39 (n - 1) and a significant level (α) of 5%, a t_{table} value of 2.021 with a sig value of $0.015 < 0.05$ was found. The VACA's t_{test} value is 2.569, and its t_{table}

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value is 2.021. The VACA significantly improves Return on Asset when H_0 is rejected and H_1 is approved since the value of $t_{count} > t_{table}$. VAHU's t_{count} value is -1.256 and its t_{table} value is -2.021. Since t_{count} is less than t_{table}, H_0 is accepted and H_2 is denied, indicating that VAHU has no appreciable detrimental impact on return on asset. t_{count} value for STVA is 0.713 and t_{table} 2.021, because the value of $t_{count} < t_{table}$, then H_0 is accepted and H_3 is rejected, meaning that STVA has no significant negative effect on Return on Asset.

Table 8. Simultaneous test

	Sum of Square	Df	Mean Square	F	Sig
Regression	199.371	3	66.457	3.038	.041
Residual	787.401	36	21.872		
Total	986.772	39			

The result above indicates that the p-value (sig) is 0.041 and the Fcount is 3.038. Setting = 5% and using the degrees of freedom V1 = 35 (n-k-1) and V2 = 4 yields Ftable 2.64. Because Fcount > Ftable (3.038 > 2.64), which shows that the VACA, VAHU, and STVA variables all have an impact on Return on Asset at the same time, H0 is accepted and H4 is allowed.

CONCLUSION

Based on the results of the research that has been done, some conclusions that can be drawn are as follows, The VACA has significant positive effect on Return on Asset. That VAHU has no significant negative effect on Return on Asset, and STVA has no significant effect on Return on Asset.

The VACA, VAHU and STVA variables has simultaneously affect on Return on Asset. Based on the conducted coefficient of determination test, a coefficient of determination value of 20.2% was obtained, indicating that Value Added Capital Employed, Value Added Human Capital, and Structural capital value added provide a simultaneous relationship of 20.2% to Return on Asset. Meanwhile, the remaining 79.8% is influenced by other factors (e.g., other financial ratios) that were not considered in this study.

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