

The Intellectual Capital's Effect on Financial Performance at Indonesian Stock Exchange (IDX)

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ABSTRACT

This study aims to determine the effect of intellectual capital on the financial performance of companies listed on the Indonesia Stock Exchange (IDX) in 2014-2018. The concept of intellectual capital measurement is carried out using the VAIC method with three types of indicators that measure the added value of intellectual capital efficiency, namely human capital efficiency (HCE), structural capital efficiency (SCE), and capital efficiency used (CEE). Return on assets (ROA) and return on equity (ROE) are used to measure the company's financial performance. The sampling technique used purposive sampling and data analysis was performed using Partial Least Squares (PLS). The results showed that HCE did not have a significant positive effect on ROA and ROE, but there was a positive and significant effect of SCE and CEE on ROA and ROE.

Keywords: *Human Capital Efficiency (HCE), Structural Capital Efficiency (SCE), Capital Employed Efficiency (CEE), Return on Assets, Return on Equity, Partial Least Square (PLS)*

1. INTRODUCTION

The phenomenon of globalization and information technology that occurs at this time, resulted in all sides of life experiencing development. The development of globalization and information technology requires companies to be able to compete when business competition is tight. The company's way to compete is to change its business strategy based on labour to business based on knowledge [1]. Business based on knowledge makes companies able know how to use resources more efficiently and economically that will provide advantages in the company. To improve the performance of a company can be assessed and measured on tangible assets and intangible asset [2]. Intellectual capital is one of the methodologies used to assess and measure intangible assets [3].

Intellectual capital is an intangible asset that is part of the company's knowledge assets [4]. Human capital, structural capital, and relational capital are the three components of intellectual capital. [5]. Several concepts of intellectual capital measurement have been created and developed by several researchers, one of them is a model developed by Pulic. Pulic developed the Value Added Intellectual Capital (VAIC) method in 1998 [6]. VAIC was created to give information on the value generation

effectiveness of the company's tangible and intangible assets [7].

Research about *intellectual capital* which is proxied by VAIC and associated with financial performance of a company shows mixed results. Study that obtained from companies registered in Taiwan, proves that the efficiency of good intellectual capital has a positive effect on financial performance and market value [8]. Another result revealed there is a significant positive relationship between financial performance and intellectual capital in commercial banks in Saudi Arabia but tangible assets remains the most significant fundamental to financial performance [9]. However, there is no effect between financial performance and intellectual capital of 96 companies listed on the ASE and textile companies in Bangladesh [10,11].

Knowledge that can improve financial performance is referred to as intellectual capital. [12]. A corporation's financial performance is the result of its operations over a specific time period [13]. The profitability ratio is one of the ratios that can be used to measure the company's financial success; financial ratio analysis can be used to assess the company's financial performance [14].

Some of these studies show different results, from the differences in these results it is necessary to re-research that will re-examine the effect intellectual capital on the

company's financial performance. The objects in this study are companies in the basic and chemical industry sector; the consumer goods industry sector; the property sector, real estate and building construction; and the trade, service and investment sectors listed on the Indonesia Stock Exchange (IDX) in 2014-2018. The selected objects is based on the current phenomenon of globalization and information technology today which shows that intellectual capital is something that every company needs to understand in running its business based on knowledge because intellectual capital plays an important role to improving financial performance and achieving competitive advantage [15]. The following is the study's hypothesis:

H₁: *Human Capital Efficiency* (HCE) has a significant positive effect on Return on Assets (ROA)

H₂: *Structural Capital Efficiency* (SCE) has a significant positive effect on Return on Assets (ROA)

H₃: *Capital Employed Efficiency* (CEE) has a significant positive effect on Return on Assets (ROA)

H₄: *Human Capital Efficiency* (HCE) has a significant positive effect on Return on Equity (ROE)

H₅: *Structural Capital Efficiency* (SCE) has a significant positive effect on Return on Equity (ROE)

H₆: *Capital Employed Efficiency* (CEE) has a significant positive effect on Return on Equity (ROE)

2. THEORETICAL REVIEW

2.1. Theory stakeholder

The goal of stakeholder theory is to assist managers in increasing the value of the company while minimising losses to stakeholders [16]. Intellectual capital and financial performance have a relationship, according to stakeholder theory [3]. Stakeholder theory states that value added is a more exact measurement established by stakeholders [16]. Companies must be able to use all of their potential, including physical assets, structural and human capital, in order to create added value [17]. When all the potential has been utilized properly, it creates value added which can make benefit for stakeholders by encouraging the company's financial performance [3].

2.2 Resources-Based Theory

According to resource-based theory, if a corporation has better resources, it will attain excellence [18]. A company that can manage intellectual capital to the greatest extent possible, in this case all resources owned by the company, will increase the company's value. If all intellectual resources owned by the company can be managed and utilised properly, it will create added value for the company. [19]. As a result, companies must recognise the significance of managing intellectual

capital since intellectual capital fits the requirements for creating a competitive advantage for the company itself. [16].

2.3 Intellectual Capital

Intellectual capital is defined as a skill, knowledge, information, experience, ability to solve problems, and policies demonstrated by the company as a whole, which includes human, structural, and relational capital [20]. Human capital is a source of knowledge, skills and competencies in an organization [6]. The ability of a corporation to fulfil routine routines and structures that support employees' efforts to create optimal intellectual performance and overall business success is referred to as structural capital [6]. Relational capital is the company's ability to maintain good relations with internal and external companies [4].

The concept of measuring intellectual capital has been created and developed by several research, one of which is the Value-Added Intellectual Capital (VAIC) method. Pulic developed VAIC to measure the extent to which companies generate added value based on the efficiency of intellectual capital [21]. This method provides information on the value generating efficiency of the company's tangible and intangible assets [16]. It begins with the company ability to create value added (VA). VA is obtained from the difference between output (OUT) and input (IN) [6]. Three categories of value-added indicators are measured using the VAIC method. Human capital efficiency (HCE), structural capital efficiency (SCE), and capital efficiency used are the three indicators (CEE) included in the VAIC method [15].

Human Capital Efficiency (HCE) is an indicator that measures the added value efficiency of human capital [22].

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

Structural Capital Efficiency (SCE) is an indicator of the added value efficiency of structural capital [22].

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

Capital Employed Efficiency (CEE) is an indicator of the efficiency of added value of capital used [22].

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

2.4 Financial performance

A company's financial performance is required in order to determine and evaluate the company's level of success based on its financial activities [23]. An assessment of a company's performance can be done by analysing its financial statements [13]. Financial statement analysis is a method of calculating and interpreting financial ratios to assess the performance and status of a company. The profitability ratio is one of the ratios that may be used to assess a company's financial performance [14].

Return on assets (ROA) is a profitability ratio that illustrates how much assets contribute to net profit. [24].

$$ROA = \frac{EAT}{\text{Total Assets}}$$

Return on equity (ROE) is a measurement of a company's capacity to create net income based on a specific amount of capital [25].

$$ROE = \frac{EAT}{\text{Total Equity}}$$

3. RESEARCH METHODS

The method of this research is quantitative research methods. Judging from the relationship between variables, this research is classified as associative causality research. The research design model used in this study is represented in the picture below.

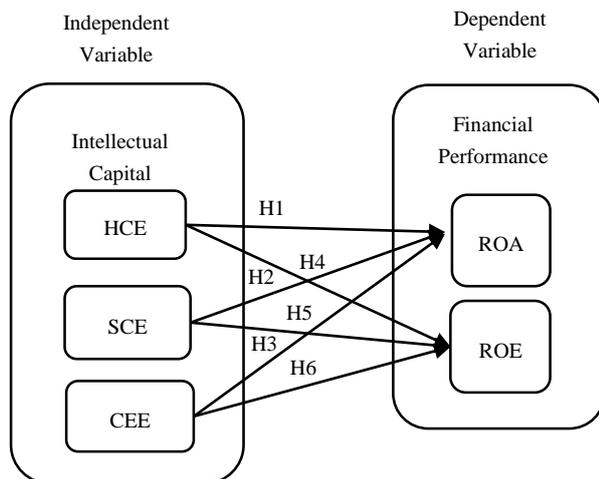


Figure 1: Research Design Model

Information: \longrightarrow Partial effect

The purposive sampling technique was used in this study, with 99 companies chosen as research samples. The following are the sample criteria used in this study:

Table 1. Research Sample Criteria

| No | Sample Criteria |
|----|---|
| 1. | Companies that are included in the basic and chemical industry sector, the consumer goods industry sector, the property sector, real estate, and building construction, as well as the trade, services and investment sectors listed on the Indonesia Stock Exchange (IDX) in 2014-2018 |
| 2. | Does not present financial statements in dollars |
| 3. | Companies that received positive profits for the 2014-2018 period |

The analytical method used in this study is Partial Least Squares (PLS) which is carried out with the help of Smart PLS 3.0 software. The Partial Least Squares (PLS) method is a multivariate statistical methodology for comparing several dependent variables with numerous independent variables [26]. It is to forecast the effect of variable X on variable Y and to explain the theoretical relationship between the two variables. The method of analysis that must be performed on *Partial Least Square* (PLS) are as follows:

- a. Evaluation of Measurement Model (Outer Model)

Rating model measurement with *Partial Least Square* (PLS) done by looking at the significance of the weight. To get weight significance you must go through a resampling procedure (jack-knifing or bootstrapping). If the weight value obtained p-value < 0.05 (5% one-tailed significance level), it can be concluded that the construct indicator is valid [27].

- b. Evaluation of Structural Model (Inner Model)

The value of R-Squares can be used to explain whether the independent latent variable has a substantive effect on the dependent latent variable in structural models using Partial Least Squares (PLS). Results of R-Squares (0.75, 0.50, and 0.25) value shows that the model is strong, moderate, and weak [27]. Decision making on the acceptance or rejection of hypotheses is determined by looking at the path coefficient, if obtained p-value < 0.05 (5% one-tailed significance level), it means that the independent variables have an effect on the dependent variable [27].

4. DATA ANALYSIS RESULT

4.1 Test the Outer Model

The calculation results *outer* model which is done using *software* Smart PLS 3.0 is as follows:

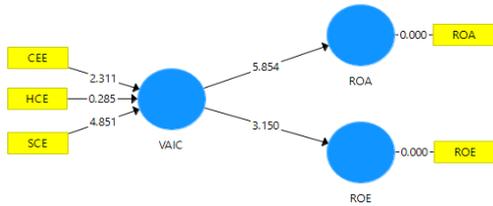


Figure 2. Calculation Results of Outer Model 1

Figure 2 shows that the T-Statistics value on the HCE indicator is 0.285, on the CEE indicator is 2,311, and on the SCE indicator is 4,851. Outer model 1 calculations result are presented in table 2 as follows:

Table 2. Calculation Result of Outer Weight 1

| | <i>P-Values</i> | Condition | Decision |
|------------|-----------------|-----------------------|-----------------|
| CEE → VAIC | 0.021 | <i>p-value</i> < 0.05 | Significant |
| HCE → VAIC | 0.775 | <i>p-value</i> > 0.05 | Not significant |
| SCE → VAIC | 0.000 | <i>p-value</i> <0.05 | Significant |

source: processed data

Based on table 2 it can be concluded that CEE and SCE are valid indicators of intellectual capital. This is shown from the calculation result *p-value* on the indicator CEE of 0.021 and SCE of 0,000 smaller than 0.05 (significance level of 5% one-tailed). While the *p-value* calculation results on the H indicator CE of 0.775 greater than 0.05 (5% one-tailed significance level), this shows that the HCE indicator cannot explain the effect *intellectual capital* on the company’s financial performance. Because the HCE indicator proved to be insignificant, the HCE indicator was omitted and recalculated only using a significant indicator. Result of recalculation *outer* model are as follows:

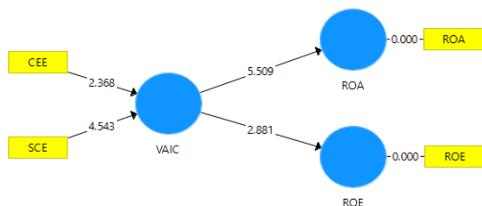


Figure 3. Calculation Results of Outer Model 2

Figure 3 shows that score *T-Statistics* on the indicator CEE of 2,368, and on the SCE indicator of 4,543. Table 3 shows the results of the outer model 2 calculations.

Table 3. Calculation Results of Outer Weight 2

| | <i>P-Values</i> | Condition | Decision |
|------------|-----------------|----------------------|-------------|
| CEE → VAIC | 0.018 | <i>p-value</i> <0.05 | Significant |
| SCE → VAIC | 0.000 | <i>p-value</i> <0.05 | Significant |

source: processed data

Based in table 3 it can be concluded that the most appropriate indicators to measure intellectual capital are CEE and SCE because of value *p-value* on the indicator CEE and SCE smaller than 0.05 (significance level of 5% one-tailed). This proves that sample companies have not recognized the importance of intellectual capital in an effort to increase value added for the company. Companies tend to take advantage of intellectual capital through managing the existing structural capital of the company and maintaining good relations with other parties to increase company profits.

4.2 Inner Model Test

Table 4 displays the R-Squares calculation findings from this study

Table 4. R-Square Calculation Results

| | R Square |
|-----|----------|
| ROA | 0.020 |
| ROE | 0.015 |

source: processed data

Based on table 4 it can be concluded that R-Squares value obtained from the calculation of ROA of 0.020, this shows that intellectual capital has effect on financial performance measured by ROA is 2% or classified as weak and the remaining 98% is influenced by other variables. While the R-Squares value obtained from the calculation of ROE of 0.015 shows that the effect of intellectual capital on financial performance measured by ROE is 1.5% or classified as weak and the remaining 98.5% is influenced by other variables.

Decision making on the acceptance or rejection of hypotheses is determined by looking at the path coefficient. The calculation results Path coefficient in this study are presented in Table 5 as follows:

Table 5. Calculation Results for Path Coefficients

| | Original Sample | P-Values | Condition | Decision |
|----------|-----------------|----------|----------------------|-------------------------|
| VAIC→ROA | 0.142 | 0,000 | <i>p-value</i> <0.05 | H ₀ Rejected |
| VAIC→ROE | 0.122 | 0.004 | <i>p-value</i> <0.05 | H ₀ Rejected |

source: processed data

Table 5 shows the effect of the independent variables on the dependent variable in this study, which are as follows:

- a. Effect of Intellectual Capital on Return on Assets (ROA)

Table 5 reveals that the p-value obtained was 0.000 less than 0.05 (significance level of 5% one-tailed), implying that H₀ is rejected. Because the initial value of the sample is a positive (0.142), this stated that intellectual capital has a positive and significant effect on ROA.

- b. Effect of Intellectual Capital on Return on Equity (ROE)

Table 5 reveals that the p-value obtained was 0.004 less than 0.05 (significance level of 5% one-tailed), implying that H₀ is rejected. Because the original sample value is a positive number of 0.122, this proved that intellectual capital has a positive and significant effect on ROE.

5. DISCUSSION

5.1 The Human Capital Efficiency (HCE) and Return on Assets (ROA)

Based on the results of tests that it shows that HCE has no positive and significant effect on ROA of companies listed on the Indonesia Stock Exchange in 2014-2018 [15,28]. HCE does not affect ROA because most companies in Indonesia in the current era of the global economy tend to use information technology to support the company's operations, so companies in Indonesia reduce the number of employees in carrying out their business processes. The decreasing number of employees proves that most companies in Indonesia use more physical capital owned by the company, and employees in the company are more focused on operational activities that cannot be replaced by physical capital. Another factor which is resulting in human capital cannot provide added value for the company is most companies in Indonesia do not realize the importance of employee contributions to the company's success, so the company does not seek to improve employee competency and expertise. Furthermore,

capital employed efficiency and firm sales growth were both major contributors to firm sales growth and market value. [27]. This makes the lack of motivation of employees to create positive ideas for the progress of the company and creative innovations as a company's effort to increase the value of ROA. When financial capital is low so that it is not sufficient to finance the company's operational activities. Due to limited funds, the obligation to pay salaries to employees will also experience problems [15].

5.2 The Structural Capital Efficiency (SCE) and Return on Assets (ROA)

SCE has positive and significant effect on ROA of companies listed on the Indonesia Stock Exchange in 2014-2018 [29,30]. In the current era of the global economy, information technology is a basic requirement to support every business process in a company to have a competitive advantage. At present, companies in Indonesia have moved forward by replacing the manual process into a digitalization process, one of which is by upgrading the system to the company to support its operational performance. In addition to supporting operational performance, the use of information technology contributes a lot to the implementation of corporate governance such as increasing transparency, speed of information, and accountability. The use of information technology will also increase work efficiency, effectiveness, and productivity because with the presence of information technology in the company, the availability of more accurate data so that it will help management in the decision process that is fast and precise. This shows that the sample companies in this study are getting better at managing their assets to increase the value of company ROA. It is determined by the value generation efficiency of the costs incurred for the organisation structure, procedures, intangible assets, working environment, various strategies, and policies [28]. Under the condition of *ceteris paribus*, greater "leverage" (lower equity percentage) reduces agency expenses outside of equity and affects performance finance (higher profit) [29].

5.3 The Capital Employed Efficiency (CEE) and Return on Assets (ROA)

CEE has no positive and significant on ROA of companies listed on the Indonesia Stock Exchange in 2014-2018 [31]. This means that companies need to increase their CEE to lead the way in improving market valuation, profitability, and productivity [30]. At present, competition in the business world is becoming tighter with the entry of top competitors in the company's business sectors. This a challenge for the company. Therefore, companies must address various challenges

by maintaining and improving superior company performance in all aspects of the business in order to be able to provide better service to customers. To be able to improve company performance, the company must exercise control over all company operational policies and procedures aimed at protecting all assets owned by the company with a good control system.

5.4 The Human Capital Efficiency (HCE) and Return on Equity (ROE)

There is no positive and significant effect between HCE and ROE of companies listed on the Indonesia Stock Exchange in 2014-2018 [30,32]. HCE does not affect ROE because of the large budget spent by the company for salary and allowances employees, but this is not balanced with the implementation of various training and education programs for employees, resulting in a decrease in employee productivity. Unproductive employees and high employee burden will reduce company profits which will also affect the company's financial performance decline. Training and provided to employees is expected to be able to increase employee motivation in creating a competitive and productive work atmosphere so that it will result in better performance in operational and financial terms because positive financial performance is inseparable from effective and efficient operational performance. If both of these things can be carried out appropriately, it will give results according to the target expected by the company and will also increase the value of the ROE of the company that is the investor's reference in making investment decisions [29,31].

5.5 The Structural Capital Efficiency (SCE) and Return on Equity (ROE)

SCE has positive and significant effect on ROE of companies listed on the Indonesia Stock Exchange in 2014-2018 [4,29]. Optimal company performance shows that the company is getting better at managing its assets so that it can increase the value of the company's ROE and will lure investors to invest [4]. Information technology has a significant role in helping companies to support operational activities in the form of infrastructures such as providing hardware, software, and network devices. Information technology is an aspect of supporting employee performance that plays an important role in facilitating the running of company operations. Through reliable information technology, the work processes of employees in the company can run effectively and efficiently. Therefore, currently Indonesia companies are striving to improve and develop information technology infrastructure, both hardware and software consistently and continuously to support the performance of employees in running business processes in the company. To improve the competence of its

employees. The company provides technical training related to network infrastructure and server administration and engages employees at several technology seminars with the aim of increasing employee insight and knowledge related to information technology because technology that meets standards can create optimal performance. This implies that the value created by spending money to create a convenient environment for employees, customers, and management, as well as intangible goods, have a big impact on profitability measurements but have a little impact on productivity measurements [28].

5.6 The Capital Employed Efficiency (CEE) and Return on Equity (ROE)

The results of test show that CEE has positive and significant effect on ROE of companies listed on the Indonesia Stock Exchange in 2014-2018 [29,33]. The increasing purchasing power of the people encourages companies in Indonesia to develop business and innovate to maintain the company's superiority among its competitors. The company sees a dominant market share the main competitive force in determining several strategies such as conducting marketing research, formulating pricing strategies, and preparing feasibility studies based on marketing analysis. As R&D spending rise, the impact of SCE on profitability rises as well. On the other hand, it has been discovered that the efficiency of innovation capital has a direct impact on business productivity [32]. The implementation of this strategy is continuously monitored and measured to ensure increased financial performance, especially the increase in the value of the company's ROE. The value generated via the use of money spent for capital has a substantial impact on financial performance indicators [28]. Increasing the value of ROE will provide a positive image of the company so that the company can build good relations and maintain effective communication with investors and other parties.

6. CONCLUSIONS AND SUGGESTIONS

6.1 Conclusions

- a. HCE has no positive and significant effect on ROA of companies listed on the Indonesia Stock Exchanges in 2014-2018.
- b. SCE and CEE have positive and significant effect on ROA of companies listed on the Indonesia Stock Exchanges in 2014-2018.
- c. HCE has no positive and significant effect on ROE of companies listed on the Indonesia Stock Exchanges in 2014-2018.

- d. SCE and CEE has positive and significant effect on ROE of companies listed on the Indonesia Stock Exchanges in 2014-2018.

6.2 Suggestions

- a. Companies should further improve the management and utilization of intellectual capital owned to create competitive advantage that affects the increase in profitability of the company, because a high level of profitability will increase the company's competitiveness so that it can attract investors to invest.
- b. Investors in making investment decisions should look at the company's ability to utilize all its potential, including human capital, structural capital, and employed capital. If all the potential possessed has been utilized properly, it will create added value that can encourage the company's financial performance so as to minimize losses that may occur to investors.
- c. Further researchers are advised to expand the object of research with other sectors or companies, use proxies other than ROA and ROE as indicators to measure the company's financial performance, and it is recommended to increase the research observation period so that the research results obtained are better

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