

PROFILING INTELLECTUAL CAPITAL PERFORMANCE AND RETURN ON INVESTED CAPITAL: EVIDENCE FROM INDUSTRIAL INDONESIAN BANKING

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Abstract: The purpose of this research is to profiling Return on Invested Capital and Intellectual Capital Performance by conducting tests and analyzing their effects on Industrial of Indonesian Banking. Measuring a company efficiency in allocating capital to profitable investments gives a sense of how well a company is using capital to generate profits. The main of finding is to asses return on invested capital become more informative as a financial performance. The research population consisted of 124 banking companies listed on IDX. Based on the sample selection criteria, we obtained 99 observational data samples. The method of analysis in this research was a quantitative method using program Eviews-Econometric Views. The analysis technique used in this research was panel data regression analysis. The results of this research show that human capital efficiency has a significant but negative effect on return on invested capital. Structural Capital Efficiency has a significant and positive effect on Return On Invested Capital. Capital Employed Efficiency has no significant effect on Return on Invested Capital. This study applied Resource Based Theory to develop the research hypotheses. This research novelty is the use Indonesian Banking Industry for profiling their return on invested capital and three angels efficiency, which consist of human, structural and capital employee.

Keywords: *Return On Invested Capital, Intellectual Capital Performance, Banking Industry*

Submitted: 2023-06-05; Revised: 2023-06-23; Accepted: 2023-06-26

1. Introduction

Accounting rules on asset recognition show that most intangible assets cannot be posted to a balance sheet, especially if the asset is developed internally, although is generally accepted as an investment if the intangible asset is an important resource for future performance. All costs incurred to develop the intangible assets must be directly charged as a cost in the income statement (Marr, 2012). The recognition of the importance of intangible assets can drive up corporate value and increase the competitive advantage (Bounfour, 2003; Chen et al., 2005; Ulum, 2017).

The recognition of Intellectual Capital in Indonesia was developed after the PSAK No. 19 (Revised 2000) had been applied. Now it has been replaced by PSAK No.19 of 2015 on intangible assets. Based on PSAK No. 19 of 2015, intangible assets are non-monetary assets

that can be identified, that do not have physical assets and that are held to be used in producing or delivering goods or services (IAI, 2015). In PSAK No. 19, it does not explicitly explain that intangible assets are IC. However, there is an implicit explanation that the types of intangible resources include science and technology, the design and implementation of new systems or processes, licenses and intellectual property rights (Destania & Puspitasari, 2021). The literature review has conduct to find out the rules regarding intangible assets in financial statement (Mustapa et al., 2022).

The development of a fast and open flow of globalization provides an image to companies that dynamic change is possible in all aspects of business. In order to maintain its business, companies must quickly change their business strategy from one that is based on labor to a business that is based on knowledge. The existence of the company will depend on how the company can transform and capitalize on the development of science and technology.

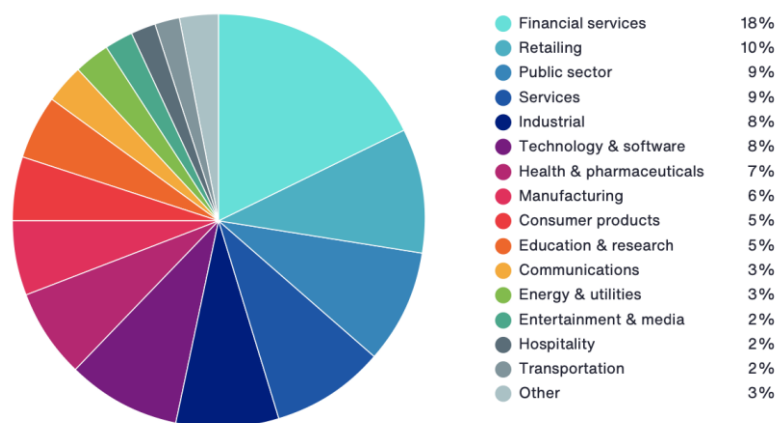


Figure 1. Pie Chart of Primary Industry Focus that applied cyber risk management technology (2022).

Source from The ABA Cybersecurity Handbook: A Resource for Attorneys, Law Firms, and Business Professionals, Third Edition. Figure 1 reports the primary industry classification of respondents' organizations whose applied technology of cyber risk management. This chart identifies financial services (18 percent of respondents) as the largest segment, which includes banking, investment management, insurance, brokerage, payments and creditcards. This is followed by industrial (11 percent of respondents), services (10 percent of respondents), retailing (9 percent of respondents), health and pharmaceuticals, technology and software, and public sector (each at 8 percent of respondents).

Changes in the business strategy confront the company with the development of an environment that is controlled by technology. In the past, the economy has depended on resources such as land, natural resources, equipment and capital to create value while for the millennium economy, it depends on knowledge, which has more value than the physical assets of the organization.

The aim of this research is to examine and analyze each component of VAIC, which consists of human, structural and capital employed efficiency (HCE, SCE, CEE) on Financial Performance. The eminency of this study is the measurement of financial performance using Return On Invested Capital (ROIC). Analyzing the company's performance using the ROIC concept is a very interesting thing. ROIC is the relationship between profit and capital

investment. ROIC compares the company's performance to the level and source of the company's funding.

Bank performance is a description of the achievements achieved by the bank in its operational activities. Bank financial performance is an illustration of the financial condition of the bank in a given period, including the aspects of fund collection and fund disbursement. The financial performance of a bank can be assessed using a number of indicators. The one that is used as the basis of this assessment is the financial statement of the concerned bank. The assessment of financial performance is one of the methods that can be used by the management to fulfill its obligations to the funders and also to achieve the goals set by the company. The most appropriate measurement of banking performance is to measure the ability of the banks to generate profits from the various activities which are carried out therein.

PT Bank Mega Tbk Pekanbaru in 2015 had to lay off the employees who were assessed as not reaching the targets of the company (bertuah.com, 2015). The banks' company was required to pay severance money, award money for the working period, housing reimbursement and their medical costs. This case indicates the disclosure of information that is less comprehensive about activity and operations. This information can be disclosed in the annual report as supporting information. The companies can explain the amount of expenditure or cost of an employee, such as the cost of education and training, retirement, competency development and other costs that are associated with improving employee quality.

Human Capital Efficiency (HCE) includes education, experience, skills and creativity (human capital). Research by (Dewi & Setyowati, 2015; et al Tarigan, 2021; E. S. Tarigan & Septiani, 2017) shows that HCE has a significant negative effect on financial performance. However, (Destania & Puspitasari, 2021; Prima, 2018; Simarmata, 2016) had different results, showing that HCE has a significant positive effect on financial performance. (Ciptaningsih, 2013) proven that HCE has a negative significant effect.

Structural Capital Efficiency (SCE) discusses technology systems, company operational systems and training courses (structural capital). Research by (Ciptaningsih, 2013; Destania & Puspitasari, 2021; Dewi & Setyowati, 2015; Prima, 2018; E. S. Tarigan & Septiani, 2017) stated that SCE has a significant and positive effect on financial performance. However, the research of (Simarmata, 2016) showed that SCE has a negative influence on financial performance.

Capital Employed Efficiency (CEE) discusses physical capital and financial capital. Research by (Ciptaningsih, 2013; Dewi & Setyowati, 2015; E. S. Tarigan & Septiani, 2017) shows that CEE has a significant and positive effect on financial performance. Prima (2018) suggested different results, in which CEE has no significant and negative effect on financial performance.

2. Literature Reviews

Resource Based Theory (RBT), known as resource-based theory, uses a resource-based approach in the analysis of its competitive advantage. RBT was first presented by Wernerfelt (1984) in an article titled "A resource-based view of the firm" which combined the ideas of Selznick (1957) and Penrose (1959) on the "definition of the firm as a system of productives resources" (Ulum, 2017). Resource-Based Theory states that if competitive advantage can be achieved and maintained, the success of a company will also be achieved. Efficiency of owned resources and social exchange can be used in improving company performance and

determining the company's competitive advantage. The company's existing resources are divided by Barney (1991) into human resources, physical resources, and organizational resources (Barney, 1991).

Based on the RBT concept, if a company can utilize its resources maximally, then the company has a competitive advantage and it is thus able to compete with its competitors (Puspitasari & Srimindarti, 2014). Human resources that have high skills and competencies are competitive advantages for companies if they can be utilized and if the companies can manage the potencies owned by the employees. With the increase in productivity, the company's performance will increase and with effective resource management, the use of the resources will be more effective and efficient.

Return on Invested Capital (ROIC) refers to the company profits that are related to the level and source of funding. This number is a measure of the company's success in relation to using its funds to generate profits. The analysis of any returns on the capital investment compares the company profits or other performance measures to the level and source of corporate funding. This analysis determines the company's ability to gain success, obtain funding, pay creditors and to give rewards to the owner. Return on capital investment is used in various areas, including managerial effectiveness, the level of profitability and also planning and control. Return on capital investment uses the measurement of profit divided by capital investment. However, there is no agreement regarding this calculation. Different investment measures reflect the perspective of different financial statement users (Subramanyam, 2017).

Intellectual Capital includes all of the knowledge about the employees, the organization and their ability to create additional value. This can lead to a sustainable competitive advantage. Intellectual capital can be defined as the total value of a company that describes the company's intangible assets derived from three pillars, namely human capital, the structure and the customer (Destania & Puspitasari, 2021; Puspitasari & Srimindarti, 2014). Intellectual capital includes all of the knowledge of the employees and the organization and their ability to create additional value. Intellectual capital has been identified as an intangible set (resources, abilities, and competencies) that drives organizational performance and value creation.

The Value Added Intellectual Capital (VAIC) model was developed by Pulic (Pulic, 2000) as an alternative measure of intellectual capital. In this model, it provides information about the efficiency of value creation from both tangible and intangible assets (Svanadze & Kowalewska, 2015). The main components of VAIC can be seen from the company's resources, namely human capital, structural capital and physical capital.

Effect of Human Capital Efficiency on Return on Invested Capital

According to RBT, IC is a unique resource that is able to create a competitive advantage in the company so then it can improve the company performance to be better and to create additional value for the company. Companies that have competitive advantages will certainly be able to compete with their business opponents and the companies' sustainability will be guaranteed. One of the resources owned by the company is human capital. Increasing employee productivity shows that the company is better at managing its resources. It can improve the company's financial performance as measured by ROIC. The higher the HCE, the higher the ROIC of the company. Previous research conducted by (Destania &

Puspitasari, 2021; Prima, 2018; Simarmata, 2016) proves that HCE has a significant and positive effect on Financial Performance.

H1: Human Capital Efficiency has a positive effect on Return on Invested Capital

Effect of Structural Capital Efficiency on Return on Invested Capital

SCE is a supporter of human capital in terms of improving financial performance and it is one of the big drivers of companies maximizing their potential. Based on RBT, when the culture and management of the company are maintained and utilized properly, it will improve the company's financial performance and show that the company is better at managing the company's resources. The higher the SCE, the higher the ROIC for the company. This is consistent with the research conducted by (Ciptaningsih, 2013; Destania & Puspitasari, 2021; Dewi & Setyowati, 2015; Prima, 2018; E. S. Tarigan & Septiani, 2017), stating that SCE has a significant positive effect on financial performance.

H2: Structural Capital Efficiency has a positive effect on Return on Invested Capital

Effect of Capital Employed Efficiency on Return on Invested Capital

CEE is a combination of physical capital and financial capital. CEE is obtained if the capital used is less. It can generate increasing sales or larger capital and it is also accompanied by other increasing sales. The capital used is an asset value that contributes to the company's ability to generate income (www.investorword.com). Based on RBT, if the company's capital is used in a relatively large amount, then the company's total assets are also relatively large and the company's income will also increase. This indicates that the company is better at managing its resources. The higher the CEE, the higher the ROIC of the company. Previous research has shown that there is a significant and positive effect between CEE and financial performance (Ciptaningsih, 2013; Dewi & Setyowati, 2015; E. S. Tarigan & Septiani, 2017).

H3: Capital Employed Efficiency has a positive effect on Return on Invested Capital

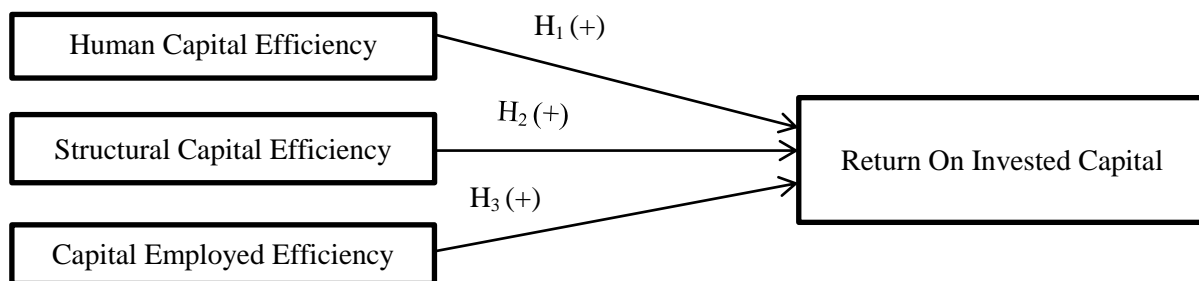


Figure 2. Research Framework of ICP and ROIC

3. Research Method

Population and Samples

The population in this study consisted of 124 banking companies listed on IDX. Based on the sample selection criteria, namely banking companies registered on IDX which have published financial statements for 2020 - 2022 continuously and companies in the condition of earning a profit, we obtained 99 items for the observational data.

Technique Analysis

The method of analysis in this study was a quantitative method conducted using the program EvIEWS (Econometric Views), which is a type of time-series econometric program. The analysis technique used in this study was panel data regression analysis in order to determine whether there is an influence of the independent variable on the dependent variable. The data analysis method in this study was panel data regression analysis. There were two estimation choices, namely the estimation of the Fixed Effect Model and the estimation of the Random Effect Model.

Measurement

Return on Invested Capital (ROIC) was defined as:

$$ROIC = \frac{INCOME}{INVESTED CAPITAL}$$

Invested Capital was calculated based on the Return on Net Operating Assets (RNOA):

$$RNOA = \frac{Net\ Operating\ Profit\ After\ Tax}{Net\ Operating\ Asset}$$

Thus, as we see from the formula that VAIC is the sum of three parameters (Pulić, 2008):

- 1) Efficiency rate of the capital employed = CEE (Capital Employed Efficiency),
- 2) The rate of the effectiveness of the human capital = HCE (Human Capital Efficiency),
- 3) The rate of structural capital efficiency = SCE (Structural Capital Efficiency).

Value Added Intellectual Capital (VAIC),

$$VAIC = CEE + HCE + SCE$$

Value Added (VA),

$$VA = OUT - IN$$

Where OUT is total of revenue, IN is all costs (except salaries, wages, incentive).

The Efficiency of Capital Employed (CEE) was calculated by:

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

Capital Employed = Total Assets.

The formula used to calculate Human Capital Efficiency (HCE) was as follows:

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

Human Capital = Total Salaries, Wages, Incentives.

The Structural Capital Efficiency (SCE) equation was:

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

Structural Capital = VA – HC

4. Results and Discussion

4.1. Results

Descriptive Studies.

HCE. The lowest HCE value of 1.0760 was for BDMN in 2020. BDMN and BNP carried out operational integration and banking service systems on September 2, 2019 (Operational Merger Effective Date). After the effective date of the merger, the bank that accepts the merger will conduct a review as necessary on human resources in order to harmonize job criteria and HR policies. The merger between BDMN and BBNP has an impact on the rationalization of the number of employees (review of the need for human resources). The highest HCE value of 8.0856 was for BBKA in 2021. This shows that BBKA indicates that their company has the ability to create more effective value added in its HC management.

SCE. The smallest data value of SCE was 0.0706 for BDMN in 2021, while the maximum value of 0.8763 was present in BBKA in 2021. This shows that BCA has the ability to create value added by managing their SC.

CEE. CEE has the minimum value of 0.0097 for BVIC in 2020, while the maximum value of the CEE of 10.0709 was for BVIC in 2022. The data shows that BVIC had a significant improvement and increased their CEE. It shows how effective VIC is at managing their CE to create value added. BVIC won an award at the Indonesia Finance Award 2022. This award assesses the Company's financial performance in terms of its success in providing added value to shareholders.

ROIC. BDMN in 2020 had the highest value for ROIC. This result strengthens BDMN after one year as a surviving bank. However, additional data shows ROIC from DDMN of 6.47 (estimates on Q3 2023, wsj.com). The lowest value of the ROIC was for BBYB in 2022. Return on invested capital of BBYB peaked in December 2019 at 2.2%.

Table 1. Descriptive Statistic: Minimum and Maximum

Variable	N	Minimum	Maximum
HCE	99	1.0760	8.0856
SCE	99	.0706	.8763
CEE	99	.0097	10.0709
ROIC	99	-18.9574	33.9345

Source: SPSS Output (2023).

The following is ROIC profiling for BUMN Banks. PT Bank Rakyat Indonesia's latest twelve months return on invested capital is 10.1%. Return on invested capital of BBRI decreased in 2020 (4.2%, -52.8%) and increased in 2021 (5.5%, +30.6%) and 2022 (8.9%, +62.0%). PT Bank Mandiri's latest twelve months return on invested capital is 12.8%. Return on invested capital of BMRI decreased in 2020 (6.3%, -35.1%) and increased in 2021 (9.5%, +49.4%), and 2022 (12.1%, +27.9%). PT Bank Negara Indonesia's latest twelve months return on invested capital is 9.1%. Return on invested capital of BBNI decreased in 2020 (2.3%, -72.1%) and increased in 2021 (5.3%, +131.0%) and 2022 (8.6%, +61.0%). PT Bank Tabungan Negara's latest twelve months return on invested capital is 6.8%. Return on invested capital of BBTN increased in 2020 (2.8%, +170.8%), 2021 (6.1%, +118.7%), and 2022 (6.8%, +11.5%).

Table 2. Profiling ROIC for BUMN Banks' 2022

Banks of BUMN	ROIC
BBRI	10.1
BBNI	9.1
BMRI	12.8
BBTN	6.8*

* increased in 2020 to 2022.

Source: SPSS Output (2023).

Estimations of the Fixed Effect Model (FEM)

Table 3. shows the FEM estimation results. It can be concluded that Human Capital Efficiency (HCE) and Capital Employed Efficiency (CEE) have no significant effect on Return on Invested Capital (ROIC) and that Structural Capital Efficiency (SCE) has a significant effect on Return on Invested Capital (ROIC).

Table 3. Results of the Fixed Effect Model

Dependent Variabel: ROIC				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	1,80	3.05	5.898705	0.0000
HCE	-0.08	0.06	1.181217	0.2420
SCE	2.01	0.58	3.438630	0.0010
CEE	5.59	7.24	0.773072	0.4424
R-squared	0.498539			

Source: SPSS Output (2023).

Estimation of Random Effect Model (REM)

Table 4 reports the results for REM, Human Capital Efficiency (HCE) and Structural Capital Efficiency (SCE), which have a significant effect on Return On Invested Capital (ROIC). Capital Employed Efficiency (CEE) has no significant effect on Return on Invested Capital (ROIC).

Table 4. Results of the Random Effect Model

Dependent Variable: ROIC				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	2.23	1.48	15.03723	0.0000
HCE	-0.11	0.05	-2.179030	0.0316
SCE	1.32	0.42	3.111380	0.0025
CEE	4.99	3.38	1.477603	0.1428
R-squared	0.204577			

Source: SPSS Output (2023).

Hausman Test

The Hausman test statistic in Table 5 follows the distribution of the Chi-Square statistics with d.f. of the number of independent variables. This was in order to choose whether the estimation of the Fixed Effect Model or the estimation of Random Effect Model was better. If

the results obtained were less than 5% (significant), then the model used was FEM but if it exceeded 5% (not significant), then the model used was REM. Based on the Hausman test, REM was considered to be the more appropriate model in this research. This is indicated by the Chi-square value of 4.784331 with a p-value of 0.1883.

Tabel 5. Results of the Hausman Test

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	4.784331	3	0.1883

Source: SPSS Output (2023).

4.2. Discussion

Effect of Human Capital Efficiency on Return on Invested Capital

The coefficient produced by HCE is 2.23 with a t-count of -2.179030, and a probability of 0.0316. This is less than 5% ($p < \alpha$), so the HCE statistically has a significant effect on ROIC. It can be concluded that HCE has a significant negative effect on ROIC. Thus, the first hypothesis which states HCE has a positive effect on ROIC **is rejected**.

These results show that banking companies are not using their human capital well. The lack of improvement in the management of good quality human resource in the company decreases the level of employee productivity. Decreasing the employee's level of productivity will result in a decrease in the value of efficiency in return on capital investment. This happens because employee competency training is still minimal and the company has not paid attention to the advantages when the human capital is utilized properly. Based on RBT, because the company has not been able to utilize its resources, this means that the company has not been able to create competitiveness compared to others. The increasing of resources can be done by increasing the training and development of employees and the company pays more attention to the advantages when the human capital is utilized properly. Human capital is an asset that can be used as a permanent foundation for innovation and creativity.

Effect of Stuctural Capital Efficiency on Return on Invested Capital

The coefficient produced by SCE is 1.32 with a t-count of 3.111380, and a probability of 0.0025. This is less than 5% ($p < \alpha$), so statistically, the SCE variable has a significant effect on ROIC. It can be concluded that SCE has a significant positive effect on ROIC. Thus the first hypothesis which states SCE has a positive effect on ROIC **is accepted**.

This shows that the banking companies has managed their structural capital well, so the efficiency of return on capital investment increases. With a good arrangement of management culture, a relatively fast operational system improvement will support the company in fulfilling the company's operational routines. Today, this is increasingly needed by banking companies. In addition to increasing the efficiency of return on capital investment, based on RBT, this can be an additional value of competitiveness for the company itself.

Effect of Capital Employed Efficiency on Return on Invested Capital

The coefficients produced are as follows: CEE is 4.99, the t-count is 1.477603 and the probability is 0.1428 more than 5% ($p < \alpha$). Statistically, the SCE variable has no significant effect on ROIC. It can be concluded that CEE has a significant positive effect on ROIC. Thus the first hypothesis which states that CEE has a positive effect on ROIC **is rejected**.

It shows that there is no influence that can increase or decrease the value of the efficiency of return on capital investment. Based on RBT, banking companies have not been able to create competitive advantages compared to their competitors because they have not been able to manage their capital efficiently.

Return on invested capital is a capital efficiency ratio used to measure a firm's ability to create value for all its stakeholders, debt, and equity. Return on Invested Capital is used to evaluate the ability of the company to create value for all its stakeholders, debt and equity. ROIC can be used to benchmark companies within an industry but it is also useful to consider its relationship to the Weighted Average Cost of Capital.

Since ROIC measures the company's ability to generate a return on invested capital, and the WACC measures the minimum return required by the company's capital providers (equity and debt), the difference between ROIC and WACC is referred to as Economic Profit or Excess Return.

5. Conclusion

The purpose of this research is to provide empirical evidence that the Indonesian banking industry relies on intellectual capital performance and return on invested capital. This study also measured how effectively the banking companies manage HC, SC, and CE to create their added value. The most important finding of this research shows that HCE has a significant but negative effect on ROIC. The empirical findings revealed that there is a significant and positive effect between SCE and ROIC. CEE has no significant effect on ROIC. Therefore, the avenues for further research include more data from more samples of banking companies covering a longer period of time. In addition, it could be useful to further investigate the relationships of the other ICP to ROIC.

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