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The effect of Intellectual Capital on profitability with Firm size as moderating variable (Empirical research on state-owned enterprise in Indonesia 2012-2020)

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ABSTRACT: Intellectual capital is an intangible asset that is difficult to measure, but has a large effect on the company's earnings performance. One of the measurements of intellectual capital uses the Value Added Intellectual Coefficient (VAIC) indicator variable. This study examines the effect of intellectual capital on state-owned enterprises (SOE) in Indonesia from 2012-2020. This research used 87 observations as the research sample. The analysis tools used were multiple regression and moderated regression analysis (MRA) to determine the moderating effect of company size in moderating intellectual capital on profitability. The results showed that intellectual capital as measured by the Value Added Intellectual Coefficient (VAIC) variable and its derivatives showed that all VAIC components had a significant positive effect on profitability. In addition, it is shown that company size is also able to moderate the effect of intellectual capital (VAIC) on profitability.

KEYWORDS: Intellectual capital, Firm Size, Moderated regression analysis, Profitability, State- owned enterprise (SOE).

I. INTRODUCTION

Nowadays, the Indonesian government has been encouraging state-owned enterprises (SOE) to contribute to national economic growth by boosting its revenue. In 2009 when the economic crisis occurred, state-owned enterprises were able to generate maximum profits and experienced growth based on the financial reports published in the third quarter of 2009. It is known that all state-owned enterprises (SOE) have recorded a net profit growth of 18.07%; and its revenue has grown by 10.89%.The government through several policies wants to make efficiency in running its business in order to maximize company performance, effectiveness and investment capability in the future. One way to realize it is by expanding businesses in order to improve the company's performance. Other benefits of this policy are that the mining, oil and gas sector business actions are able to run more rapidly and it also runs with global competitiveness. Here, Intellectual Capital has a role as a strength to be able to compete globally by improving company performance. Intellectual Capital is also inseparable from the information process generated by related parties in order to increase efficiency and effectiveness in business processes.

TABLE 1.1
Intellectual Capital Value and Return of Assets (ROA) of State-Owned Enterprises (SOE) in Indonesia

	2012	2013	2014	2015	2016	2017	2018	2019	2020
Return On Assets	8.505	6.447	4.478	3.936	3.659	3.805	3.767	2.507	0.180
Intellectual Capital	4.316	3.967	3.740	3.174	2.510	1.687	1.855	3.072	3.894

Source: Secondary data, processed in 2021

From table 1.1, it can be seen that the ROA value of SOE companies in Indonesia has a tendency to show a decline from 2012 to 2020. Therefore, if the decline continues, SOEs will not be able to contribute maximally to the state revenue, since the continuing decline in profits will cause the payment of dividends to the state to decrease. The intellectual capital value of SOEs also has a tendency to decline – It was only in 2018 to 2020 did the intellectual capital value show an increase. Therefore, it is necessary to conduct research on the cause of the decline in ROA of the SOEs which may be caused by the value of intellectual capital.

Several previous studies have also shown inconsistencies regarding the effect of intellectual capital (IC) on profitability. Research conducted by Ulum (2008), Zeghal et. Al, (2010), Mondal & Ghosh (2012) has shown that IC has a positive effect upon profitability, whereas research conducted by Kamath (2008), Kuryanto & Syafrudin (2008) has shown that IC has no significant effect on profitability. Intellectual Capital has a different understanding from various business circles, where IC is an intangible and unclear asset because it is associated with *goodwill*, while the two things are different. This fact can be seen from back in the 1980s when the general idea of the value of intangible assets was always named *goodwill* (Tan, et. Al, 2007). According to Zurnali in 2010, the main elements that make up IC for companies in intellectual capital are Human Capital, Structure Capital, and Capital Employee. Human Capital is a combination of knowledge, skills, innovation, and a person's ability to carry out their duties so that they can create value to achieve a goal (Bontis, 2002). That is why Human Capital is essential for a company as it can provide strength to intellectual resources and support the company's success in creating a competitive advantage.

Applications (Software) continue to develop which is able to support performance management that provides convenience to the consumers. With the support and comfort that supports the company's activities, it is possible to create added value so that there will be greater opportunities to increase the company's income in the future. Intellectual capital is one of the links between increased sales and company growth. Large and well-established companies will have no difficulty in going to the capital market because with the ease of dealing with the capital market, it means that there will be greater flexibility and a greater confidence level coming from the investors because they have greater operational performance. Research on the impact of IC on company financial performance has been conducted by several researchers such as Mondal and Ghosh (2012). They conducted research on the performance of an SOEs in India which indicated that there was a relationship between the company's financial performance which was influenced by intellectual capital. Value added Intellectual Capital (VAIC) has a significant positive effect on company performance. VAIC also has a positive effect on ROE and productivity. All IC components also have a positive effect on productivity.

The test result of "the relationship between intellectual capital and market value and corporate financial performance" using a sample of public companies in Taiwan used the Value Added Intellectual Capital method by Chen et al. (2005) shows that intellectual capital has a positive effect on market value and company performance. The results of this study are consistent with Chen et al's research, which claims that IC has a positive impact towards company performance in the future. This research is also supported by research conducted by Zeghal, et. al on the market value and company performance. Kamath (2008) conducted a similar study regarding the effect of IC on the performance of pharmaceutical companies in India. The results prove that intellectual capital has no significant effect on company performance. This result is also supported by Kuryanto and Syafrudin's study (2008) who also claimed that intellectual capital does not have a significant effect on company performance. Human Capital is one of the main strategic aspects in a company which is a prerequisite for achieving success (Schultz, 1961). Human capital is the main part of IC and refers to the knowledge that is in the minds of individuals and their experiences (Simsek and Heavey, 2011). In a competitive environment, human capital is crucial because it shows the total capacity of the employees to realize tangible assets and intangible assets by using both their ideas and knowledge. Therefore, these ideas can create value for the organization and help to achieve success in competition. Human capital consists of three components, namely: competence, attitude and intellectual dexterity (Ashton, 2007).

Structural capital includes a store of non-human knowledge within an organization and the support of human capital (Watson and Stanworth, 2006). Effectively, structural capital can be built through organizational processes, information systems, organizational culture, internal organizational structures, or administrative systems (Tseng and Goo, 2005). Based on this study, there are inconsistencies in the results between several researchers regarding problems related to the influence of intellectual capital on the company's financial performance as measured by Return on Assets (ROA). When viewed from the differences in previous studies conducted by several researchers, the results of which are shown different and even contradictory between one result and another. The difference outcome of these studies is what is raised to be the main problem in this study.In the discussion of Intellectual Capital, it can be seen that the use of proper intellectual capital can provide efficiency and effectiveness in the activities where the size of a company also indicates its accuracy and speed in reporting important information to stakeholders. That way, both company size and intellectual capital have an impact on the efficiency and effectiveness of the activities which in turn will be able to give the company a competitive edge in global competition. Performance measurement is used by companies to make improvements on top of their operational activities in order to compete with other companies. For investors, information about the company's performance can be used to observe whether they will maintain their investment in the company or look for other alternatives.

In addition, measurements are also carried out to show investors and customers or the public in general that the company has good credibility (Munawir, 2008).

II. LITERATURE REVIEW

Stakeholder Theory: Fontaine et al. in 2006 claimed that in stakeholder theory, it is stated that accounting report is deemed capable of explaining strategies to influence company interactions with other parties. Stakeholder theory shows the importance of maintaining stakeholder relationships with employees, consumers, distributors, and the company's business partners. Within the scope of intellectual capital (IC), this theory argues that all stakeholders have fair rights in treatment and that managers must organize the organization in order to get benefits / benefits for all stakeholders by utilizing all existing potential, both human capital / employees, physical assets, and down to the structural capital itself. By doing so, the company is able to provide added value for the company. The increase in added value for the company will certainly provide an increase in financial performance. Furthermore, the development of the company will certainly be even better in the future if the value of the company in the eyes of stakeholders increases.

Resources Based Theory/Resource Based View (RBV) : Resource-based view of the firm (RBV) is a theory that aims to analyze competitive advantage by emphasizing the quality of knowledge. Resource-based theory was first proposed by Penrose (1959) which showed that company resources were heterogeneous and not homogeneous, and that the unique character of the company was generated from the productive services provided by the company's resources.

Legitimacy Theory: Legitimacy theory is closely related to stakeholder theory. In the perspective of legitimacy theory, a company will voluntarily report its activities if the management considers that this is what the community expects. Legitimacy theory is also closely related to the reporting of intellectual capital, which is also related to the use of content analysis methods as a measure of reporting. From the perspective of legitimacy theory, the capacity of intellectual capital will encourage companies in financial reporting to obtain public legitimacy in the intellectual property owned by the company. It is very meaningful to maintain existence in the corporate environment through recognition of public legitimacy for the company.

Intellectual Capital (IC) : Intellectual capital is an intangible asset that is not directly stated in the financial statements. It which can be in the form of information and knowledge resources that can function to improve competitiveness and improve company performance. Intellectual capital itself is not presented in financial reports, but Pulic (1998) suggested calculations using the Variable Value Added intellectual coefficient (VAIC) as a way to measure intellectual capital. VAIC is the sum of three components, which are: Value Added Human Capital (VAHC), Structural Capital Value Added (STVA), and Value Added Capital Employed (VACA). VAHC shows how much VA can be generated with funds spent on labor. This ratio shows the contribution made by each rupiah invested in HC to the value added of the organizations. VACA is an indicator for VA created by one unit of physical capital. This ratio shows the contribution made by each unit of CE to the value added of the organization. Structural capital value added (STVA) is a ratio that measures the amount of SC needed to produce 1 rupiah from VA and it is an indication of how successful SC is in value creation.

The Influence Of Intellectual Capital On Profitability: Intellectual capital will be measured by the VAIC variable. Intellectual capital includes all knowledge of the employees, the organization, and their ability to create value added for the company and cause it to have an advantage in competition. These days, it is believed that intellectual capital is able to improve the profitability of companies in which the IC serves as a resource that could improve the company's competitive rivalry. With this ability, companies can have more value compared to other companies so that they can contribute to financial performance (Chen, Cheng, and Hwang, 2005: 160). In this case, the company needs to have added values (VA) to improve its financial performance. This added value can be created by developing the intellectual capital of the company. Intellectual capital consists of three components of efficiency indicators that a company must have, namely: capital employee efficiency (VACA), human capital efficiency (VAHU), and structural capital efficiency (STVA) which are measured using the intellectual capital measurement method, or also known as the Value Added Intellectual Coefficient (VAIC). The results of previous research conducted by Kumalasari and Astika (2013: 288) have shown that intellectual capital, which is measured using the value added intellectual coefficient (VAIC) method, has a positive effect on the company's Return of Assets (ROA).

The Role Of Company Size In Moderating The Effect Of Intellectual Capital (VAIC) On Profitability

According to Ulum (2009: 200), there are at least four arguments that can explain why large companies are more likely to disclose more information than small companies. First, large companies are more likely to have lower information production costs or competition loss costs compared to small companies. Second, it is possible for large companies to have a broader basis of ownership so that more disclosure is needed due to demands from shareholders. Third, large companies are more likely to recruit a highly-qualified human resources that is needed "to implement" a more sophisticated reporting system than smaller companies. Fourth, managers of smaller companies seem to believe that the more information being disclosed to the public could harm the company's potential of rivalry. Through previous theory and research, it is said that company size has a strong relationship and a positive effect on financial performance with the proxy for Return on Assets (ROA). Moreover, it is said also that company size is closely related to the purpose of quality improvement of the processing and delivery of information. Therefore, company size will be used as a moderating variable for the effect of intellectual capital on financial performance in this study.

II. INDENTATIONS AND EQUATION

The population used in data collection is state-owned companies in Indonesia in 2012-2020 with a sampling method that is called *purposive sampling method*. Purposive sampling is a technique that is used when taking samples with certain considerations (Sugiyono, 2010: 122). Due to the research background, the researcher focuses mainly on the financial performance of the Indonesian government where SOE is a contributor to 20% of the country's GDP. The criteria used in this study are:

a. Non-financial state-owned companies that publish complete financial reports from 2012-2020.
b. SOE companies that have positive profits and their financial statements are presented in rupiah currency.

TABLE 3.1
List Variables

Variable	Operational Definition	Measurements
Profitability	The company's ability to generate net profit after tax by using the assets it owns.	ROA = $\frac{\text{net profit after tax}}{\text{Total assets}}$
Company Size	Total assets owned by the company.	SIZE = Ln Total assets
Intellectual Capital	VAIC shows the intellectual capital ability of an organization which can also be considered as a BPI (Business Performance Indicator).	VAIC = VAHU + STVA + VACA VAHU = $\frac{\text{Value added (VA)}}{\text{Employee salary expenses}}$ STVA = $\frac{\text{Value added}}{\text{Capital employee}}$ VACA = $\frac{\text{Value added} - \text{Employee salary expenses}}{\text{Value added}}$ Value Added = Output - Input Output = Operating revenues + other revenues Input = Total expenses – employee salary expenses

IV. FINDINGS

This study uses two research models. In the first model, the researcher will test the direct effect of intellectual capital on ROA. Meanwhile, in the second model, the researcher will examine the role of company size in moderating the effect of intellectual capital on profitability. In addition to using the VAIC variable, Intellectual Capital will also use its constituent components, namely STVA and VACA; while for VAHU, we were not able to input it due to the multicollinearity problem with the VAIC variable.

First Model : ROA = β1 VACA + β2 STVA + β3 VAIC + β4 SIZE + e
Second Model : ROA = β1VACA + β2STVA + β3 VAIC +β4 SIZE +β5 VAIC*SIZE +e

TABLE 4.1
Result of Hypothesis Testing

	Model 1		Model 2	
Independen Variable	B	p-value	B	p-value
VACA	0.544	0.000	0.4998	0.0000
STVA	0.356	0.000	0.3479	0.0000
VAIC	0.313	0.000	0.3515	0.0000
SIZE	-0.483	0.000	-0.4704	0.0000

VAIC*SIZE		-0.1543	0.0002
Adj Rsquare	0.873	0.892	
F-test	14.89	46.29	

Dependend variable :ROA

From the second table, it can be seen that the Intellectual Capital variable as measured by VAIC and its constituent components has a positive and significant effect on profitability as measured by ROA; whereas firm size has a negative and significant effect on ROA. From testing the second model, it is known that the interaction between SIZE * VAIC has a p-value of 0.0002. From these results, it can be concluded that company size is able to moderate the effect of VAIC on ROA. Its moderation weakens because in the first model – when it has not been interacted with by company size – the VAIC regression coefficient value was 0.313. In the second model, the VAIC * SIZE value is -0.154. This means that company size can reduce the positive effect of VAIC on ROA by 0.159 (0.313 - 0.154). From the test results, it is also proven that the higher intellectual capital will make the company have high profitability as well. Moreover, large company size does not increase the positive effect of VAIC on profitability, but instead decreases the positive effect of VAIC on ROA. This result means that intellectual capital in large companies does not necessarily have a better impact than small companies because they may not invest a lot in intangible assets such as intellectual capital.

V. CONCLUSION

The results of the Value Added Intellectual Coefficient (VAIC) regression test on ROA show a regression coefficient of +0.313 with a significance of 0.000. Therefore, it can be concluded that VAIC has a positive effect on Return on Assets (ROA). Although intellectual capital is an intangible asset that is difficult to measure, it turns out that investment in intellectual capital is a positive proposition as the increase in VAIC as a proxy for intellectual capital is able to increase the company's profitability. That is why companies need to pay attention to increasing the intellectual capital that they have.The limitations in this study are: the researcher only uses the intellectual capital variable on the independent variable so that it is impossible to know the effects of other financial ratios. What's more, the researcher only uses state-owned enterprises in Indonesia as a sample so that it cannot be generalized to all companies as SOE also has a duty from the state to help the welfare of the community besides seeking profit. Therefore, in future studies, researchers should try to add financial ratio variables as independent variables to complement the intellectual capital variables that have been used. Also, it is hoped that in future studies for researchers to try to use a sample of not only state-owned enterprises, but also companies in a certain index so that the results are more general due to the existence of other private sectors in Indonesia.

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